



## **Welcome to the CLU-IN Internet Seminar**

**NARPM Presents...Software Demonstration of the  
ATSDR Brownfields/Land Reuse Site Tool and the  
ATSDR Dose Calculator Tool**

**Delivered: October 4, 2011, 1:00 PM - 3:00 PM, EDT (17:00-19:00 GMT)**

*Presenters:*

*Gary D. Perlman, US Public Health Service ATSDR Region 1 (gap6@CDC.GOV, perlman.gary@epa.gov,  
or 617-918-1492)*

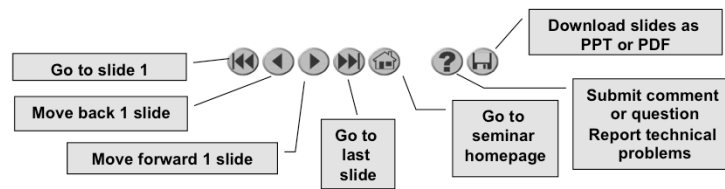
*Moderators:*

*Michael Adam, U.S. EPA, Technology Innovation and Field Services Division (adam.michael@epa.gov or  
(703) 603-9915)*

**Visit the Clean Up Information Network online at [www.cluin.org](http://www.cluin.org)**

# Housekeeping

- Please mute your phone lines, Do NOT put this call on hold
  - press \*6 to mute #6 to unmute your lines at anytime
- Q&A
- Turn off any pop-up blockers
- Move through slides using # links on left or buttons



- This event is being recorded
- Archives accessed for free <http://clu.in.org/live/archive/>

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Although I'm sure that some of you have these rules memorized from previous CLU-IN events, let's run through them quickly for our new participants.

Please mute your phone lines during the seminar to minimize disruption and background noise. If you do not have a mute button, press \*6 to mute #6 to unmute your lines at anytime. Also, please do NOT put this call on hold as this may bring delightful, but unwanted background music over the lines and interrupt the seminar.

You should note that throughout the seminar, we will ask for your feedback. You do not need to wait for Q&A breaks to ask questions or provide comments. To submit comments/questions and report technical problems, please use the ? Icon at the top of your screen. You can move forward/backward in the slides by using the single arrow buttons (left moves back 1 slide, right moves advances 1 slide). The double arrowed buttons will take you to 1<sup>st</sup> and last slides respectively. You may also advance to any slide using the numbered links that appear on the left side of your screen. The button with a house icon will take you back to main seminar page which displays our agenda, speaker information, links to the slides and additional resources. Lastly, the button with a computer disc can be used to download and save today's presentation materials.

With that, please move to slide 3.

## ***Brownfields Software Tools***

October 4, 2011

Presenter: Gary Perlman

Team: Laurel Berman and Leann Bing

Agency for Toxic Substances and  
Disease Registry (ATSDR)

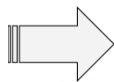
## ***Who We Are - ATSDR***

- ATSDR is a federal public health agency of the U.S. Department of Health and Human Services.
- Our goal is to prevent harmful exposures and diseases related to toxic substances.
- Our Brownfields/Land Reuse Initiative integrates public health principles into redevelopment.



# What Tools Are Available?

- Land Reuse SiteTool
- Dose Calculator
- Action Model
- DVDs – healthy redevelopment videos

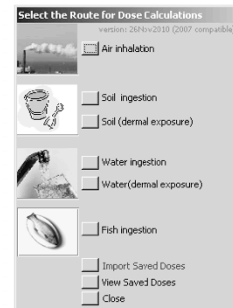
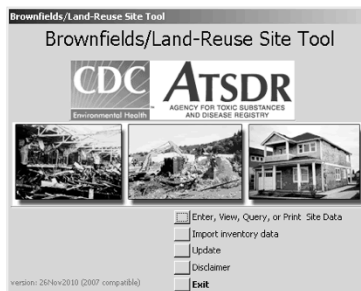
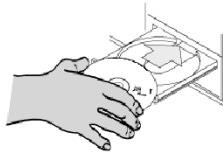


- We will focus on the Land Reuse Site Tool and Dose Calculator



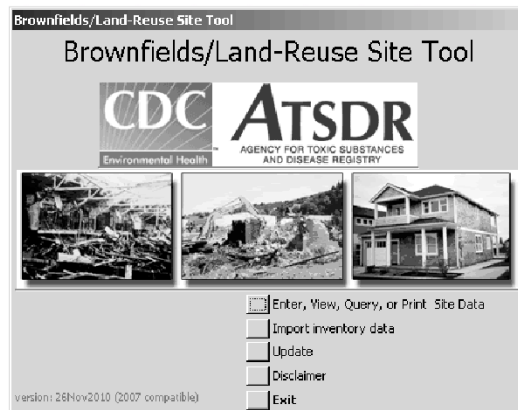
## ***Land Reuse Screening Tool***

- Can be used for Brownfields inventory
- Rapid site assessment
- Easy to use
- Uses site information to assess public health involvement.
- Includes an integrated Dose Calculator module
- Requires Microsoft® Access®



**Brownfields/Land Re-use Site Tool**

- This Tool is an inventory, rapid site screening and multiple chemical exposure dose calculating tool that allows users to assess sites by past/future use, institutional controls, sensitive populations, and suspected or confirmed contamination.

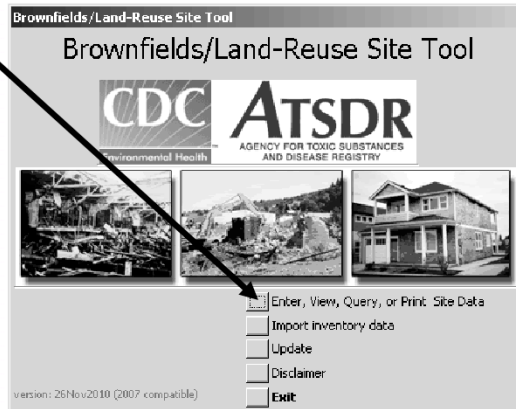


Gary

- Evaluate exposures by defining exposed populations and sub-groups, multiple exposure pathways, user specific ingestion rates for population groups or use defaults
- Calculate doses using ranges of exposure parameters, 95% confidence intervals, geometric mean, and other statistical parameters.
- Test the data for Normal/Log Normal distributions Import and process laboratory data (10,000 data points per minute throughput)
- Import site data from Excel.
- Export data.
- Query data.
- Troubleshoot analytical problems.
- Set up quality-assurance or quality-control programs.
- Compare various laboratory methods.

***Brownfields/Land Re-use Site Tool***

**Start by clicking on  
the button labeled  
“Enter, View, Query,  
or Print Site Data”**



**Click here to enter new site data.**

**Click here to View or Print saved data.**

**Click here to Query data for viewing or exporting as a CSV file.**

**Click here to close the dialog box.**



**Brownfields/Land Re-use Site Tool**

The information for each site is entered on a series of 13 screens. The screens are also known as “pages”. The first page contains information related to “Site Information”. Enter the site information, then click on the name of the next “page”.

The screenshot displays the 'Evaluation Draft Brownfields/Land-Reuse Site Tool - Data Entry Form'. The form has a title bar with 'Close' and 'Save' buttons, and a 'Scenario Name' field. Below the title bar is a tabbed interface with tabs for 'Info', 'Type', 'Data', 'Involvement', 'Future Use', 'Proximity', 'Chems', 'Concerns', 'Hazards', 'Exposures', 'Attach', 'Log', and 'Site Visit'. The 'Info' tab is selected. The form contains various input fields for site information, including Site Name, Site Address, Site City, Site State (dropdown), Site Zip, Site Latitude (LAT), Site Longitude (LONG), Site Contact Name, Site Contact Affiliation, Site Contact Phone, Site Contact Email, Institutional Controls (description), Start Date, End Date, Stewardship, Catalogue of Violations, Catalogue of Spills, Catalogue of Emergency Response(s), Size of Site, Units (dropdown), Knowledge of Property (checkboxes for State, Tribal, County, City/Town), Brownfield\_Status (dropdown), Owners (dropdown), Site Code, Date Accepted, Soil removal (tons), Site Status, Site Owner Name, File Number, Institutional\_controls\_type, GIW Removed (gals), and a checkbox for Restricted land Use. An arrow points to the 'Info' tab.

**Enter “Past type(s), Current Uses, and Adjacent site(s) information.  
Select from the list and add to the box to the right.**

Evaluation Draft Brownfields/Land Re-use Site Tool - Data Entry Form

Close Save Scenario Name ID:

Info Type Data Involvement Future Use Proximity Chems Concerns Hazards Exposures Attach Log Site Visit

☒ Past Use(s)

Site Type lookup list (press enter after you enter a new type)

Former Industrial Manufacturing Site

Hospital

Illegal Dumping

Incinerator

Lagoon/Ponds/Impoundments

Landfill/Junkyard/Dump

Leaking Underground Storage Tank (LUST / UST)

Light Bulb Mfg

Livestock Confinement Operations (CAFO)

Mall

Meth Lab

Military

Military Equipment

Mill

Mining

Mixed Use (Residential/Commercial)

Municipal

Municipal Offices

Municipal Wells

Munitions

add >>

remove <<

Select from list, or enter a new value then press enter.

Past Use(s)

Coal Gasification

Commercial

☒ Current Use(s)

Current Use(s)

Dry Cleaners

☒ Adjacent Site(s)

Adjacent Site(s)

Hospital

new type

add >>

remove <<



Enter information on this page labeled “Data” then click the next “page”. If you will be importing analytical data, save the site data first and provide a “scenario name”.

**Evaluation Draft: Brownfields/Land Re-use Site Tool - Data Entry Form**

Close Save Scenario Name: ID:

Info | Type | **Data** | Involvement | Future Use | Proximity | Chems | Concerns | Hazards | Exposures | Attach | Log | Site Visit

**Data From Various Media**

☐ Air  
☐ Biota  
☐ Soil  
☐ Well Data  
☐ Vapor Intrusion (soil gas)  
☐ Food data  
☐ Sediment data  
☐ Product Container

**Reports Available**

☐ City Historical Reports  
☐ Emergency Response  
☐ Phase One Environmental Site Assessment  
☐ Phase Two (sampling data) Environmental Site Assessment  
☐ Removal Action Memo  
☐ Pollution Report (POUREP)

☐ Contains Linked Air Data

☐ Data Available (other):

☐ Inventory Conducted Date Inventory Conducted:  
☐ Buildings on Site Construction Date of the Building(s):

☐ Subsistence Activities Observed on Site

☐ Subsistence Resources Affected

☐ Community Plan Available Community Plan (year):

Name of Interviewer: Name of People Interviewed:

**Evaluation Draft: Brownfields/Land Re-use Site Tool**

Please save the scenario before adding data.

☐ Children Attracted to Site  
☐ Animals Attracted to Site

Local Resources Available to Assist:

***Brownfields/Land Re-use Site Tool***

Enter information on this page labeled “Involvement” then click the next “page”.

