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Date: OCT 19 2017
Refer To: ADEM-17-0283
LAUR: 17-26376

John Kieling, Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

RECEIVED
OCT 19 2017
NMED
Hazardous Waste Bureau

Subject: Submittal of the ECORISK Database, Release 4.1

Dear Mr. Kieling:

Enclosed are two copies of a CD containing the updates to Los Alamos National Laboratory's (LANL's) ECORISK Database. The Environmental Programs Directorate maintains and updates the database to ensure that the ecological screening levels (ESLs) used to assess potential ecological risk at sites are representative and current.

The database and the associated files are available for download online on the external LANL website at http://www.lanl.gov/environment/protection/eco-risk-assessment.php. Please be aware that to open the database, it must be copied from the CD to a computer. Trying to open the database directly from the CD will not work. Also, all files must be in the same directory for the links between documents to work. Reports submitted to the New Mexico Environment Department Hazardous Waste Bureau will use the ESLs presented in this release starting in October 2017.

If you or your staff have any questions or have any issues associated with the database or download, please contact Kent Rich at (505) 665-4272 (krich@lanl.gov) or Arturo Duran at (505) 665-7772 (arturo.duran@em.doe.gov).

Sincerely,

Bruce Robinson, Program Director
Environmental Remediation Program
Los Alamos National Laboratory

Sincerely,

David S. Rhodes, Director
Office of Quality and Regulatory Compliance
Environmental Management
Los Alamos Field Office

BR/DR/KR:sm

Enclosures: Two CDs containing the ECORISK Database, Release 4.1

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September 30, 2017

To Whom It May Concern:

You have obtained files for the Los Alamos National Laboratory (LANL) ECORISK Database Release 4.1 (September 2017).

This letter provides file descriptions, data issues, interface issues, other issues, and contact information for the current release of the database.

Files:

- **CoverLetterR4.1.pdf**: The cover letter you are currently reading.
- **ECORISK_R4.1.MDB**: A Microsoft Office Access 2013 file that is the ECORISK Database Release 4.1.
- **ESL_EcoPRG_HistorySummary2017.pdf**: A document describing all LANL Ecological Screening Level (ESL) changes since the beta release of the ECORISK Database to the latest release.
- **Eco-PRG.xlsx**: A document containing all Ecological Preliminary Remediation Goals (EcoPRGs) from the ECORISK Database Release 4.1. This file can be accessed from within the EcoPRG main menu 'Step 1' tab.
- **ESLs.xlsx**: A document containing all Ecological Screening Levels (ESLs) from the ECORISK Database Release 4.1. This file can be accessed from the ESL Main Menu.
- **TRV_Dev_Methods_R1_Feb14_LA-UR-14-20694**: Revised TRV Methodology document that describes the methods used to select toxicological data for aquatic community organisms in sediment and water and incorporating supplementary technical documents that support the development of TRVs. This document can be accessed in the download with the ECORISK database, as well as from the Main Menu screen under Supplemental Reports.

Data Issues:

The ECORISK Database Release 4.1 (September 2017) contains the current ecological screening levels (ESLs) and documentation for screening level ecological risk assessments performed at the Los Alamos National Laboratory. In release 4.1, new perchlorate TFs, TRVs and ESLs were added for earthworm, mammal and plant screening receptors; LOAEL/LOEC Tier 1, 2 and 3 TRV values and notes were updated, several ESL Screening and EcoPRG receptor parameters and related TF_flesh_fw were updated, ESL and EcoPRG values were updated based on updates to other parameters as noted above, and the ESL receptor names for desert cottontail and red fox were updated to surrogate for mountain cottontail and gray fox, respectively, to more accurately reflect a relevant species for the laboratory.

Please refer to the ESL History Summary Report (ESL_EcoPRG_HistorySummary2017.pdf) for a synopsis of the changes made to the ECORISK Database since the last release and over the years. This file can be accessed in the download of the ECORISK Database.

Interface Updates/Issues:

- Updated the interface Contact Information, Home, Main Menu screens to reflect release information.

Other Issues:
This database is a work in progress and although the data within it have been extensively reviewed, it is advised that you verify the data before use by referring to the actual references cited.

Contact Information:
To receive technical support or to acquire a CD copy of the database, please contact:
Environmental Communication & Public Involvement
P.O. Box 1663
MS K491
Los Alamos, NM 87545
505-667-6168
envoutreach@lanl.gov

Thank you for your interest in the database.

The ECORISK Database Team

LA-UR-17-26376
September 2017
ESHID-602538

ECORISK Database User Guide, Revision 1

Los Alamos
NATIONAL LABORATORY

Prepared by the Environmental Programs Directorate

EXECUTIVE SUMMARY

The ECORISK Database is a screening tool developed by Los Alamos National Laboratory (LANL or the Laboratory) to evaluate impacts from chemicals and radionuclides in soil, water, sediment, and air on the ecology at the Laboratory. The purpose of this document is to provide comprehensive documentation of the screens, reports, and search functions of the ECORISK Database.

The ECORISK Database archives available ecological screening levels (ESLs) for 182 chemicals at the Laboratory as well as supporting documentation for parameters and calculations used to calculate the ESL. An ESL is a media- and receptor-specific value, which may be used to screen environmental data for ecological risk. Air (pore gas), soil, sediment, and water ESLs are calculated for receptors in various functional feeding guilds (carnivores, herbivores, insectivores, etc.) or selected from peer-reviewed literature for aquatic community organisms. ESLs are available for terrestrial and aquatic organisms, including avian, mammalian, invertebrate, and plant species, for radionuclides and chemicals, including inorganic chemicals, dioxins/furans, high explosives, polycyclic aromatic hydrocarbons, and other semivolatile organic compounds, polychlorinated biphenyls, pesticides, and volatile organic compounds.