Close Save Scenario Name: ID:

Info Type Data **Involvement** Future Use Proximity Chems Concerns Hazards Exposures Attach Log Site Visit

☐ Prior ATSDR Involvement by Whom, Date(s):

☐ Prior State Involvement by Whom, Date(s):

☐ Prior County Involvement by Whom, Date(s):

☐ Prior City/Town Involvement by Whom, Date(s):

☐ Prior Tribal Involvement by Whom, Date(s):

**Enter “future Use” information. Select from the list and add to the box to the right.**

**Evaluation Draft Brownfields/Land Re-use Site Tool - Data Entry Form**

Close Save Scenario Name ID:

Info Type Data Involvement **Future Use** Proximity Chems Concerns Hazards Exposures Attach Log Site Visit

Future Use Lookup List (press enter after you enter a new use)

- Agricultural
- Commercial
- Government
- Housing
- Industrial
- Manufacturing
- Mixed Use
- Open Office Park
- Recreational Park
- Sidewalk
- Skating Park

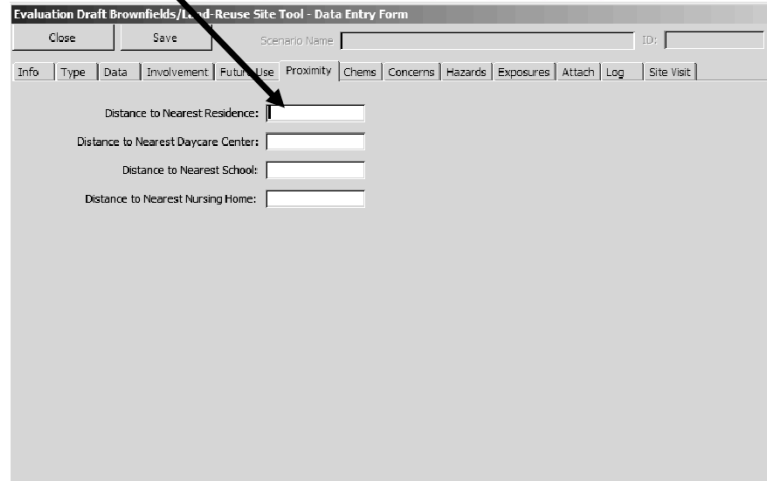
add >>

remove <<

Future Use(s)

Daycare Center  
School

**Enter information on this page labeled  
“Proximity” then click the next “page”.**



**Evaluation Draft Brownfields/Land Re-use Site Tool - Data Entry Form**

Close Save Scenario Name  ID:

Info Type Data Involvement Future Use **Proximity** Chems Concerns Hazards Exposures Attach Log Site Visit

Distance to Nearest Residence:

Distance to Nearest Daycare Centers:

Distance to Nearest School:

Distance to Nearest Nursing Home:

**Brownfields/Land Re-use Site Tool**

The information on this page is descriptive only chemical names will be saved. Select the chemical name then click “add>>” to add it to the site information to be saved. Analytical data can only be imported on the Data page.

**Evaluation Draft: Brownfields/Land-Reuse Site Tool - Data Entry Form**

Close Save Scenario Name ID:

Info Type Data Involvement Future Use Proximity Chems Concerns Hazards Exposures Attach Log Site Visit

☒ Air

Chemical (press enter after entering a new chemical)

delete this chemical add >>

CASN remove <<

Synonym

Chemical(s) in Air

1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE

☒ Soil

Chemical (press enter after entering a new chemical)

delete this chemical add >>

CASN 000050-00-0 remove <<

Synonym

Chemical(s) in Soil

FORMALDEHYDE

☒ Water

Chemical (press enter after entering a new chemical)

delete this chemical add >>

CASN 1,1-DCE remove <<

Synonym

Chemical(s) in Water

1,1-DCE

Enter health and other concerns by selecting from the list and clicking “add>>”.

**Evaluation Draft Brownfields/Land Re-use Site Tool - Data Entry Form**

Close Save Scenario Name ID:

Info Type Date Involvement Future Use Proximity Chems **Concerns** Hazards Exposures Attach Log Site Visit

Health Concern Lookup List (press enter after you enter a new concern)

☒ Health Concerns

- cancer
- cardiovascular
- death
- dermal
- endocrine
- eye
- gastrointestinal
- genitourinary
- genotoxic
- hematological
- hepatic
- immunological
- kidney
- lymphoreticular
- metabolic
- musculoskeletal
- nausea
- neurological
- non distinct aches pain
- non distinct anxiety

☒ Other Concerns

add >> remove <<

Health Concern(s)

eye irritation

Other Concern(s)

air quality  
noise

**Brownfields/Land Re-use Site Tool**

Enter information on this page labeled “Hazards” then click the next “page”. The hazards are entered by selecting from the list and clicking “add>”.

**Evaluation Draft Brownfields/Land Re-use Site Tool - Data Entry Form**

Close Save Scenario Name: ID:

Info Type Data Involvement Future Use Proximity Chems Concerns Hazards Exposures Attach Log Site Visit

**Hazards Lookup List (press enter after entering a new hazard)**

- above ground storage tanks
- asbestos containing materials
- batteries
- biohazards
- compressed gas cylinders
- dioxin
- drug/lab waste
- leakage
- light fixtures (Hg)
- other metals
- paint
- pesticides
- petroleum
- polycyclic aromatic hydrocarbons (PAH)
- radioactive waste
- tailing piles
- tires
- trash piles
- underground storage tank (UST)
- unexploded ordnance (UXO)

add >

remove <<

**Hazards on Site**

- 55-gallon drums
- debris
- transformers

**Enter information on this page labeled “Exposure”.  
Then click on the tab labeled “Attach.”**

**Evaluation Draft Brownfields/Land-Reuse Site Tool - Data Entry Form**

Close Save Scenario Name: ID:

Info Type Data Involvement Future Use Proximity Chems Concerns Hazards Exposures Attach Log Site Visit

**Potential Exposure Routes**

- ☐ Air Exposure Route
- ☐ Soil Exposure Route
- ☐ Water Exposure Route
- ☐ Sediment Exposure Route
- ☐ Soil Gas Exposure Route

**Potential Exposed Populations**

- ☐ Adults
- ☐ Children
- ☐ Elderly

Brief description of who is accessing site:

Frequency of Site Access:

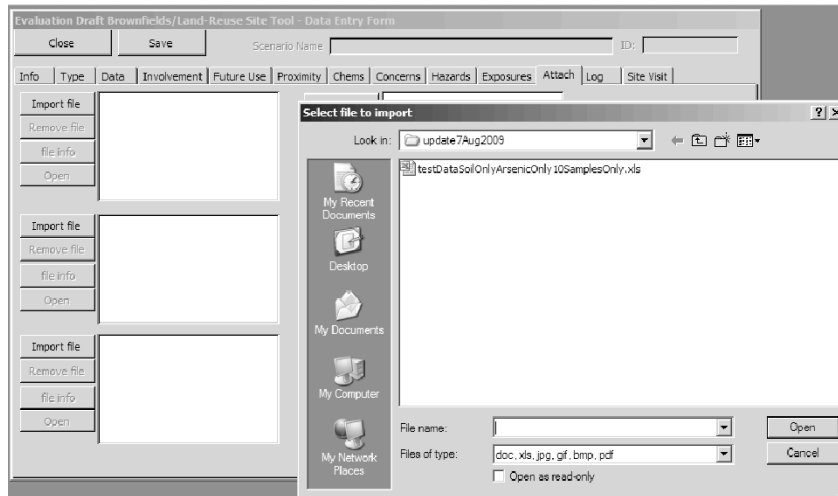
**Exposure scenarios**

- ☐ Secure Perimeter Fence
- ☐ Biking
- ☐ Skiing
- ☐ Playing
- ☐ Swimming
- ☐ Homeless Shelter

Other:



**You may attach up to 5 files (documents, spreadsheets, image files or PDF files).**



**Enter additional information about the site here.**

**Evaluation Draft Brownfields/Land-Reuse Site Tool - Data Entry Form**

Close Save Scenario Name ID:

Info Type Data Involvement Future Use Proximity Chems Concerns Hazards Exposures Attach Log Site Visit

Inquiries About Site:

Enter additional information about this site here.

**Site visit information (if available) can be entered on this page and sub-pages.**

**Evaluation Draft Brownfields/Land Re-use Site Tool Data Entry Form**

Close Save Search Site Visit ID: \_\_\_\_\_

Info Type Data Involvement Future Use Proximity Chemicals Concerns Hazards Exposures Attach Log Site Visit

☒ Enter the Visit Data

**Site Visit Information**

Status Physical Hazard/ Water Distances Sensitive Populations Contact Info Community Other Observations

☐ Active

☐ Inactive

☐ Abandoned

☐ Residential

☐ Commercial

☐ Agricultural

☐ Industrial

## Site Visit sub-pages: Physical Hazard/Water

The screenshot displays the 'Evaluation Draft Brownfields/Land Re-use Site Tool - Data Entry Form'. At the top, there are 'Close' and 'Save' buttons, followed by a 'Scenario Name' field and an 'ID' field. Below this is a horizontal menu with tabs: 'Info', 'Type', 'Data', 'Involvement', 'Future Use', 'Proximity', 'Chems', 'Concerns', 'Hazards', 'Exposures', 'Attach', 'Log', and 'Site Visit'. The 'Site Visit' tab is selected. Underneath the tabs, there is a checkbox labeled 'Enter Site Visit Data' which is checked. The main section is titled 'Site Visit Information' and contains several sub-tabs: 'Status', 'Physical Hazard/Water', 'Distances', 'Sensitive Populations', 'Contact Info', 'Community', and 'Other Observations'. The 'Physical Hazard/Water' tab is selected and highlighted with a black arrow. This sub-page is divided into two columns: 'Physical Hazards' and 'Private/Public Water Sources'. Under 'Physical Hazards', there are four checkboxes: 'Dilapidated', 'Barrels', 'Unlimited Access', and 'Pits/Ponds/Lagoons'. Under 'Private/Public Water Sources', there are three checkboxes: 'Private Wells', 'Public Surface', and 'Public Groundwater'.

Physical Hazards		Private/Public Water Sources	
<input type="checkbox"/> Dilapidated		<input type="checkbox"/> Private Wells	
<input type="checkbox"/> Barrels		<input type="checkbox"/> Public Surface	
<input type="checkbox"/> Unlimited Access		<input type="checkbox"/> Public Groundwater	
<input type="checkbox"/> Pits/Ponds/Lagoons			

## Site Visit sub-pages: Distances

The screenshot displays the 'Evaluation Draft Brownfields/Land Re-use Site Tool - Data Entry Form'. At the top, there are 'Close' and 'Save' buttons, followed by a 'Scenario Name' field and an 'ID' field. Below these are tabs for 'Info', 'Type', 'Data', 'Involvement', 'Future Use', 'Proximity', 'Chems', 'Concerns', 'Hazards', 'Exposures', 'Attach', 'Log', and 'Site Visit'. The 'Site Visit' tab is active, and a checkbox labeled 'Enter Site Visit Data' is checked. Under the 'Site Visit Information' heading, there are several sub-tabs: 'Status', 'Physical Hazard/ Water', 'Distances', 'Sensitive Populations', 'Contact Info', 'Community', and 'Other Observations'. The 'Distances' sub-tab is selected, showing four rows of input fields. Each row consists of a text input field, a label, another text input field, and a unit label. The labels are 'Distance to Residence', 'Distance to Day Care Center', 'Distance to School', and 'Distance to Nursing Home'. The unit labels are 'units (feet, miles, meters, etc)'. An arrow points from the 'Distances' sub-tab label to the first input field in the first row.

Distance to Residence	units (feet, miles, meters, etc)
Distance to Day Care Center	units (feet, miles, meters, etc)
Distance to School	units (feet, miles, meters, etc)
Distance to Nursing Home	units (feet, miles, meters, etc)

## Site Visit sub-pages: Sensitive Populations

The screenshot shows the 'Evaluation Draft Brownfields/Land Re-use Site Tool - Data Entry Form'. At the top, there are buttons for 'Close' and 'Save', followed by a 'Scenario Name' field and an 'ID' field. Below these are tabs for 'Info', 'Type', 'Data', 'Involvement', 'Future Use', 'Proximity', 'Chemical', 'Concerns', 'Hazards', 'Exposures', 'Attach', 'Log', and 'Site Visit'. The 'Site Visit' tab is active, and a sub-tab 'Sensitive Populations' is selected, indicated by an arrow. Below the sub-tab is a section titled 'Sensitive Populations' containing two columns of checkboxes. The first column includes 'Childbearing Women', 'Pregnant Women', 'Fetus', 'Infants', 'Children', 'Men', and 'Women'. The second column includes 'Elderly', 'Tobacco User', 'Low Nutritional', 'Compromised Organ Systems', 'Altered Metabolic Function', 'On Medication', 'Ethanol User', and 'Chemical Sensitivity'.