The ECORISK Database also includes documentation of the parameters used to calculate ecological preliminary remediation goals (EcoPRGs) for 62 analytes in the EcoPRG section of the ECORISK database, including analyte -specific parameters (diet to soil concentration ratios and toxicity reference values) and receptor parameters. EcoPRGs were developed at Los Alamos National Laboratory to provide risk managers with a tool for evaluating remedial actions that will be protective of the environment. Ecological exposure models used for calculation of ESLs for ecological risk-screening assessments have been modified to derive soil EcoPRGs for representative assessment endpoint receptors.

The ECORISK Database is a Microsoft Access database application that allows the user to search for and retrieve ESLs, EcoPRGs, and supporting documentation for analytes and ecological screening receptors of concern to the Laboratory's Environmental Programs Directorate. There were 1133 toxicity reference values (TRVs) used to derive ESLs for terrestrial and aquatic plants, earthworms, birds, and mammals. Twenty percent of these TRVs used to calculate the current ESLs are based on evaluation of peer-reviewed toxicity study literature using the Laboratory's primary toxicity study evaluation process as documented in Toxicity Reference Value Development Methods for the Los Alamos National Laboratory. The other TRVs available for terrestrial and aquatic receptors and for radionuclides come from secondary sources such as the U.S. Environmental Protection Agency, Oak Ridge National Laboratory, the International Atomic Energy Agency for radionuclides, and other acceptable secondary source compendiums of toxicity data or screening levels. The breakdown of the TRV types is as follows: Tier I TRVs comprise 30% of the TRVs and includes both the EPA EcoSSL TRVs for non-radionuclides and IAEA TRVs for radionuclides, Tier 2 comprise 7% of the TRVs and represent the LANL derived geometric mean TRVs, Tier 3 comprise 13% of the TRVs and represent the LANL derived critical study TRVs, Tier 4 comprises 35% of the TRVs and represents TRVs from secondary data sources such as ORNL, and then Other comprises 15% of the TRVs and represents aquatic water and sediment TRVs, not categorized by the Tier system.

The ECORISK Database is used by risk assessors to access ESLs, EcoPRGs, and supporting documentation. Regulators can use the database to check calculations or review toxicity studies associated with ESLs as well as to review EcoPRG models and receptor parameters for EcoPRGs. Risk assessors use the toxicity studies and other receptor information stored in the database. The database can be used to print or export information for project archives or for supplemental documentation for a report using the ESLs, EcoPRGs, or other related parameters stored in the database.

This document is organized into eight sections. Section 1 is the introduction, section 2 has information on getting started, section 3 is an overview of the home and main ESL and EcoPRG menu screens, section 4 provides instructions for searches, section 5 describes the reports available in the database, section 6 details the "New in Release 4.1" section, section 7 lists contact information, and section 8 is the references.

CONTENTS

Figures

Acronyms and Abbreviations

CASRN	Chemical Abstracts Service registry number
CS	critical study
DDT	dichlorodiphenyltrichloroethane
EcoPRG	ecological preliminary remediation goal
Eco-SSL	ecological soil screening level
EL	effect level
EPA	U.S. Environmental Protection Agency

EQL	estimated quantitation limit
ESL	ecological screening level
foc	fraction of organic compound
GMM	geometric mean
ha	hectare
HMX	octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
Koc	organic carbon partition coefficient
log Kow	logarithm to the octanol/water partition coefficient
Laboratory	Los Alamos National Laboratory
LANL	Los Alamos National Laboratory
LOAEL	lowest observed adverse effect level
LOEC	lowest observed effect concentration
LOEL	lowest observed effect level
NMED	New Mexico Environment Department
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
ORNL	Oak Ridge National Laboratory
PAH	polycyclic aromatic hydrocarbon
PTS	primary toxicity study
PTSE	primary toxicity study evaluation
PTV	primary toxicity value
SLERA	screening-level ecological risk assessment
T&E	threatened and endangered
TF	transfer factor
TRV	toxicity reference value
UF	uncertainty factor

1.0 INTRODUCTION

Section Highlights

- The ECORISK Database contains 2630 ESLs encompassing terrestrial and aquatic receptors and 159 chemicals.
- The ECORISK Database contains 231 Laboratory-derived TRVs for terrestrial receptors for nonradionuclides. The remaining TRVs, including those for aquatic receptors and radionuclides, come from the EPA or other secondary sources such as Oak Ridge National Laboratory (ORNL).
- The ECORISK Database contains EcoPRGs for 62 analytes.
- ESLs and associated TRVs and bioconcentration data may be applied at other sites.

The ECORISK Database (LANL 2017, 26376) is a screening tool developed by Los Alamos National Laboratory (LANL or the Laboratory) to be used in conjunction with the Laboratory's Screening-Level Ecological Risk Assessment Methods, Revision 5
(LANL 2017, EP2017-0132) to evaluate impacts from chemicals and radionuclides in soil, water, sediment, and air on the ecological receptors (or biota) at the Laboratory. The screening results are used in conjunction with data collected from surveys of habitat, species, and all other areas of applied ecology to help the Laboratory address ecological risk and incorporate ecological planning in all activities.

The ECORISK Database contains ecological screening levels (ESLs). An ESL is a media- and receptor-specific value, which may be used to screen environmental data for ecological risk. Air (pore gas), soil, sediment, and water ESLs are calculated for receptors in various functional feeding guilds (carnivores, herbivores, insectivores, etc.) or selected from the peer-reviewed literature. ESLs are available for terrestrial and aquatic organisms, including avian, mammalian, invertebrate, and plant species, for radionuclides and nonradionuclides, including inorganic chemicals, dioxins/furans, high explosives, polycyclic aromatic hydrocarbons (PAHs), semivolatile organic compounds, polychlorinated biphenyls, pesticides, and volatile organic compounds. ESLs are similar to the U.S. Environmental Protection Agency (EPA) ecological soil screening levels (Eco-SSLs) (http://www.epa.gov/ecotox/ecossl/) in that they may be used to evaluate similar ecological receptors at non-Laboratory sites. Also, see Screening-Level Ecological Risk Assessment Methods, Revision 5 (LANL 2017, EP2017-0132) for the context of application of ESLs based on the range of environmental settings found at the Laboratory that may be applicable to other sites.