Close Save Scenario Name ID:

Info Type Data Involvement Future Use Proximity Chemical Concerns Hazards Exposures Attach Log Site Visit

☒ Enter Site Visit Data

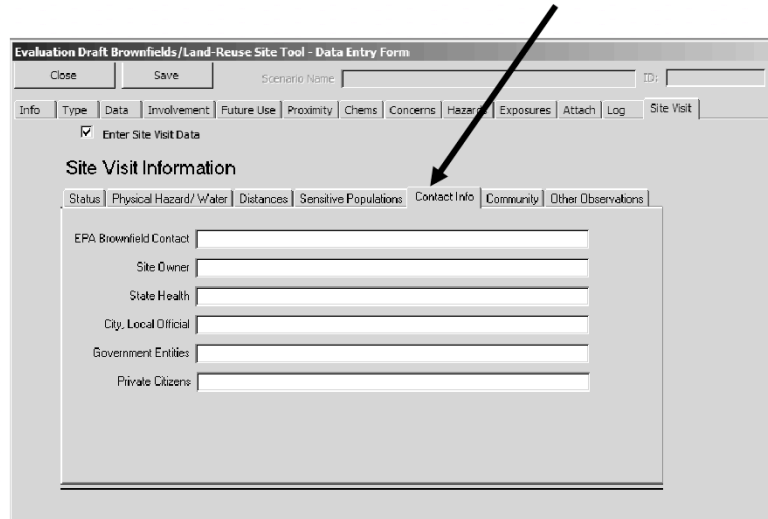
Site Visit Information

Status Physical Hazard/Water Distances **Sensitive Populations** Contact Info Community Other Observations

Sensitive Populations

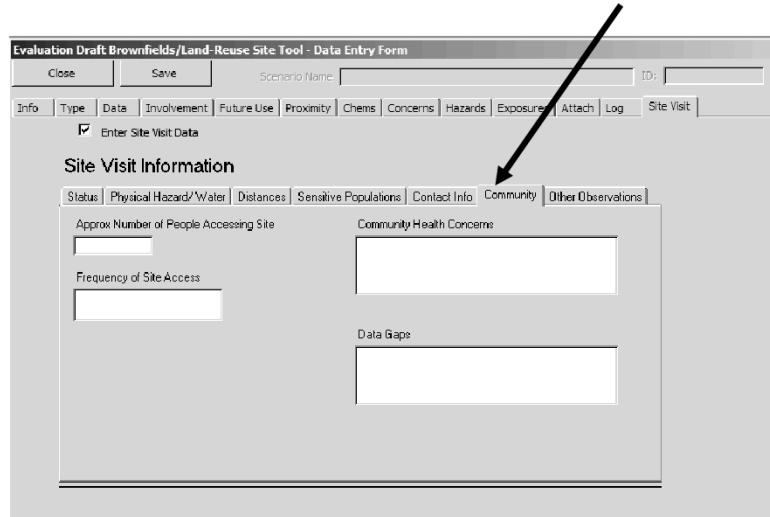
<input type="checkbox"/> Childbearing Women	<input type="checkbox"/> Elderly
<input type="checkbox"/> Pregnant Women	<input type="checkbox"/> Tobacco User
<input type="checkbox"/> Fetus	<input type="checkbox"/> Low Nutritional
<input type="checkbox"/> Infants	<input type="checkbox"/> Compromised Organ Systems
<input type="checkbox"/> Children	<input type="checkbox"/> Altered Metabolic Function
<input type="checkbox"/> Men	<input type="checkbox"/> On Medication
<input type="checkbox"/> Women	<input type="checkbox"/> Ethanol User
	<input type="checkbox"/> Chemical Sensitivity

## Site Visit sub-pages: Contact Info



The screenshot displays the 'Evaluation Draft Brownfields/Land Re-use Site Tool - Data Entry Form'. At the top, there are buttons for 'Close' and 'Save', followed by a 'Scenario Name' field and an 'ID' field. Below these are several tabs: 'Info', 'Type', 'Data', 'Involvement', 'Future Use', 'Proximity', 'Chems', 'Concerns', 'Hazard', 'Exposures', 'Attach', 'Log', and 'Site Visit'. The 'Site Visit' tab is selected, and a sub-tab 'Enter Site Visit Data' is also selected. The main section is titled 'Site Visit Information' and contains a series of sub-tabs: 'Status', 'Physical Hazard/ Water', 'Distances', 'Sensitive Populations', 'Contact Info', 'Community', and 'Other Observations'. The 'Contact Info' sub-tab is active, showing a list of contact categories with corresponding input fields: 'EPA Brownfield Contact', 'Site Owner', 'State Health', 'City, Local Official', 'Government Entities', and 'Private Citizens'. An arrow points from the 'Contact Info' sub-tab to the 'Contact Info' tab in the sub-tab bar.

## Site Visit sub-pages: Community



The screenshot displays the 'Evaluation Draft Brownfields/Land Re-use Site Tool - Data Entry Form'. At the top, there are buttons for 'Close' and 'Save', followed by a 'Scenario Name' field and an 'ID' field. Below these are several tabs: 'Info', 'Type', 'Data', 'Involvement', 'Future Use', 'Proximity', 'Chems', 'Concerns', 'Hazards', 'Exposure', 'Attach', 'Log', and 'Site Visit'. The 'Site Visit' tab is active, and within it, the 'Community' sub-tab is selected. A black arrow points to the 'Community' sub-tab. Below the tabs, there is a checkbox labeled 'Enter Site Visit Data' which is checked. The main content area is titled 'Site Visit Information' and contains three input fields: 'Approx Number of People Accessing Site', 'Frequency of Site Access', and 'Community Health Concerns'. There is also a 'Data Gape' field.



## Site Visit sub-pages: Other Observations

The screenshot displays the 'Evaluation Draft Brownfields/Land Re-use Site Tool - Data Entry Form'. At the top, there are buttons for 'Close' and 'Save', followed by input fields for 'Scenario Name' and 'ID:'. Below these are several tabs: 'Info', 'Type', 'Data', 'Involvement', 'Future Use', 'Proximity', 'Chems', 'Concerns', 'Hazards', 'Exposures', 'Attach', 'Log', and 'Site Visit'. The 'Site Visit' tab is selected, and a sub-tab 'Enter Site Visit Data' is also selected. Under 'Enter Site Visit Data', there is a section titled 'Site Visit Information' with several sub-tabs: 'Status', 'Physical Hazard/Water', 'Distances', 'Sensitive Populations', 'Contact Info', 'Community', and 'Other Observations'. The 'Other Observations' sub-tab is selected, and a black arrow points to it. The 'Other Observations' sub-tab contains a large text area labeled 'OtherObservations:' with a scroll bar.

**Brownfields/Land Re-use Site Tool**

Click on Save, then enter a scenario name.

Close Save Scenario Name ID#

Info Type Data Involvement Future Use

☒ Enter Site Visit Data

Site Visit Information

Status Physical Hazard/ Water Distance

Other Observations:

Enter a scenario name OK Cancel

Parcel 11c Northville MA

**Importing analytical data. Click on the “Data” page, then click on “Add Data To Scenario”.**

Close Save Scenario Name: Parcel 11c Northville MA ID:

Info Type **Data** Involvement Future Use Proximity Chems Concerns Hazards Exposures Attach Log Site Visit

**Data From Various Media**

- ☐ Air
- ☐ Biota
- ☐ Soil
- ☐ Well Data
- ☐ Vapor Intrusion (soil gas)
- ☐ Food data
- ☐ Sediment data
- ☐ Product Container

**Reports Available**

- ☐ City Historical Reports
- ☐ Emergency Response
- ☐ Phase One Environmental Site Assessment
- ☐ Phase Two (sampling data) Environmental Site Assessment
- ☐ Removal Action Memo
- ☐ Pollution Report (POLREP)

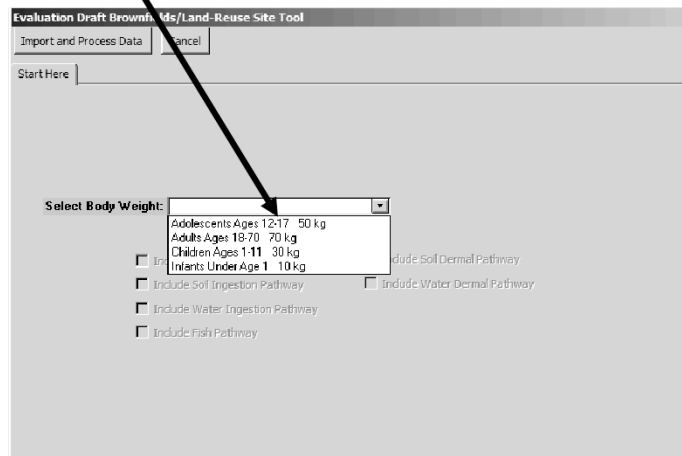
**Add Data To Scenario**

Click this to import data from an Excel file.

- ☐ Contains Linked Soil Data
- ☐ Contains Linked Water Data
- ☐ Contains Linked Fish Data

Data Available (other):

Select body weight for the dose calculations that will be conducted on the imported data.



Evaluation Draft Brownfields/Land Re-use Site Tool

Import and Process Data Cancel

Start Here

Select Body Weight:

- Adolescents Ages 12-17 50 kg
- Adults Ages 18-70 70 kg
- Children Ages 1-11 30 kg
- Infants Under Age 1 10 kg

☐ Include Soil Ingestion Pathway

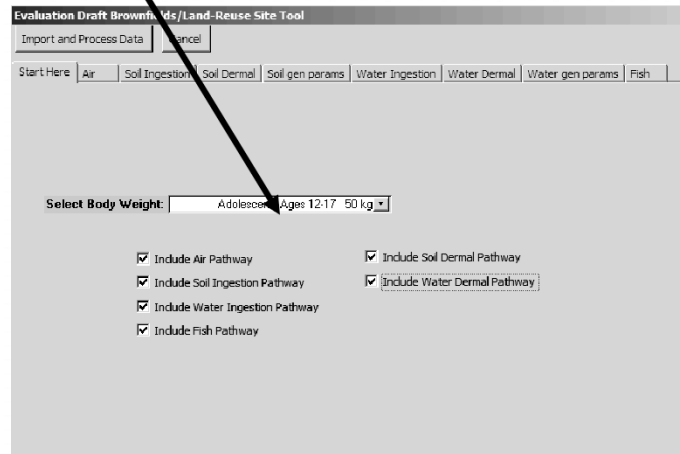
☐ Include Water Ingestion Pathway

☐ Include Fish Pathway

☐ Include Soil Dermal Pathway

☐ Include Water Dermal Pathway

Then select the pathways to analyze. The database will check for each pathway in the datafile.



The screenshot shows the 'Evaluation Draft Brownfields/Land-Reuse Site Tool' window. At the top, there are buttons for 'Import and Process Data' and 'Cancel'. Below these is a 'Start Here' section with a series of tabs: 'Air', 'Soil Ingestion', 'Soil Dermal', 'Soil gen params', 'Water Ingestion', 'Water Dermal', 'Water gen params', and 'Fish'. The 'Air' tab is currently selected. In the center, there is a 'Select Body Weight:' label followed by a dropdown menu showing 'Adolescent Ages 12-17 50 kg'. Below this, there are six checkboxes, all of which are checked: 'Include Air Pathway', 'Include Soil Ingestion Pathway', 'Include Water Ingestion Pathway', 'Include Fish Pathway', 'Include Soil Dermal Pathway', and 'Include Water Dermal Pathway'. A black arrow points from the text above to the 'Include Air Pathway' checkbox.

**Enter the pathway-specific parameters.**

The screenshot shows the 'Evaluation Draft Brownfields/Land Re-use Site Tool' window. At the top, there are buttons for 'Import and Process Data' and 'Cancel'. Below these is a tabbed interface with the following tabs: 'Start Here', 'Air', 'Soil Ingestion', 'Soil Dermal', 'Soil gen params', 'Water Ingestion', 'Water Dermal', 'Water gen params', and 'Fish'. The 'Air' tab is currently selected. The main area of the window is a light gray. In the center, there is a label 'Exposure Duration (in years):' followed by a text input field containing the number '5'. An arrow from the text 'Enter the pathway-specific parameters.' points to the 'Air' tab.

**Enter the pathway-specific parameters.**

The screenshot shows the 'Evaluation Draft Brownfields/Land Re-use Site Tool' window. At the top, there are buttons for 'Import and Process Data' and 'Cancel'. Below these is a row of tabs: 'Start Here', 'Air', 'Soil Ingestion', 'Soil Dermal', 'Soil gen params', 'Water Ingestion', 'Water Dermal', 'Water gen params', and 'Fish'. The 'Soil Ingestion' tab is selected and highlighted. An arrow points from the text 'Enter the pathway-specific parameters.' to this tab. The main content area of the 'Soil Ingestion' tab is titled 'Soil Intake:' and contains two radio button options. The first option is 'Enter Soil Intake Rate/day' with a text input field and the unit 'mg/day'. The second option is 'Use Standard Intake Rate' with a dropdown menu showing '200 mg/day - Child average'.

**Enter the pathway-specific parameters. (Select areas exposed to contaminants).**

Import and Process Data Cancel

Start Here Air Soil Ingestion Soil Dermal Water gen params Water Ingestion Water Dermal Water gen params Fish

A = Total Soil Adhered (mg) = Exposed Skin Area x Soil Adherence Conc:

☐ Head ☒ Torso ☒ Arms ☒ Hands ☒ Legs ☒ Feet

A = Exposed Skin Area: 1.36E+04 x Soil Adherence Concentration 0.2

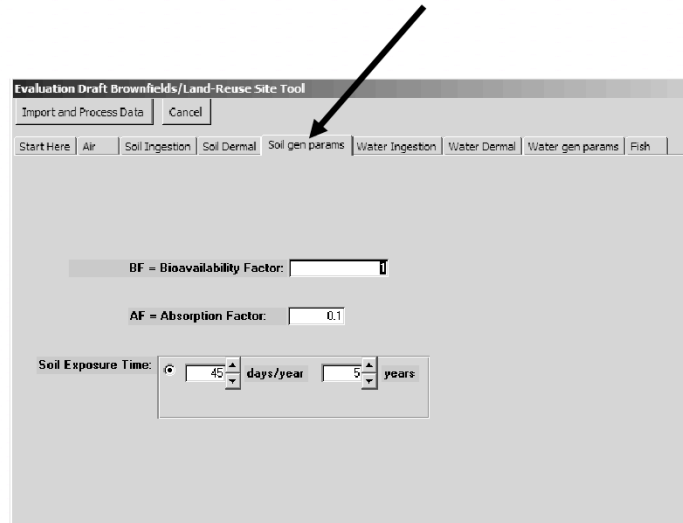
A = 2.76E+03

Total Surface Area (SA) (cm2): 15238

Head (% of total SA)	9.30%
Torso (% of total SA)	32.70%
Arms (% of total SA)	12.43%
Hands (% of total SA)	5.30%
Legs (% of total SA)	32.53%
Feet (% of total SA)	7.66%



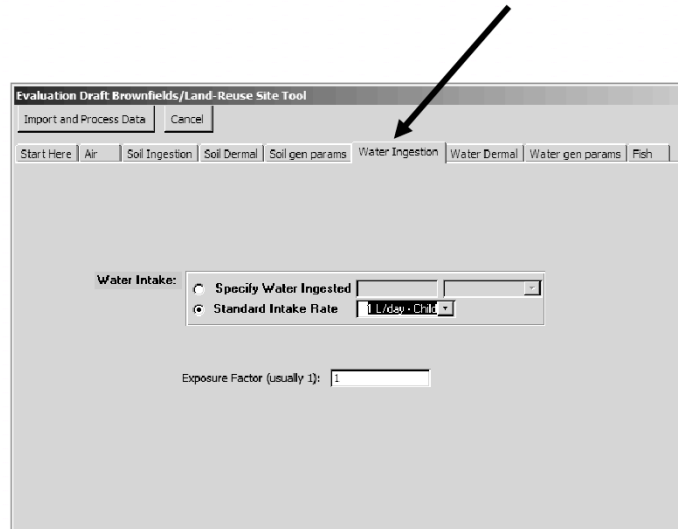
**Enter the pathway-specific parameters.**



The screenshot shows the 'Evaluation Draft Brownfields/Land Re-use Site Tool' interface. At the top, there is a title bar and a menu bar with 'Import and Process Data' and 'Cancel'. Below the menu bar is a tabbed interface with the following tabs: 'Start Here', 'Air', 'Soil Ingestion', 'Soil Dermal', 'Soil gen params', 'Water Ingestion', 'Water Dermal', 'Water gen params', and 'Fish'. An arrow points to the 'Soil gen params' tab. The main area of the tool displays the following parameters:

- BF = Bioavailability Factor:** A text input field with the value '1'.
- AF = Absorption Factor:** A text input field with the value '0.1'.
- Soil Exposure Time:** A section containing two spinners. The first spinner is labeled '6' and has a value of '45' with 'days/year' next to it. The second spinner is labeled '5' and has a value of '5' with 'years' next to it.

**Enter the pathway-specific parameters.**



Evaluation Draft: Brownfields/Land-Reuse Site Tool

Import and Process Data Cancel

Start Here Air Soil Ingestion Soil Dermal Soil gen params **Water Ingestion** Water Dermal Water gen params Fish

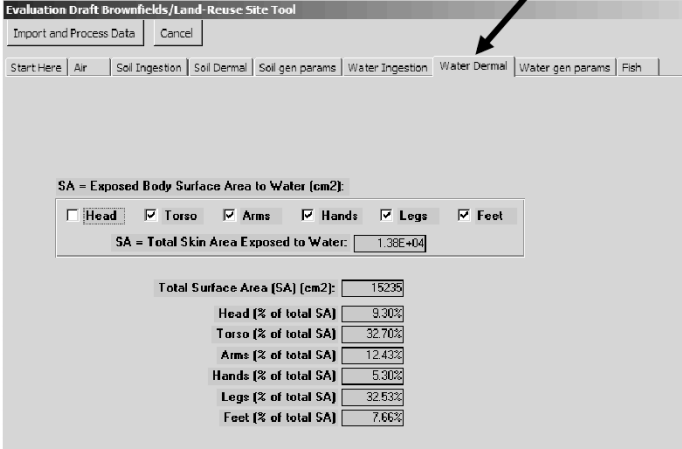
Water Intake:

☐ Specify Water Ingested

☒ Standard Intake Rate

Exposure Factor (usually 1):

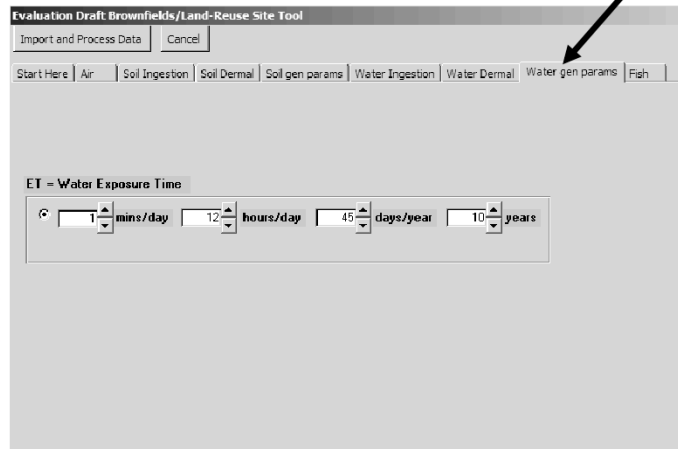
Enter the pathway-specific parameters.



The screenshot shows the 'Evaluation Draft Brownfields/Land Re-use Site Tool' interface. The 'Water Dermal' tab is selected, as indicated by an arrow. The interface includes a tabbed menu at the top with options: Start Here, Air, Soil Ingestion, Soil Dermal, Soil gen params, Water Ingestion, Water Dermal, Water gen params, and Fish. Below the tabs, the 'SA = Exposed Body Surface Area to Water (cm2):' section is visible. It contains a row of checkboxes for 'Head', 'Torso', 'Arms', 'Hands', 'Legs', and 'Feet'. The 'SA = Total Skin Area Exposed to Water:' field displays '1.36E+04'. Below this, a table lists the 'Total Surface Area (SA) (cm2)' and the percentage of total SA for each body part.

Body Part	Total Surface Area (SA) (cm2)	% of total SA
Head	15235	9.30%
Torso	32703	32.70%
Arms	12433	12.43%
Hands	5303	5.30%
Legs	32533	32.53%
Feet	7663	7.66%

**Enter the pathway-specific parameters.**



The screenshot shows the 'Evaluation Draft Brownfields/Land-Reuse Site Tool' interface. The 'Water gen params' tab is selected, and an arrow points to it. The 'ET = Water Exposure Time' section is visible, showing input fields for 1 mins/day, 12 hours/day, 45 days/year, and 10 years.

Parameter	Value	Unit
ET (mins/day)	1	mins/day
ET (hours/day)	12	hours/day
ET (days/year)	45	days/year
ET (years)	10	years

Enter the pathway-specific parameters.

**Evaluation Draft Brownfields/Land-Reuse Site Tool**

Import and Process Data Cancel

Start Here Air Soil Ingestion Soil Dermal Soil gen params Water Ingestion Water Dermal Water gen params **Fish**

**Intake Rate of Contaminated Fish:**

☐ Calculate Rate Based on Amount of Fish Per Day Consumed Over Time  
[ ] [ ] for [ ] days/year over [ ] years

☐ Calculate Rate Based on Fish Meals Per Week Consumed Over Time  
[ ] [ ] for [ ] meals/week and [ ] weeks/year for [ ] years

☒ Use Standard Intake Rate:  
[25,000 mg/day - Recreational fishers (freshwater fish), 95th percentile n= ] [ ] years

AF = Absorption Factor: [0.1]

Click on “Import and Process Data”. The data will be imported from a previously formatted file. The data must be formatted using the companion tool “Data Conversion Tool” (see next 12 slides).

Evaluation Draft - Brownfields/Land Re-use Site Tool

Import and Process Data Cancel

Start Here Air Soil Ingestion Soil Dermal Soil gen params Water Ingestion Water Dermal Water gen params Fish

Intake Rate of Contaminated Fish:

☐ Calculate Rate Based on Amount of Fish Per Day Consumed Over Time  
[ ] days/year over [ ] years

☐ Calculate Rate Based on Fish Meals Per Week Consumed Over Time  
[ ] meals/week and [ ] weeks/year for [ ] years

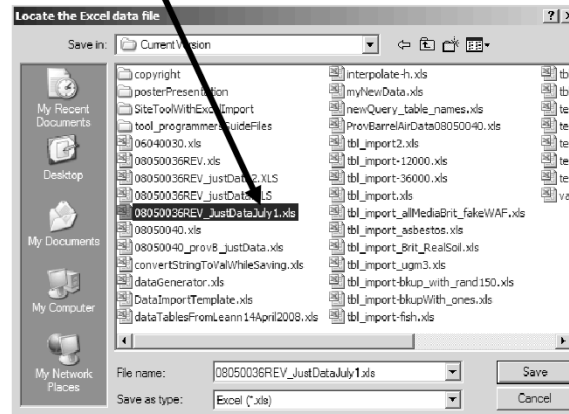
☒ Use Standard Intake Rate:  
[25,000 mg/day - Recreational fishers (freshwater fish), 95th percentile n=...] [3] years

AF = Absorption Factor: [0.1]

If there are no errors in the exposure parameters the following dialog will be displayed, otherwise the error(s) will be identified.