The ECORISK Database also provides the information used to derive each ESL, including the toxicity reference values (TRVs) and bioconcentration (transfer) factors, as well as any other parameters used. In general, the TRVs and bioconcentration data are applicable to non-Laboratory sites because they are not site-specific and are derived using a transparent and scientifically defensible process that is general enough to be applicable to other sites. The ESL calculations and models are described in detail in Screening-Level Ecological Risk Assessment Methods, Revision 5 (LANL 2017, EP2017-0132). The TRV selection/development and PTSE process are described in detail in Toxicity Reference Value Development Methods for the Los Alamos National Laboratory (LANL 2014, EP2014-0054).

The ECORISK Database contains documentation of the parameters used to calculate ecological preliminary remediation goals (EcoPRGs) for 62 analytes, including analyte-specific parameters (diet to soil concentration ratios and toxicity reference values) and receptor parameters. EcoPRGs have only been developed for soil. Sediment EcoPRGs are recommended to be calculated on a site-specific basis, primarily because these EcoPRGs should evaluate multimedia exposures. The development of EcoPRGs is described in detail in Development of Ecological Preliminary Remediation Goals for Los Alamos National Laboratory (LANL 2017, EP2017-0040).

The database can be downloaded from the Laboratory's Ecological Risk Assessments page at http://www.lanl.gov/environment/protection/eco-risk-assessment.php.

2.0 GETTING STARTED

Section Highlights

The intent of the ECORISK Database is to

1. compile ESLs for various media for terrestrial and aquatic receptors for radionuclide and nonradionuclide analytes,
2. document the basis of each ESL, including equations, parameter values and references, through database forms and reports, and
3. calculate EcoPRGs for soil using COPEC-specific parameters (diet to soil concentration ratios and toxicity reference values) and receptor parameters.

The intended audience for this user guide is any person preparing or reviewing a screening-level ecological risk assessment (SLERA).

This section provides the database description (section 2.1), disclaimer (section 2.2), limitations (section 2.3), software requirements (section 2.4), installation instructions (section 2.5), software versions and error messages (section 2.6), document organization (section 2.7), and supplemental documents (section 2.8).

2.1 Database Description

The ECORISK Database is a Microsoft Access database application that allows the user to search for and retrieve ESLs, EcoPRGs, and supporting documentation for analytes and ecological screening receptors of concern to the Laboratory's Environmental Programs Directorate. ESLs, EcoPRGs, and associated parameters may be applicable to non-Laboratory sites. Applicability should be based on review of the documentation for values in the database. Supporting documentation includes equations, parameter values, and references used to derive each ESL or EcoPRG. The data can be retrieved via interface screens (database forms) or via summary and custom reports (Microsoft Excel spreadsheets or rich text format files).

2.2 Disclaimer

Although a comprehensive search of the literature was performed to locate relevant studies, all currently relevant information may not have been acquired at the time of the publication of the most release of the database. Therefore, it is recommended that the user conduct a literature search to ensure awareness of more recent studies not included in the database. In addition, additional or different search terms may be selected and different criteria may be established for the relevant literature.

2.3 Limitations

The ECORISK Database user interface performs single analyte and single ecological screening receptor searches. However, the analyte search can retrieve ESLs or EcoPRGs for multiple receptors for a single analyte, and the receptor search can retrieve ESLs for multiple analytes for a single receptor. Also, the summary and custom report options allow for retrieval of data for multiple analyte and ecological screening receptors.

2.4 Software Requirements

The following is a list of minimum software requirements. The database will run on more recent versions of software.

- Windows 10
- Windows 8

- Windows XP
- Microsoft Excel 2010
- Adobe Acrobat Reader

The database works optimally in Microsoft Office Access 2010. If the database file is opened with an older version of Microsoft Office Access, an error message will appear. Pressing “OK” will remove the box, and functionality of the database is not affected.

2.5 Installation Instructions

The user should download the database files from the Laboratory’s website (http://www.lanl.gov/environment/protection/eco-risk-assessment.php) into a single folder/location.

The database file and associated supplemental report files are available in a zip file, and this file needs to be **unzipped** into a single location on a computer for the document links imbedded in the database to function properly.

> **Note**
>
> Even though you may have documents from a previous release, you need to download all the documents for the current release together into the same location for links to function properly.

The Quick Start Guide, Visual Guide, and Frequently Asked Questions sheet are included in the download for this user guide (http://www.lanl.gov/environment/protection/eco-risk-assessment.php), and the zip file should be unzipped into a single location for document links to function properly. Appendix A reports are included in a separate folder in the zip file and should remain in the folder for links to function properly.

2.6 Document Organization

The remainder of this document is organized into six sections: (1) Home and Main Menu Screens Overview (section 3), (2) Searches (section 4), (3) Reports (section 5), (4) What’s New in this Release (section 6), (5) Contact Information (section 7), and (6) References (section 8). Sections 3 to 7 provide detailed instruction and documentation for performing searches, navigating the database, retrieving reports, and accessing the change control documentation. Detailed instruction is also provided for the calculation of the EcoPRGs and the associated parameters.

2.7 Supplemental Documents

Below is a list of supplemental documents included with the download of the ECORISK Database found at the Laboratory’s Ecological Risk Assessments page (http://www.lanl.gov/environment/protection/eco-risk-assessment.php). These documents are included in the download because they provide the current ESLs, ESL history, and documentation of methods used to select TRVs used in the derivation of ESLs.

- **CoverLetterR4.1.pdf:** The cover letter describing the contents of the current release of the database. In this case, the cover letter is for Release 4.1 (September 2017).
- **ESLHistorySummary2017.pdf:** A document describing all Laboratory ESL changes from the beta release of the ECORISK Database to the latest release. This file can be accessed from within the database on the main menu screen in the supplemental reports section. Note: The functionality of hyperlinks in this document to external files was lost when converted from Microsoft Word to Adobe Acrobat pdf. The external documents are included with this

download/CD and can be opened individually. External websites can be accessed by copying and pasting links into a browser.