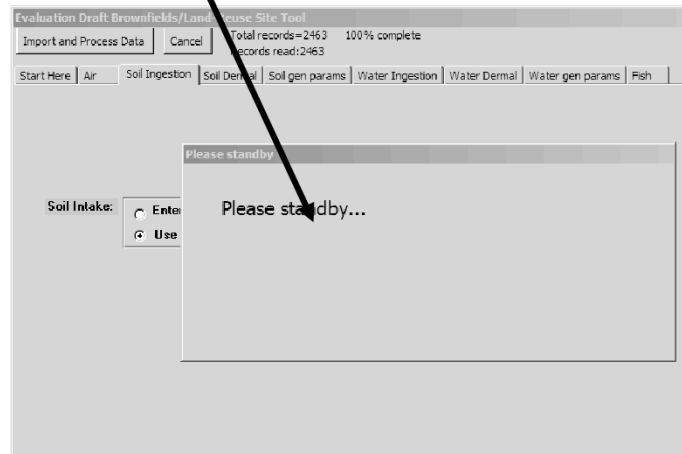


**Locate the spreadsheet then click save. This system is only able to import xls files.**

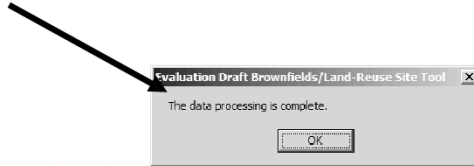




**The number of records will be display along with the percent of all records read.**



**If there are any errors in the data (missing heading file, incorrect media, etc) they will be displayed. Otherwise, the dialog listed below will be displayed.**



**Save the data, then click on Close.**

**Evaluation Draft Brownfields/Land Re-use Site Tool - Data Entry Form**

Close Save Scenario Name: Parcel 11c Northville MA ID:

Info Type Data Involvement Future Use Proximity Chems Concerns Hazards Exposures Attach Log Site Visit

**Data From Various Media**

- ☐ Air
- ☐ Biota
- ☐ Soil
- ☐ Well Data
- ☐ Vapor Intrusion (soil gas)
- ☐ Food data
- ☐ Sediment data
- ☐ Product Container

**Reports Available**

- ☐ City Historical Reports
- ☐ Emergency Response
- ☐ Phase One Environmental Site Assessment
- ☐ Phase Two (sampling data) Environmental Site Assessment
- ☐ Removal Action Memo
- ☐ Pollution Report (POLREP)

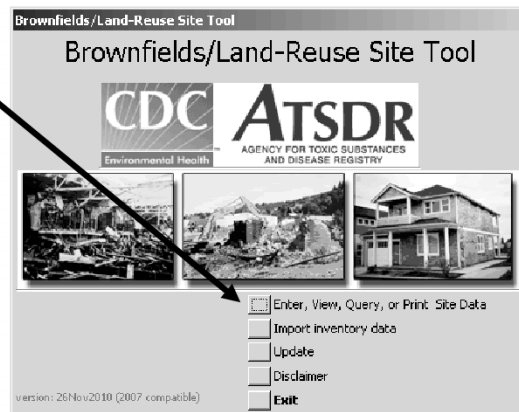
**Add Data To Scenario**

Click this to import data from an Excel file.

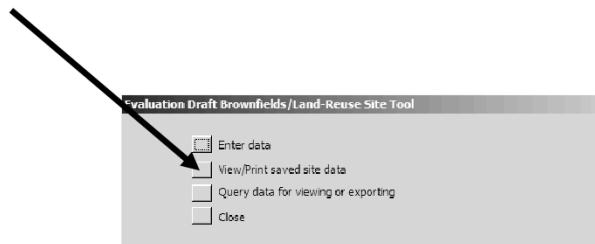
- ☐ Contains Linked Soil Data
- ☐ Contains Linked Water Data
- ☐ Contains Linked Fish Data

Data Available (other):

**To view and print the processed data, click on the top button.**



**Click on View/Print site data**



The most recent site will be the last record. Use the query function to search for a specific record.

A checkboxes indicates there are site visit data and linked imported analytical data for viewing

The data from these (287) records can be exported to a CSV file. Use the Query function to select specific records.

The record displayed can be edited or deleted.

View and print the site data and site visit data (if available).

The screenshot shows the 'Evaluation Draft Brownfields/Land Re-use Site Tool' window. It contains several sections: 'Site Information' with fields for Site Name (Parcel 11c), Address, City (Northville), State (MASSACHUSETTS), and Scenario Name (Parcel 11c Northville MA); 'Data Linkage' with checkboxes for 'Contains Linked Site Visit Data' (checked), 'Contains Linked Air Data', 'Contains Linked Soil Data' (checked), 'Contains Linked Water Data', and 'Contains Linked Fish Data'; 'Export' with a button 'Export Record(s) as a comma delimited file'; 'Actions' with 'Edit Record' and 'Delete Record' buttons; 'Site Data Reports' with 'Site Data' and 'Site Visit' buttons; and 'Environmental Sampling Reports' with buttons for 'Air Data', 'Soil Data', 'Fish Data', and 'Water Data'. At the bottom, there are checkboxes for 'Maximum Values', 'Average Values', 'Geometric Mean Values', 'SSUCL (untransformed data with normality test)', and 'SSUCL (Log transformed data with normality test)'. A 'Close' button is at the bottom right. The status bar at the bottom indicates 'Records: 14 of 287'. Arrows from the text blocks point to the 'Contains Linked Site Visit Data' checkbox, the 'Export Record(s) as a comma delimited file' button, the 'Edit Record' button, the 'Site Data' and 'Site Visit' buttons, and the status bar.

**The most recent site will be the last record. Use the query function to search for a specific record.**

Site Name: Parcel 11c

Address:

City: Northville State: MASSACHUSETTS

Scenario Name: Parcel 11c Northville MA

☒ Contains Linked Site Visit Data ☐ Contains Linked Air Data

☒ Contains Linked Soil Data ☐ Contains Linked Water Data

☐ Contains Linked Fish Data

Export Record(s) as a comma delimited file

Edit Record Delete Record

Site Data Reports: Site Data Site Visit

Environmental Sampling Reports: Air Data Soil Data Fish Data Water Data

☐ Maximum Values ☐ 95UCL (untransformed data with normality test)

☐ Average Values ☐ 95UCL (Log transformed data with normality test)

☐ Geometric Mean Values

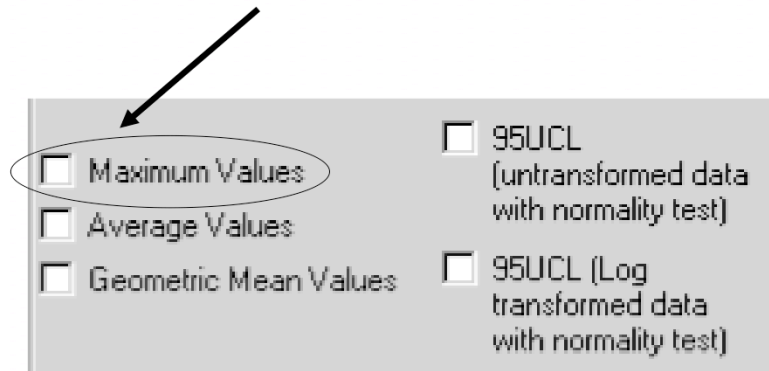
Close

Records: 14 of 287

View and print the analytical dose calculations report for available media

View and print various reports. The dose calculation in each report is based on the statistical parameter in the report name (e.g., view the dose calculation based on the Maximum).

## Reports – Maximum Values



☒ Maximum Values  
☐ Average Values  
☐ Geometric Mean Values  
☐ 95UCL (untransformed data with normality test)  
☐ 95UCL (Log transformed data with normality test)



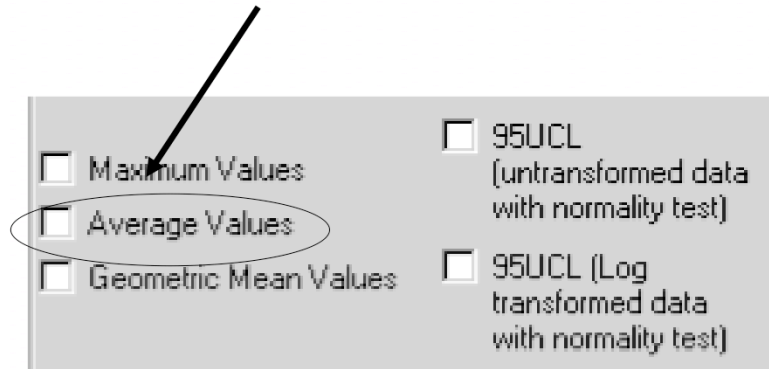
## Reports – Maximum values used in the calculations

*Soil-Results based on the maximum values.*

bw: 5.00E+01 IR: 2.00E+02 A: 0.00E+00 BF: 1.00E+00 SA: 0.00E+00  
 AF: 1.00E+01 EF: 1.23E+01 ED yrs: 5.00E+00 limbs:

Chemical	CASN	Units	CV name	CV value	>CV	N	#ND	#non ND>CV	MXConc	Ing Dose	DermalDose	IngestCa	DermCa
<i>Actual data are above a CV value.</i>													
Arsenic	007440-38-2	ppm	Soil CREG SE-01		Y	11	0	11	1.9E+01	7.6E-05		6.1E-06	
acute MRL: 5.E-03													
int MRL: n/a													
chr MRL: 3.E-04													
min=2.7E+0, Q1=4.8E+0, median=8.8E+0, arithmetic mean=7.8E+0, Q3=1.0E+1, max=1.9E+1, range=1.6E+1													
SD: ..... Q1 ..... Q3 ..... .NDX													
CV: ..... .NDX													

## Reports – Average Values



☐ Maximum Values

☒ Average Values

☐ Geometric Mean Values

☐ 95UCL  
(untransformed data  
with normality test)

☐ 95UCL (Log  
transformed data  
with normality test)

Brownfields/Land Re-use Site Tool

Reports – Average (arithmetic mean) values used in the calculations

Soil-Results based on the arithmetic mean.

bw: 5.00E+01

IR: 2.00E+02

A: 0.00E+00

BF: 1.00E+00

SA: 0.00E+00

AF: 1.00E+01

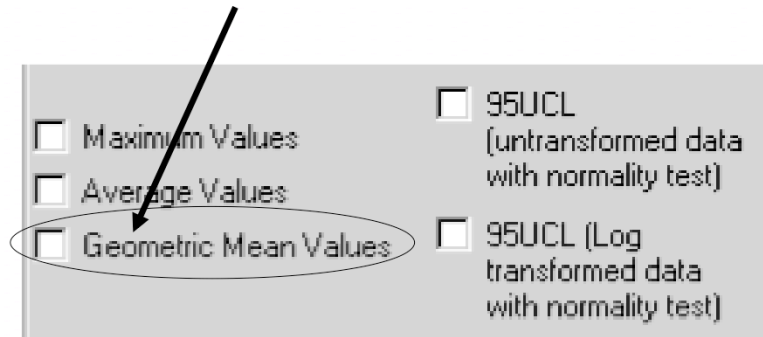
EF: 1.23E+01

ED<sub>15</sub>: 5.00E+00

limbs:

Chemical	CASN	Units	CV name	CV value	>CV	N	#ND	# non ND>CV	Avg Conc	Ing Dose	DermalDose	IngestCa	DermCa
Actual data are above a CV value													
Arsenic	007440-38-2	ppm	Soil CREG	5E-01	Y	11	0	11	7.8E+00	3.1E-05			3.3E-08
acute MRL: 5.E-03													
int MRL: n/a													
chr MRL: 3.E-04													
min=2.7E+0, Q1=4.5E+0, median=6.5E+0, arithmetic mean=7.5E+0, Q3=1.0E+1, max=1.9E+1, range=1.6E+1													
CV:.....													