- **ESLs.xlsx:** A document containing all ESLs from the ECORISK Database, Release 4.1. This file can be accessed from within the database on the main menu screen in the supplemental reports section.
- **SLERA_R5_LA-UR-17-28553.pdf:** A document that provides guidance to conduct screening-level ecological assessments at the Los Alamos National Laboratory (LANL or the Laboratory). This guidance promotes consistency, rigor, and defensibility in ecological screening assessments and in reporting the results.
- **TRV_Dev_Methods_R1_Feb14_LA-UR-14-20694.pdf:** A document that explains the methods used to identify/derive TRVs at the Laboratory. This file can be accessed from within the database on the main menu screen in the supplemental reports section. The file can also be accessed externally from the download/CD folder.
- **Eco-PRG.xls**: A document containing all EcoPRGs from the ECORISK Database, Release 4.1. This file can be accessed from within the database on the Step 1 tab after clicking on the EcoPRG Menu on the home screen.

3.0 HOME AND MAIN MENU SCREEN OVERVIEW

The home screen of the ECORISK Database (Figure 3.0-1) provides a menu to access the search and report menu for ESLs (ESL Menu) and EcoPRGs (EcoPRG Menu) , a summary of what is new in the latest release of the database, database contact information (contact information), and an exit database application command (exit). The home screen also displays the correct citation for the current release of the database.

Section Highlights

- The home and menu screens of the ECORISK Database provide
  - ❖ database navigation switchboards,
  - ❖ database citation information, and
  - ❖ database contact information.
- See the **Quick Start Guide** for a brief summary of the key search functions in the ECORISK Database.

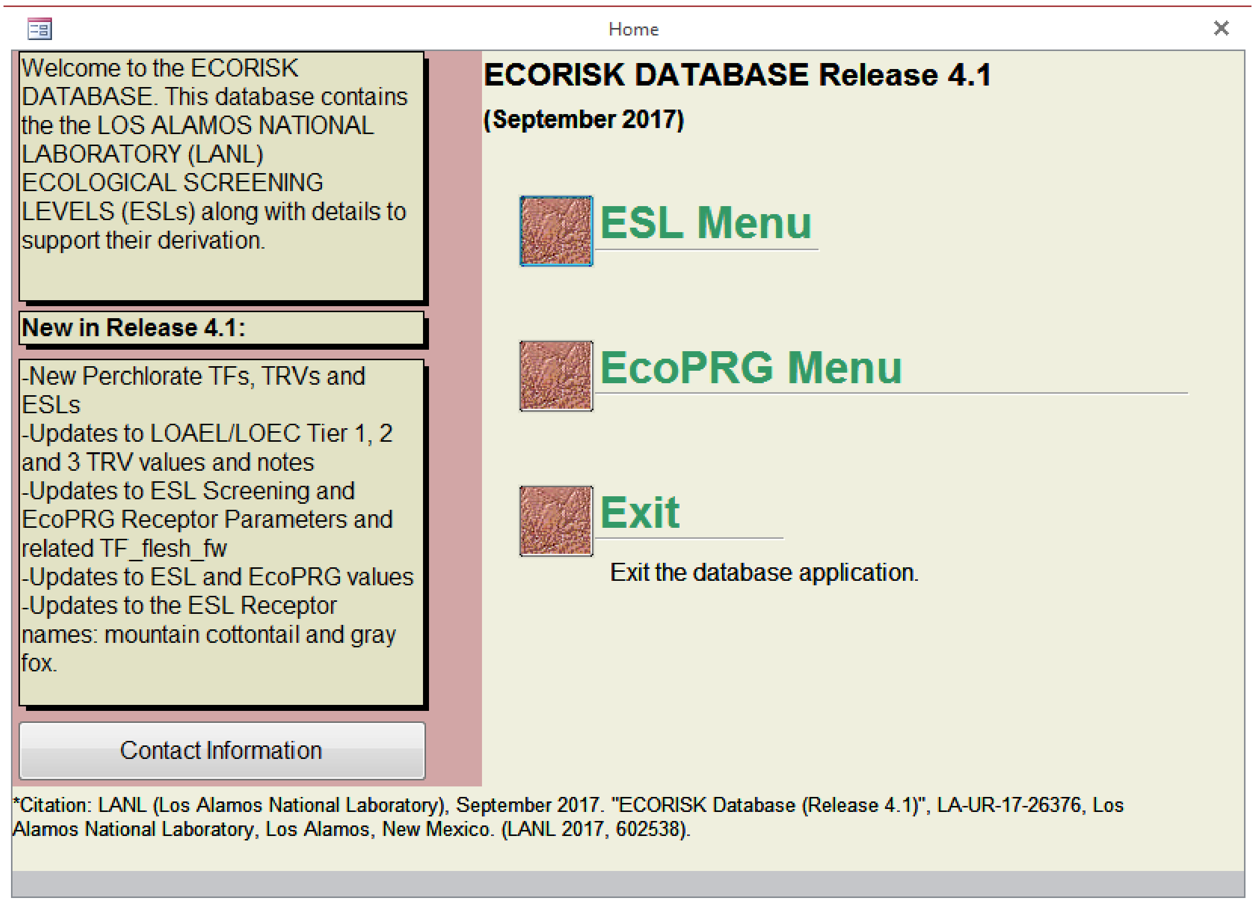
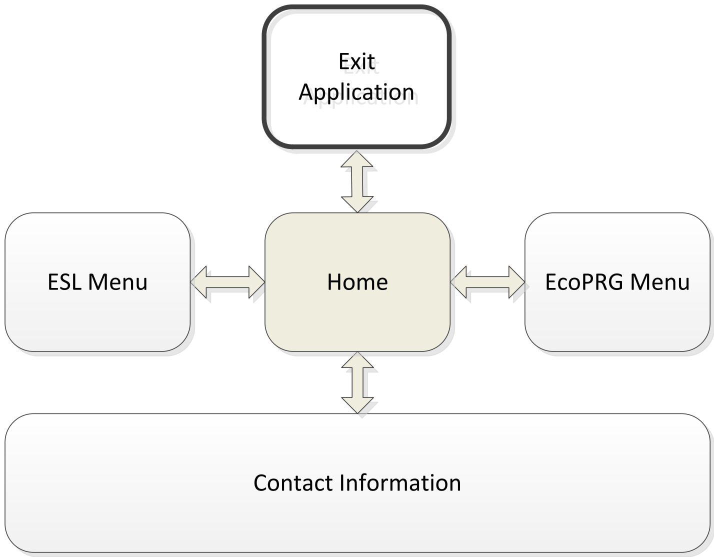


Figure 3.0-1 Home screen

Figure 3.0-2 is a guide for navigation between the database screens and the exit application function shown in Figure 3.0-1.



Note: Bold outline indicates an exit from database.

Figure 3.0-2 Visual navigation guide for the home screen

The ESL main menu (Figure 3.0-3) provides an interface to perform ESL searches by single analyte (A) or ecological screening receptor (B); to access summary, custom, and supplemental reports (C); and to access descriptions of the ESL derivation models for radionuclides and nonradionuclides (D). This screen also has navigation buttons (E) to return to the home screen or to exit the database application.

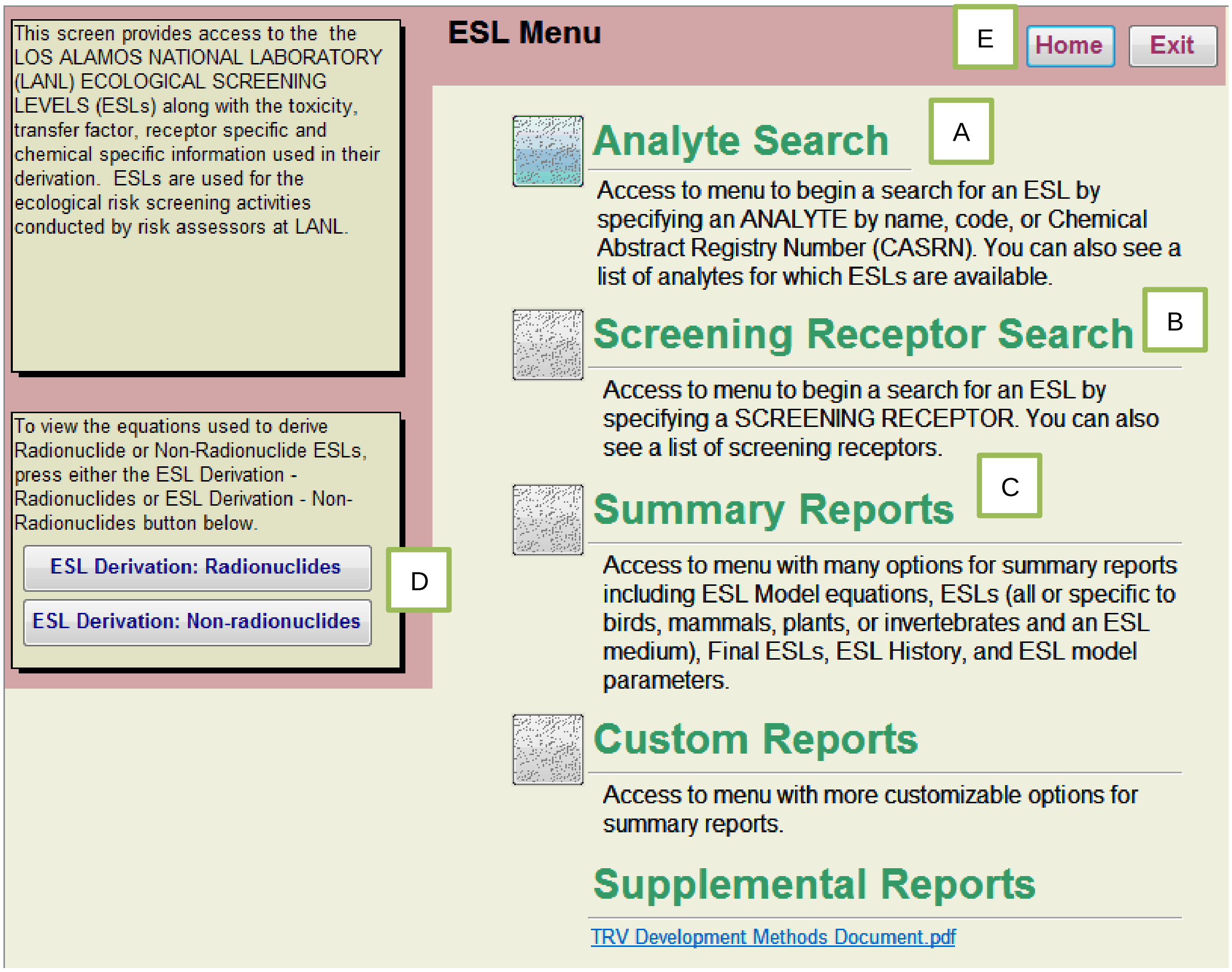
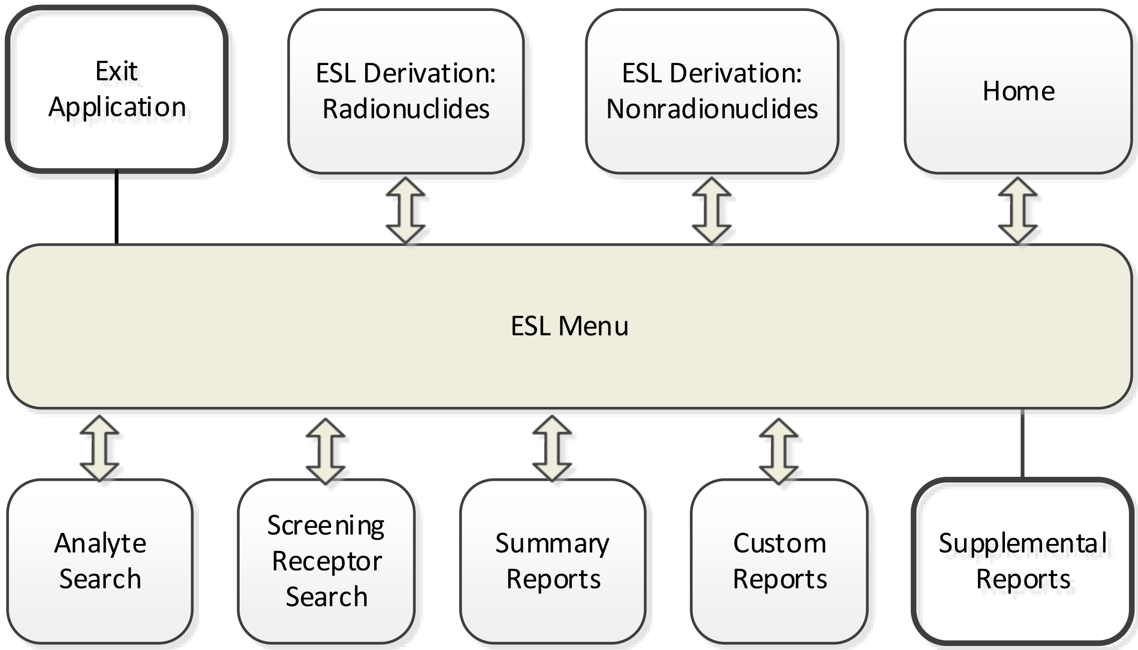