## Reports – Geometric Mean Values



☐ Maximum Values

☐ Average Values

☐ Geometric Mean Values

☐ 95UCL  
(untransformed data  
with normality test)

☐ 95UCL (Log  
transformed data  
with normality test)

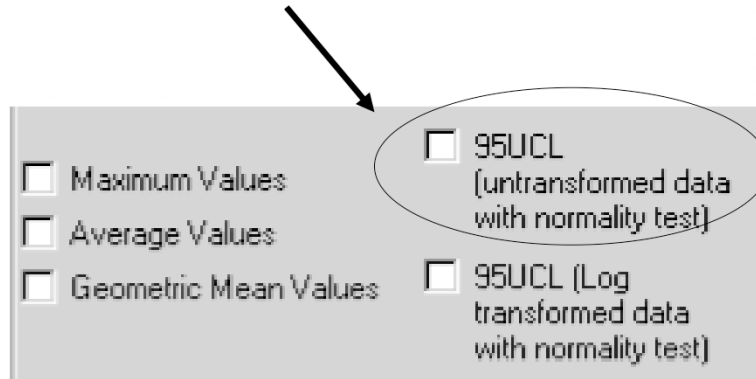
Reports – Geometric Mean values used in the calculations

*Soil-Results based on the geometric mean.*

*bw:* 5.00E+01    *IR:* 2.00E+02    *A:* 0.00E+00    *BF:* 1.00E+00    *S4:* 0.00E+00  
*AF:* 1.00E+01    *EF:* 1.23E-01    *ED\_yrs:* 5.00E+00    *Imbi:*

Chemical	CASN	Units	CV name	CV value	>CV	N	#ND	#non ND>CV	GMConc	Ing Dose	DermalDose	IngestCa	DermCa
<u>Actual data are above a CV value</u>													
Arsenic	007440-38-2	ppm	Soil CREG SE-01		Y	11	0	11	6.9E+00	2.7E-05		2.9E-06	
acute MRL: 5.E-03 int MRL: n/a chr MRL: 3.E-04 min=2.7E+0, Q1=4.9E+0, median=6.9E+0, arithmetic mean=7.9E+0, Q3=1.0E+1, max=1.9E+1, range=1.6E+1 MR .....Q1.....Q2.....Q3..... CV .....													

## Reports – 95 UCL (untransformed data)



☐ Maximum Values

☐ Average Values

☐ Geometric Mean Values

☐ 95UCL (untransformed data with normality test)

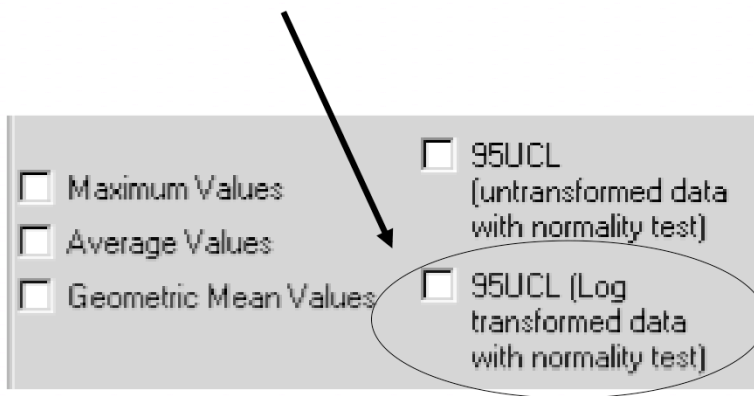
☐ 95UCL (Log transformed data with normality test)

### ***Brownfields/Land Re-use Site Tool***

**Reports –95 UCL (untransformed data) values used in the calculations**

Soil-Results based on the 95% UCL of the arithmetic mean values.									
Chemical	CAS#	Unit	CV name	CV value	>CV	N	#ND	# non ND>CV	UCL
Benzo(a)anthracene	000058-55-3	ppm	PRG ResSol	1E-01	Y	12	0	12	2.0E+01
acute MRL: n/a int MRL: n/a chr MRL: n/a min=1.2E+0, q1=2.1E+0, median=6.5E+0, arithmetic mean=9.5E+0, q3=7.5E+0, max=6.5E+1, range=6.4E+1 MW=142.04 CV ..... W-Stat=4.5e-1 p-value=8.2e-6 p-value is < 0.05. These data are not normally distributed.									

## Reports – 95 UCL (Log transformed data)



☐ Maximum Values  
☐ Average Values  
☐ Geometric Mean Values  
☐ 95UCL (untransformed data with normality test)  
☐ 95UCL (Log transformed data with normality test)



Brownfields/Land Re-use Site Tool

Reports –95 UCL (Log transformed data) values used in the calculations

Soil-Results based on the 95% UCL of the Log transformed values.														bw: 5.00E+01	IR: 2.00E+02	A: 0.00E+00	BF: 1.00E+00	SA: 0.00E+00
														AF: 1.00E-01	EF: 1.23E-01	ED_yrs: 5.00E+00	limits:	
Chemical	CASN	Units	CV name	CV value	>CV	N	#ND	# non ND>CV	UCL_log	Ing Dose	DermalDose	IngestCa	DermCa					
Actual data are above a CV value																		
Arsenic	007440-38-2	ppm	Soil CREG SE-01		Y	11	0	11	1.2E+01	4.6E-05		5.0E-06						
										acute MRL: 5.E-03								
										int MRL: n/a								
										chr MRL: 3.E-04								
										min=2.7E+0, Q1=4.5E+0, median=6.5E+0, arithmetic mean=7.6E+0, Q3=1.0E+1, max=1.9E+1, range=1.6E+1								
										SD: .....Q2.....Q3.....								
										CV: .....JEE								
														W-Stat=9.7e-1	p-value=8.4e-1	These data are Log-normally distributed.		

## Brownfields/Land Re-use Site Tool

## Dose report - interpretation Key 1 of 5

"CV"= comparison value

">CV"= Number of data points above the comparison value

"N"= Number of data points

"#ND"= Number of data points that are non detect

"#non ND>CV"= Number of data points that contained a value that was above the CV

"MXConc"= Maximum concentration

"Ing Dose"= Ingestion dose based on the Maximum Concentration

"DermalDose"= Dermal dose based on the Maximum Concentration

"IngestCa"= Ingestion cancer risk based on exposure parameters using the Maximum Concentration

"DermCa"= Dermal cancer risk based on exposure parameters using the Maximum Concentration

## Soil-Results based on the maximum values.

Soil-Results based on the maximum values.														bw: 5.00E+01 IR: 2.00E+02 A: 2.76E+03 BF: 1.00E+00 SA: 1.38E+04			
														AF: 1.00E+01 EF: 1.23E-01 ED yrs: 5.00E+00 Limb: torso,arms,hand,legs,feet			
Chemical	CASN	Units	CV name	CV value	>CV	N	#ND	# non ND>CV	MXConc	Ing Dose	DermalDose	IngestCa	DermCa				
<u>Actual data are above a CV value</u>																	
Arsenic	007440-38-2	ppm	Soil CREG	5E-01	Y	16	0	16	3.1E+01	1.2E-04	2.1E-05	1.3E-05	2.3E-06				
									acute MRL: 5.E-03								
									int MRL: n/a								
									chr MRL: 3.E-04								
									min=1.7E+0, Q1=4.6E+0, median=5.1E+0, arithmetic mean=7.6E+0, Q3=8.7E+0, max=8.1E+1, range=2.7E+1								
									ND%100: .....Q3: .....MX								
									CV: .....								
Benzo(a)anthracene	000056-55-3	ppm	PRG ResSoil	1E-01	Y	16	14	2	8.3E-01	3.3E-06	5.7E-07						
									acute MRL: n/a								
									int MRL: n/a								
									chr MRL: n/a								

## Brownfields/Land Re-use Site Tool

## Dose report - interpretation Key 2 of 5

"bw"= Body weight (kg)  
 "AF"= Absorption fraction (unitless)  
 "IR"= Ingestion rate (mg/day)  
 "EF"=Exposure factor (unitless)  
 "ED\_yrs"=Exposure duration (yrs)  
 "BF"=Bioavailability factor (unitless)  
 "SA"=Surface Area (cm^2)  
 "A"= Total soil adhered (exposed skin \* soil adherence concentration) (mg)  
 "limbs"=Areas of the body that were selected for the exposure scenario

Soil-Results based on the maximum values.													
					bw: 5.00E-01	IR: 2.00E-02	A: 2.70E+03	BF: 1.00E+00	Sd: 1.38E-04				
Chemical	CASN	Units	CV name	CV value	AF: 1.00E-01	>CV	N	#ND	# non ND>CV	ED_ys: 5.00E+00	limbs: torso,arms,hands/legs,feet		
Actual data are above a CV value													
Arsenic	007440-35-2	ppm	Soil CREG	5E-01	Y	16	0	16	3.1E-01	1.2E-04	2.1E-05	1.3E-05	2.3E-08
acute MRL: 5.E-03													
int MRL: n/a													
chr MRL: 3.E-04													
min=1.7E+0, Q1=4.6E+0, median=5.1E+0, arithmetic mean=7.5E+0, Q3=8.7E+0, max=2.1E+1, range=2.7E+1													
95%ile: ..... 95%ile:													

## Dose report - interpretation Key 3 of 5

"acute MRL"= Acute MRL  
 "int MRL"= Intermediate MRL  
 "chr MRL"= Chronic MRL  
 "n/a"= not available  
 "5E-01"= Scientific notation for 0.5  
 "Y"=yes, used to indicate that at least one data point was above the CV  
 "min"= Minimum value  
 "Q1"= First quartile (25% of the data)  
 "Q2"= Second quartile (50% of the data)  
 "median"=Middle value, half of the data points are above this value, also known as the Q2  
 "arithmetic mean"= average value of the raw (non-transformed) data  
 "Q3"= Third quartile (75% of the data)  
 "max"= Maximum value  
 "range"=Maximum minus the minimum

The two lines below graphically depict the spread (distribution of the data relative to the comparison value (see next slide for an enlarged version).

Soil-Results based on the maximum values.													
Chemical	CASN	Units	CV name	CV value	>CV	N	#ND	# non ND>CV	MXConc	Ing Dose	DermalDose	IngestCa	DermCa
Actual data are above a CV value													
Arsenic	007440-35-2	ppm	Soil CREG	5E-01	Y	16	0	16	3.1E+01	1.2E-04	2.1E-05	1.3E-05	2.3E-06
										acute MRL: 5E-03			
										int MRL: n/a			
										chr MRL: 3E-04			
min=3.1E+01, Q1=4.6E+01, median=5.1E+01, arithmetic mean=7.8E+01, Q3=8.7E+01, max=9.1E+01, range=2.0E+01													
MDD1Q2:.....Q3:.....MX													
CV:.....													

## Dose report - interpretation Key 4 of 5

There are 100 dots from the minimum to the maximum. Each dot represents the range/100. This is an arbitrary depiction of the data , and is used to provide a general visual picture of how the data are distributed.



min=3.7E+0, Q1=4.6E+0, median=5.1E+0, arithmetic mean=7.5E+0, Q3=8.7E+0, max=3.1E+1, range=2.7E+1  
 NNQ1Q2.....Q3.....MX  
 CV.....

---

## Dose report - interpretation Key 5 of 5

The **95% UCL of the Log transformed** data and the **95% UCL of the un transformed** reports contain an additional line of information.