Figure 3.0-3 ESL Main menu

Figure 3.0-4 is a guide for navigation between the ESL database screens and the exit application function shown in Figure 3.0-3.



Note: Bold outline indicates an exit from database or link to an outside file.

Figure 3.0-4 Visual navigation guide for the ESL main menu

The EcoPRG main menu Step 1, (Figure 3.0-5) provides an interface to perform EcoPRG searches by single analyte; to access receptor parameters, TRVs, and TFs as well as presenting the model used for the EcoPRG. Because this screen is a pop-up from the home screen, the screen can be minimized in order to return to the home screen. When using the EcoPRG menu, Step 1 and Step 2 must be completed first in order for any content to populate the model, receptor parameters, TRV, or TF tabs. If a search for a different analyte or receptor is desired, then return to Step 1 to ensure that the content of all tabs is refreshed.

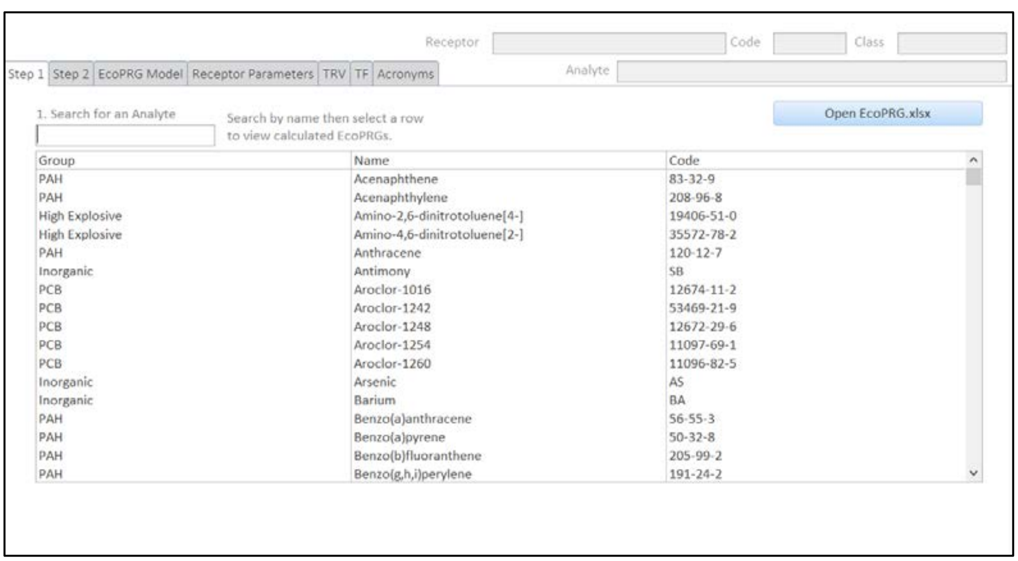


Figure 3.0-5 EcoPRG Main menu

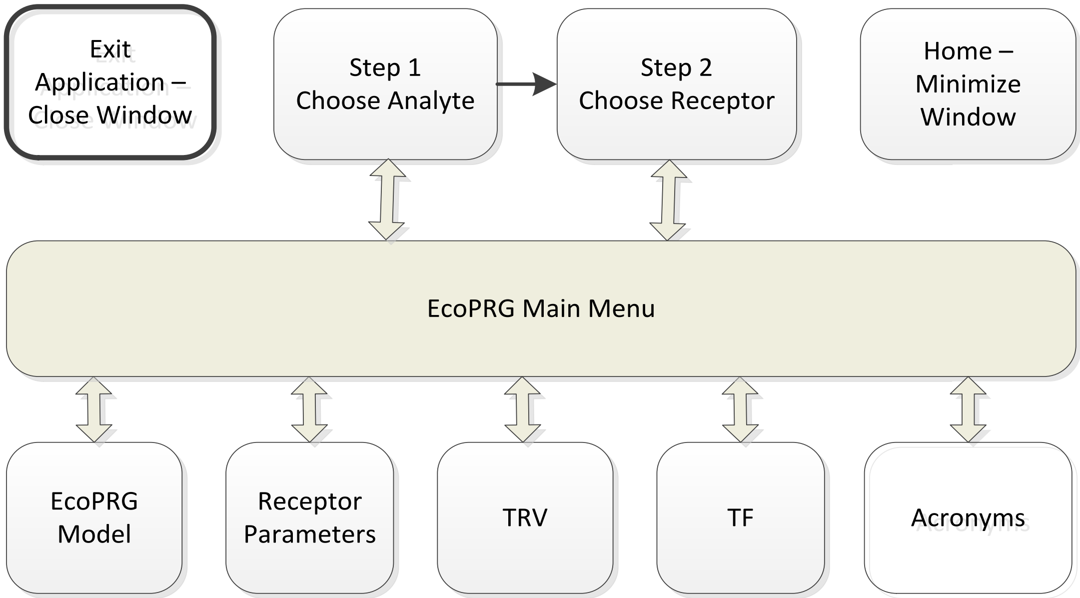


Figure 3.0-6 Visual navigation guide for the EcoPRG main menu

4.0 SEARCHES

The ECORISK Database provides options to search for an analyte for one or more receptors or a receptor for one or more analytes (ESL only). Other information retrieval options (reporting) are provided in section 5.

Searches can be initiated from the ESL main menu (Figure 3.0-3) or the EcoPRG main menu (Figure 3.0-5).

> **Section Highlights**
>
> - Instructions for search by analyte or screening receptor (ESL only)
> - Instructions for retrieving ESL, EcoPRG, TRV, and other parameter documentation

4.1 ESL Analyte Search

The analyte search retrieves ESL(s) and supporting documentation for a single chemical at the Laboratory for one or more ecological screening receptors.

Figure 4.1-1 is a navigation guide for the search options available in the database. Figure 4.1-2 is a guide for navigation between the home, main analyte search, and ESL supporting documentation screens described in detail in sections 4.1.1 to 4.1.3.

> **Search Limitations**
>
> To retrieve information for multiple analytes, see the ecological screening receptor search (section 4.2) or reporting options (section 5).

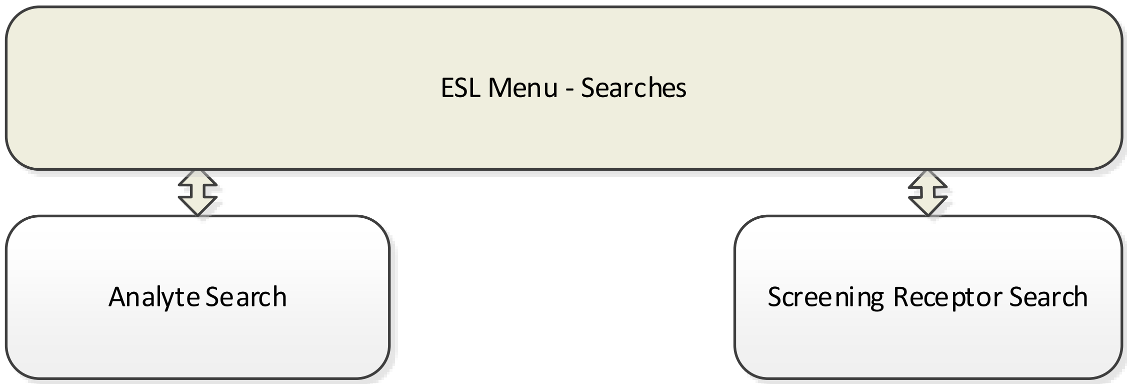


Figure 4.1-1 Visual navigation guide for an ESL database search

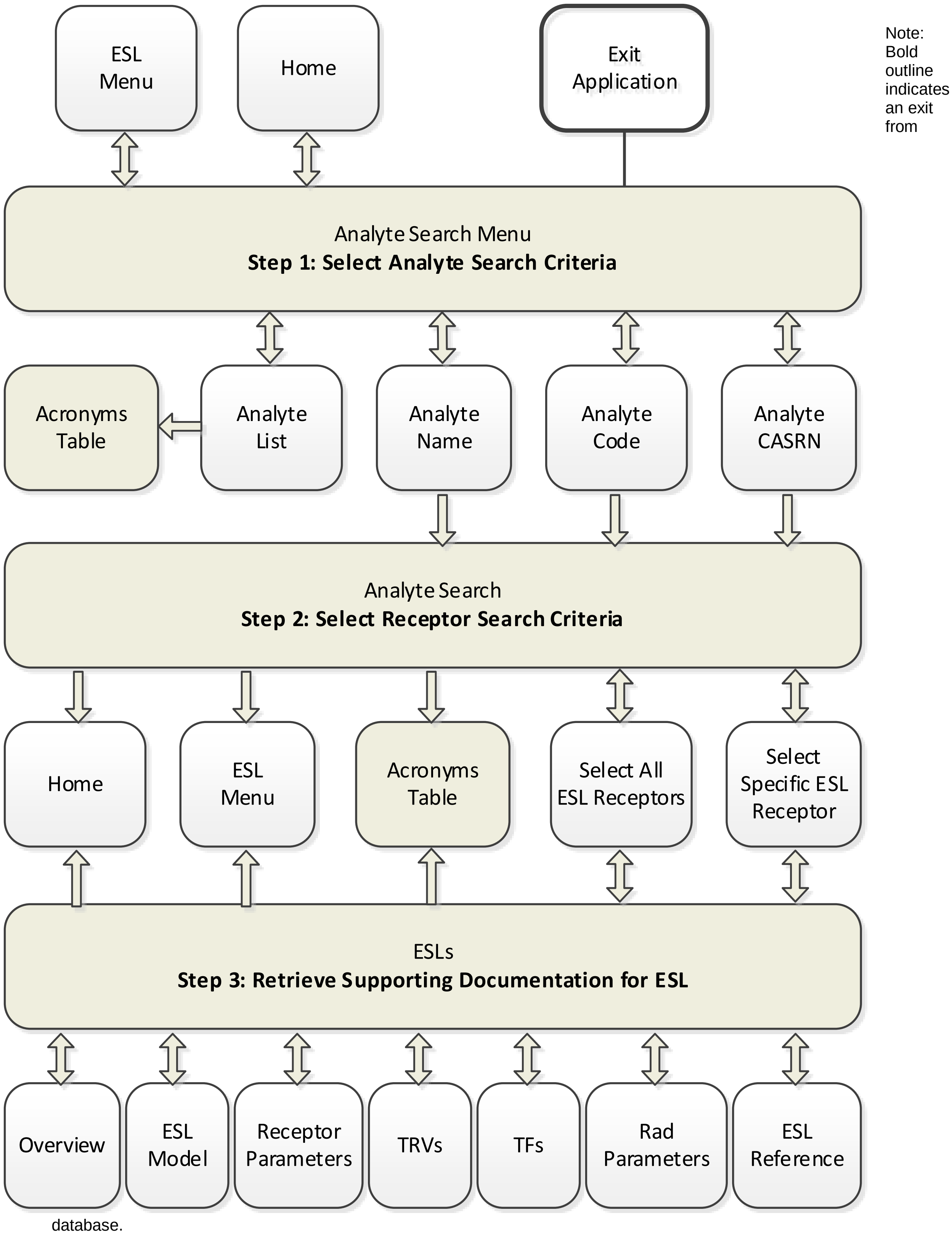


Figure 4.1-2 Visual navigation guide for an ESL analyte search

The analyte search is initiated by pressing the analyte search button (A) shown in Figure 4.1-3.

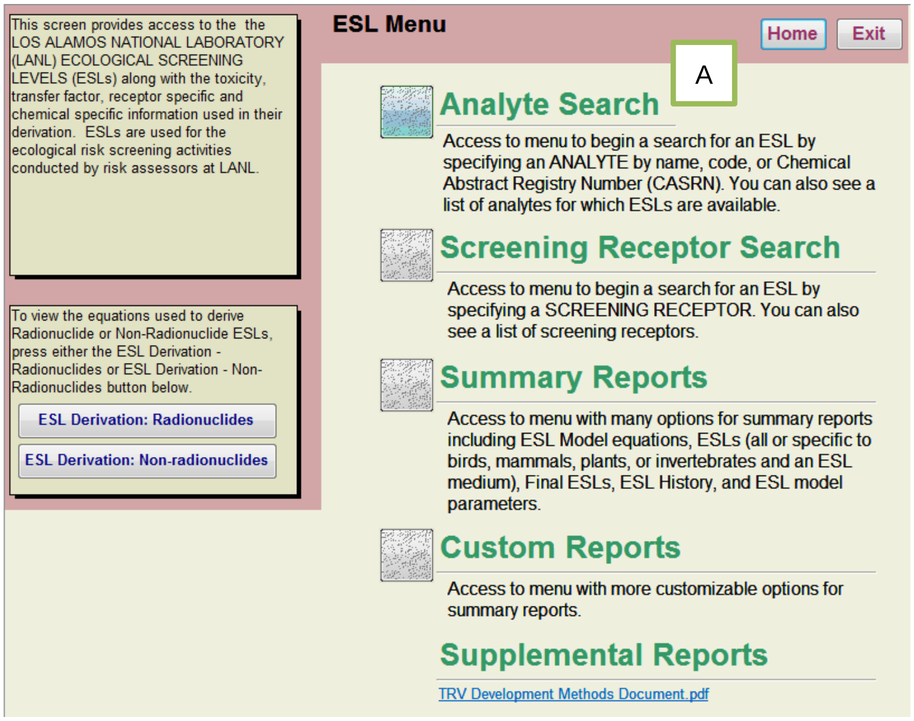


Figure 4.1-3 Analyte search button on the main menu

4.1.1 Step 1: Select Analyte Search Criteria