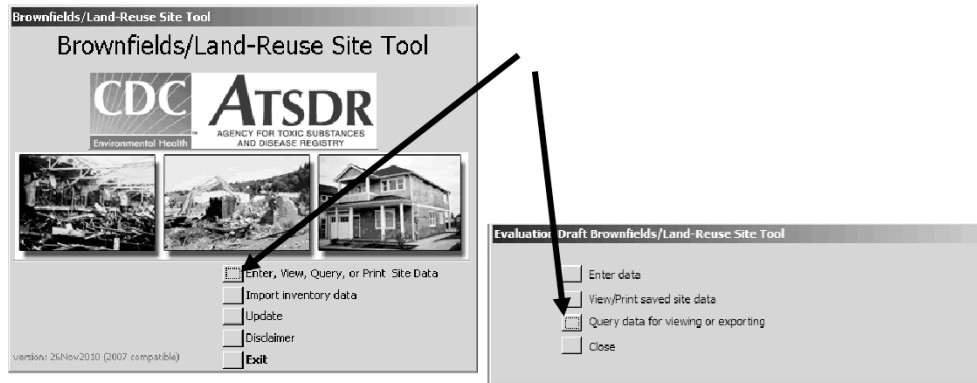
"WL" = shapiro-wilk W statistic for normality

"p-value" = the probability that the data are normally (or log-normally) distributed. If this value is less than 0.05 than the data are considered to NOT be normally (or log-normally) distributed

<i>Soil-Results based on the 95% UCL of the arithmetic mean values.</i>									
bwc: 5.00E+01 IR: 2.00E+02 A: 0.00E+00 BF: 1.00E+00 S4: 0.00E+00 AF: 1.00E-01 EF: 1.23E-01 ED_yrs: 5.00E+00 limbs:									
Chemical	CASN	Units	CV name	CV value	>CV	N	#ND	# non ND>CV	UCL Ing Dose DermalDose IngestCa DermCa
<i>Actual data are above a CV value</i>									
Benzo(a)anthracene	000056-55-3	ppm	PRG ResSoil	5E-01	Y	12	0	12	2.0E+01 8.1E-05
acute MRL: n/a int MRL: n/a chr MRL: n/a min=2.2E+0, Q1=2.1E+0, median=3.5E+0, arithmetic mean=3.5E+0, Q3=7.5E+0, max=6.5E+0, range=6.4E+0 MSE.....Q1.....Q2.....Q3.....MX									
W-Stat=4.5E-1 p-value=8.2E-6 * p-value is < 0.05. These data are not normally distributed.									
<i>Soil-Results based on the 95% UCL of the Log transformed values.</i>									
bwc: 5.00E+01 IR: 2.00E+02 A: 0.00E+00 BF: 1.00E+00 S4: 0.00E+00 AF: 1.00E-01 EF: 1.23E-01 ED_yrs: 5.00E+00 limbs:									
Chemical	CASN	Units	CV name	CV value	>CV	N	#ND	# non ND>CV	UCL_log Ing Dose DermalDose IngestCa DermCa
<i>Actual data are above a CV value</i>									
Araenic	007440-38-2	ppm	Soil CREG	5E-01	Y	11	0	11	1.2E+01 4.6E-05 5.0E-06
acute MRL: 5.E-03 int MRL: n/a chr MRL: 3.E-04 min=2.7E+0, Q1=4.5E+0, median=6.5E+0, arithmetic mean=6.5E+0, Q3=1.0E+1, max=1.9E+1, range=1.4E+1 MSE.....Q1.....Q2.....Q3.....MX									
W-Stat=9.7E-1 p-value=8.4E-1 These data are Log- normally distributed.									

**Query function**

On the main screen, click “enter, View, Query, or Print Site Data”. Then click on “Query data for viewing or exporting”



**Brownfields/Land Re-use Site Tool****Query function**

Select the criteria of the record(s) you are trying to locate then click "Run Query"

**Evaluation Draft Brownfields/Land Re-use Site Tool - Data Query Form**

Please select at least one criterion from the lists and check boxes on all tabs, then click "Run Query".

**Run Query** **Close** **Reset Query Fields**

**Info** **Type** **Data** **Involvement** **Future Use** **Proximity** **Chems** **Concerns** **Hazards** **Exposures** **Site Visit**

Site Name:

Site Address:

Site City:

Site County:

Site Latitude:

Site Longitude:

Site Contact:

Site Contact Affil:

Site Contact Phone:

Site Contact email:

Site State:

Site Zip:

Institutional Controls (description):

Start Date:

End Date:

Stewardship:

Catalogue of Violations:

Catalogue of Spills:

Catalogue of Emergency Response(s):

Knowledge of Property

☐ State ☐ Tribal

☐ County

☐ City/Town

Brownfield Status:

Owner:

Site Code:

Date Accepted:

Soil removal (tons):

Site Status:

Site Owner Name:

File Number:

Institutional Controls (type):

GIU Removed (gals):

☐ Restricted land Use

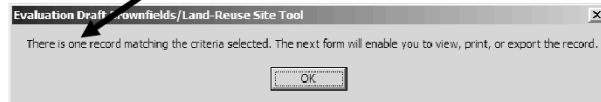


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## Brownfields/Land Re-use Site Tool

### Query function

The number of record(s) matching the criteria are listed in the dialog box.



## Query function

The record(s) matching the criteria are listed in the form below. (note the queried data are filtered and represent a subset of the entire data.)

**Evaluation Draft Brownfields/Land Re-use Site Tool**

Site Name: Parcel 11c  
Address:   
City: Northville State: MASSACHUSETTS  
Scenario Name: Parcel 11c Northville MA

☒ Contains Linked Site Visit Data ☐ Contains Linked Air Data  
☒ Contains Linked Soil Data ☐ Contains Linked Water Data  
☐ Contains Linked Fish Data

Export Record(s) as a comma delimited file

Edit Record Delete Record

Site Data Reports: Site Data Site Visit  
Environmental Sampling Reports: Air Data Soil Data Fish Data Water Data

☐ Maximum Values ☐ 95UCL (untransformed data with normality test)  
☐ Average Values ☐ 95UCL (Log transformed data with normality test)  
☐ Geometric Mean Values

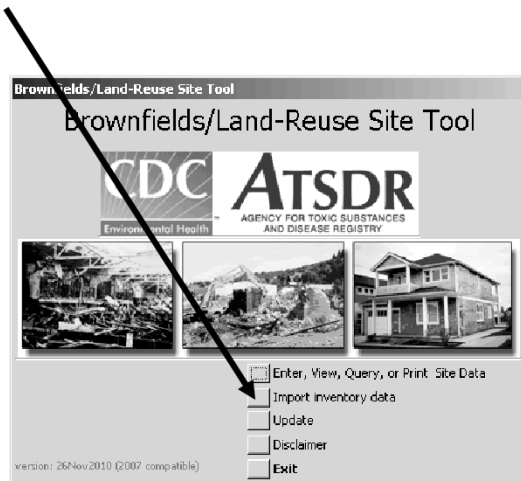
Close

Record: 14 of 1 (Filtered)

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***Brownfields/Land Re-use Site Tool*****Import Inventory Data Function**

Existing site data (not analytical data) can be imported by clicking on "Import inventory data."



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## Brownfields/Land Re-use Site Tool

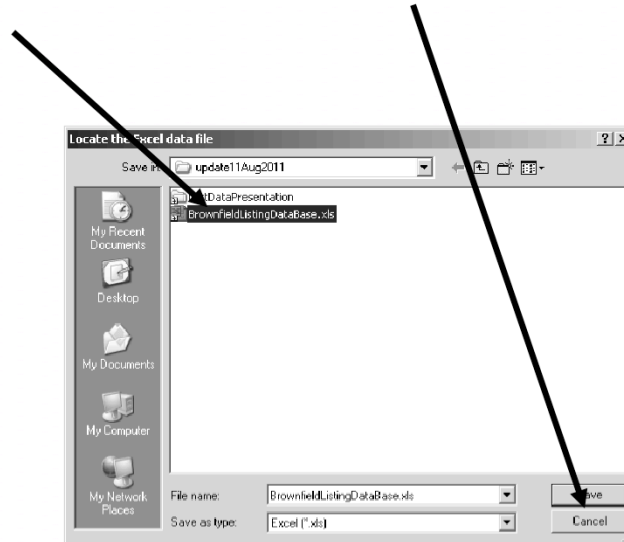
### Import Inventory Data Function

Click on “1) Import data”

The screenshot shows a software window titled "Evaluation: Craft Brownfields/Land-Reuse Site Tool - Data Importation Form". At the top, there are three buttons: "1) Import Data", "2) Save and Close", and "Cancel". Below these buttons is a section labeled "Field Mapping". Inside this section, there is a dropdown menu labeled "Fields In Data File". Below the dropdown is a button with a downward arrow icon and the text "Map to this field". To the right of this button are two empty text input fields. At the bottom of the window, there is another dropdown menu labeled "Fields In tbl\_site\_data". A black arrow points from the text "Click on '1) Import data'" to the "1) Import Data" button.

## Import Inventory Data Function

Locate the date file containing Inventory Data, then click Save.



## *Brownfields/Land Re-use Site Tool*

### Import Inventory Data Function

Match fields in the imported data to the fields in the tool.

**Brownfields/Land Re-use Site Tool - Data Importation Form**

1) Import Data    2) Save and Close    Cancel

Field Mapping

Fields In Data File

Site Name

Map to this field

Fields In tbl\_site\_data

- site\_name
- site\_address
- site\_city
- site\_state
- site\_zip
- site\_lat
- site\_long
- size\_of\_site

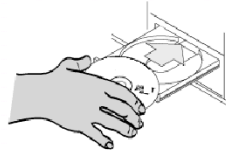
## Import Inventory Data Function

Match each field in the data file to the fields in the table containing site data.

- 1) Select the field from the top list (which contain the fields in the data file)
- 2) Select the matching field from the second list
- 3) Click on the Large Black Down Arrow.
- 4) When finished, click on Save and Close
- 5) Note: each record must contain a unique field that must be matched up with "scenario" in the bottom list.

The screenshot shows the 'Brownfields/Land Re-use Site Tool - Data Importation Form'. At the top, there are three buttons: '1) Import Data', '2) Save and Close', and 'Cancel'. Below these is the 'Field Mapping' section. It contains a 'Fields In Data File' list with a dropdown arrow. Below this is a 'Map to this field' button, which is highlighted by a large black arrow. To the right of this button are two text boxes: the top one contains 'tbl\_import.[Site Name] as site\_name,' and the bottom one contains 'site\_name,'. At the bottom of the form is a 'Fields In tbl\_site\_data' list with a dropdown arrow.

- **Updates distributed on CD**
- **Evaluating tablet platform**
- **Suggestions always welcome**



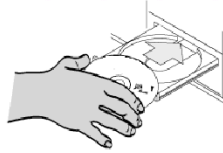


## ***For more information***

- Gary D. Perlman  
US Public Health Service  
ATSDR Region 1

gap6@cdc.gov

## ATSDR Dose Calculator quick guide



1) Insert the CD.

2) Copy the file named “DoseCalculatorNov2010WithImport.mde” from the CD to your computer.

3) The Dose Calculator requires Microsoft Office 2003 Professional with Service Pack\_2. If your computer lacks Service Pack\_2 you will not be able to run the Dose Calculator, and the following error is often displayed:

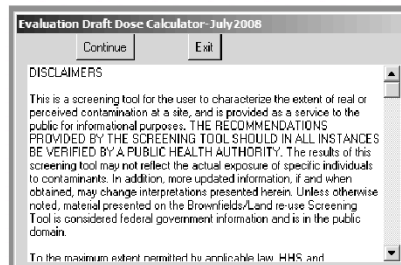
Visual Basic for Applications (VBA) encountered a problem while attempting to access a property or method. The problem may be one of the following:  
A reference is missing.  
For help restoring missing references, see the Microsoft Knowledge Base article 283806.

An Expression is misspelled.

4) Double click the file named “DoseCalculatorNov2010WithImport.mde” to run.

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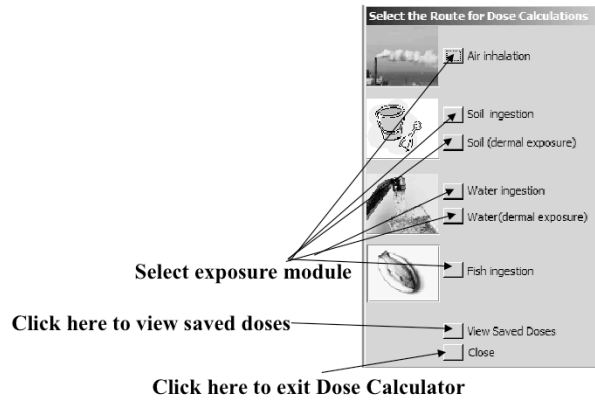
## Disclaimer Screen



ATSDR Dose Calculator - quick guide.

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## Exposure Module Selection Screen



## Air Exposure Module (example)

The screenshot shows the 'Air Exposure Module' of the ATSDR Dose Calculator. The interface includes several input fields and buttons. Annotations with arrows point to specific parts of the software:

- Enter Chemical by selecting either name, synonym or CASN:** Points to the 'Contaminant' dropdown menu.
- Enter Units:** Points to the 'Units' dropdown menu.
- Click here to close this exposure module:** Points to the 'Close' button.
- Click here to save this dose:** Points to the 'Save Dose' button.
- Enter Concentration:** Points to the 'C-Contaminant Concentration' input field.
- Enter Exposure Factor (between 0 and 1):** Points to the 'EF - Exposure Factor (unitless)' input field.
- Enter Exposure Duration in years here:** Points to the 'ED - Exposure Duration (in years)' input field.
- Click here to calculate cancer risk (if applicable):** Points to the 'Calculate Cancer Risk' button.
- Enter notes here:** Points to the 'Notes' text area.
- Click here to calculate dose:** Points to the 'Calculate Exposure Dose' button.

The software window displays the following information:

- Equation and all default values are taken from ATSDR's Public Health Assessment Guidance Manual:**
- Equation:**  $ED = (C \times H \times EF \times CF) / BW$
- Units:**  $g/mol$
- Value Source:**  $g/mol$
- Results for:**
  - ED - Exposure Dose:  $Unbound (mg/kg/day)$
  - ED - Exposure Dose:  $Unbound (mg/kg)$
  - ED - Exposure Dose:  $Unbound (ppb)$
  - Daily Intake:  $Unbound (mg/day)$
- Cancer Risk (Optional):**  $CR = ED \times Unit Risk Factor [Exposure Years / 70]$
- ED - Exposure Duration (in years):**  $Unbound (mg/kg/day)$
- Calculate Cancer Risk:**  $Ca risk$

ATSDR Dose Calculator - quick guide.

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## Soil Ingestion Exposure Module (example)

**Exposure Dose Calculator**

Soil Exposure Dose Equation:  $ED = [C \times IR \times EF \times BF \times CF] / BW$  \*\* Equation and all default values are taken from ATSDR's Public Health Assessment Guidance Manual.

Exposure Dose Calculator will automatically convert units to standard units.

Contaminant: CHLORDANE Mol Wt.: 409.76 g/mol  
 Synonym: Value Source:  
 CASN:

Exposure Dose Calculation | Health Comparison Values | Cancer Classification | Alternative Comparison Values

C=Contaminant Concentration: 95 ppb  
 IR = Intake Rate of Contaminated Air:  
☐ Calculate Rate Based on Amount of Soil Ingested Per Day  
☒ Use Standard Intake Rate  
 200 mg/day • Child average

EF = Exposure Factor (unitless): 1  
 BF = Bioavailability Factor (unitless): 1  
 CF = Conversion Factor: 1.00E-03

$\frac{\mu g}{kg} \times \frac{mg}{1,000 \mu g} \times \frac{kg}{1 \times 10^{-3} mg}; CF = 1 \times 10^{-3}$

BW = Body Weight:  
☐ Specify body weight kg  
☒ Standard body weight Children (1-6 yrs) • 16 kg

**Results for** CHLORDANE 000057-74-9

Calculate Exposure Dose  
 ED = Exposure Dose: 1.19E-06 (mg/kg/day)  
 Daily Intake: 1.90E-05 (mg/day)

Cancer Risk (Optional) CR = ED x Oral Slope Factor \* (Exposure Years / 70)  
 ED = Exposure Duration (in years): 5 Calculate Cancer Risk Ca risk: 2.97E-08

Notes:

ATSDR Dose Calculator - quick guide.

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## Soil Dermal Exposure Module (example)

**Exposure Dose Calculator**

**Soil Dermal Exposure Dose Equation:**  $ED = (C \times A \times AF \times EF \times CF) / BW$   
 Exposure Dose Calculator will automatically convert units to standard units.

Contaminant: POLYCHLORINATED BIPHENYLS Mol Wt.: 189.684 g/mol  
 Synonym: Value Source:  
 CASN:

Close  
Save Dose

Exposure Dose Calculation | Health Comparison Values | Cancer Classification

C=Contaminant Concentration: 90 mg/kg

EF = Exposure Factor (unitless):  
☒ Calculate Exposure Factor Based on Amount of Skin Exposure Over Time  
☐ Enter Exposure Factor  
 100 days/year 5 years  
 2.74E-01

AF = Bioavailability Factor (unitless): 1.00E-01  
 CF = Conversion Factor: 1.00E-06  
 $\frac{mg}{kg} \times \frac{kg}{1 \times 10^{-6} mg}; CF = 1 \times 10^{-6}$

BW = Body Weight: Adolescents Ages 12-17 50 kg

A = Total Soil Adhered (mg) = Exposed Skin Area x Soil Adherence Concentration:  
☐ Head ☐ Torso ☒ Arms ☒ Hands ☐ Legs ☒ Feet  
 A = Exposed Skin Area: 3868.01415 x Soil Adherence Concentration: 0.2  
 A = 773.60283

Results for POLYCHLORINATED BIPHENYLS 001336-36-3

Calculate Exposure Dose  
 ED = Exposure Dose: 3.82E-05 (mg/kg/day)  
 Daily Intake: 1.91E-03 (mg/day)

Cancer Risk (Optional) CR = ED x Oral Slope Factor (1/absorption fraction) \* (Exposure Years / 70)  
 ED = Exposure Duration (in years): 9 Calculate Cancer Risk Ca risk: 5.45E-06

Notes:

Total Surface Area (SA) (cm2): 15235  
 Head (percent of total SA): 9.30%  
 Torso (percent of total SA): 32.70%  
 Arms (percent of total SA): 12.43%  
 Hands (percent of total SA): 5.30%  
 Legs (percent of total SA): 32.53%  
 Feet (percent of total SA): 7.66%

ATSDR Dose Calculator - quick guide.

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## Water Ingestion Exposure Module (example)

**Exposure Dose Calculator**

Water Ingestion Exposure Dose Equation:  $ED = (C \times IR \times EF \times CF) / BW$  \*\* Equation and all default values are taken from ATSDR's Public Health Assessment Guidance Manual.

Exposure Dose Calculator will automatically convert units to standard units.

Contaminant:  Mol Wt.: 78.12 g/mol  
Synonym:  Value Source:   
CASN: 000071-43-2

Close  
Save Dose

Exposure Dose Calculation | Health Comparison Values | Cancer Classification | Alternative Comparison Values

C=Contaminant Concentration: 10 ppm  
IR = Intake Rate of Contaminated Water: ☒ Specify Water Ingested 1.5 L/day  
☐ Standard Intake Rate

EF = Exposure Factor (unitless): 1  
CF = Conversion Factor: 1.0E+00  $\frac{mg}{L}$ ; CF = 1

BW = Body Weight: ☐ Specify body weight kg  
☒ Standard body weight Children (1-6 yrs) - 16 kg

Results for BENZENE 000071-43-2

Calculate Exposure Dose  
ED = Exposure Dose: 9.38E-01 (mg/kg/day)  
Daily Intake: 1.50E+01 (mg/day)

Cancer Risk (Optional) CR = ED x Oral Slope Factor x (Exposure Years / 70)  
ED = Exposure Duration (in years): 10  
Calculate Cancer Risk  
Ca risk: 7.37E-03

Notes:

ATSDR Dose Calculator - quick guide.

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## Water Dermal Exposure Module (example)

**Exposure Dose Calculator**

\*\* Equation and all default values are taken from ATSDR's Public Health Assessment Guidance Manual.

**Water Dermal Exposure Dose Equation:**  $ED = (C \times P \times SA \times ET \times CF) / BW$   
 Exposure Dose Calculator will automatically convert units to standard units.

Contaminant:  Mol Wt.:   
 Synonym:  Value Source:   
 CASN:

Exposure Dose Calculation | Health Comparison Values | Cancer Classification

C=Contaminant Concentration:  ppm

ET = Exposure Time (unitless):  min/day  hour/day  days/year  years

P = Permeability Coefficient:  cm/hr source: [http://www.epa.gov/oswer/riskassessment/ragse/pdf/orag04\\_01.xls](http://www.epa.gov/oswer/riskassessment/ragse/pdf/orag04_01.xls)

CF = Conversion Factor:   $\frac{mg}{L} \times \frac{L}{1,000 cm^3} \times CF = 1 \times 10^{-3}$

BW = Body Weight:  kg

SA = Exposed Body Surface Area (cm<sup>2</sup>):  
☐ Head ☒ Torso ☒ Arms ☒ Hands ☒ Legs ☒ Feet  
 A = Exposed Skin Area:

**Results for**

ED = Exposure Dose:  (mg/kg/day)  
 Daily Intake:  (mg/day)

Cancer Risk (Optional) CR = ED x Oral Slope Factor \* (Exposure Years / 70)  
 ED = Exposure Duration (in years):   Ca risk:

**Notes:**


**Total Surface Area (SA) (cm<sup>2</sup>):**  
 Head (percent of total SA)   
 Torso (percent of total SA)   
 Arms (percent of total SA)   
 Hands (percent of total SA)   
 Legs (percent of total SA)   
 Feet (percent of total SA)

ATSDR Dose Calculator - quick guide.

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## Fish Ingestion Exposure Module (example)

**Exposure Dose Calculator**

 Fish Ingestion Exposure Dose Equation:  $ED = (C \times IR \times AF \times EF \times CF) / BW$  \*\* Equation and all default values are taken from ATSDR's Public Health Assessment Guidance Manual.

Exposure Dose Calculator will automatically convert units to standard units.

Contaminant:  Mol Wt.:   
 Synonym:  Value Source:   
 CASN:

Exposure Dose Calculation | Health Comparison Values | Cancer Classification | Alternative Comparison Values

C=Contaminant Concentration:

IR = Intake Rate of Contaminated Fish:

☒ Calculate Rate Based on Amount of Fish Per Day Consumed Over Time  
 g/day for  days/year over  years

☐ Calculate Rate Based on Fish Meals Per Week Consumed Over Time  
 meals/week and  weeks/year for  years

☐ Use Standard Intake Rate:

EF = Exposure Factor (unitless):   $\frac{mg}{kg} \times \frac{kg}{1 \times 10^{-5} mg}$ , CF =  $1 \times 10^{-5}$   
 AF = Bioavailability Factor (unitless):   
 CF = Conversion Factor:

BW = Body Weight: ☐ Specify body weight  kg  
☒ Standard body weight

**Results for**

ED = Exposure Dose:   
 Daily Intake:

Cancer Risk (Optional) CR = ED x Oral Slope Factor \* (Exposure Years / 70)  
 ED = Exposure Duration (in years):   Ca risk:

**Notes:**

ATSDR Dose Calculator - quick guide.

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# Resources & Feedback

- To view a complete list of resources for this seminar, please visit the **Additional Resources**
- Please complete the **Feedback Form** to help ensure events like this are offered in the future

The screenshot shows a web form titled "U.S. EPA Technical Support Project Engineering Forum Green Remediation: Opening the Door to Field Use Session C (Green Remediation Tools and Examples) Seminar Feedback Form". The form includes fields for "First Name" (with "Jean" entered), "Last Name" (with "Barn" entered), "Daytime Phone Number" (with "703-603-8924" entered), and "Email Address" (with "jeant@epa.gov" entered). There is a checkbox labeled "Please send a copy of my feedback confirmation as a record of my participation to this address" which is checked. The date "December 15, 2009" is also visible. On the left side of the form, there are navigation links: "Go to Seminar", "Links", "Feedback", "Home", and "CLU-IN Studio".

Need confirmation of your participation today?

Fill out the feedback form and check box for confirmation email.