Figure 4.1-4 shows that a search can be performed for a specific analyte by (A) name, (B) code, or (C) Chemical Abstracts Service registry number (CASRN), or a master analyte list (D) of all analytes considered in the database can be viewed. This screen also has a row of navigation buttons (E) to return to the home or main menu screens or to exit the database application.

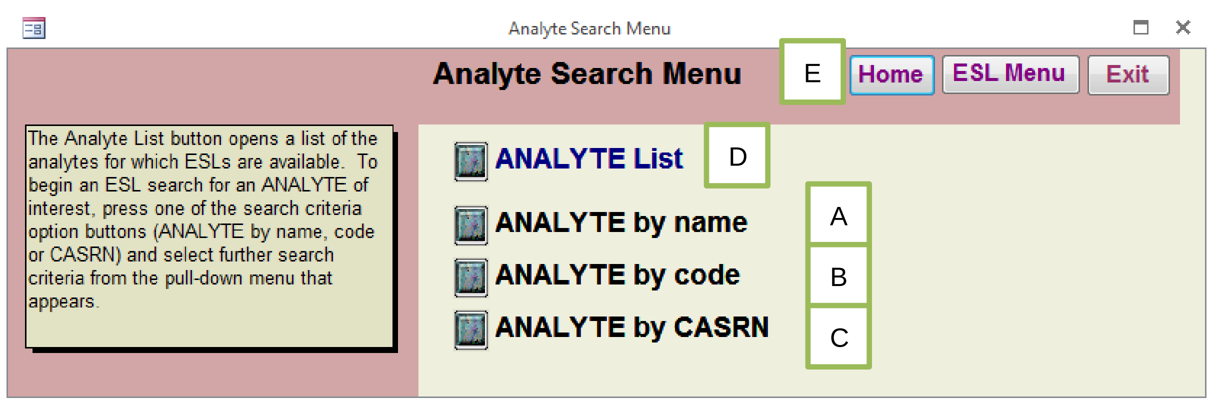
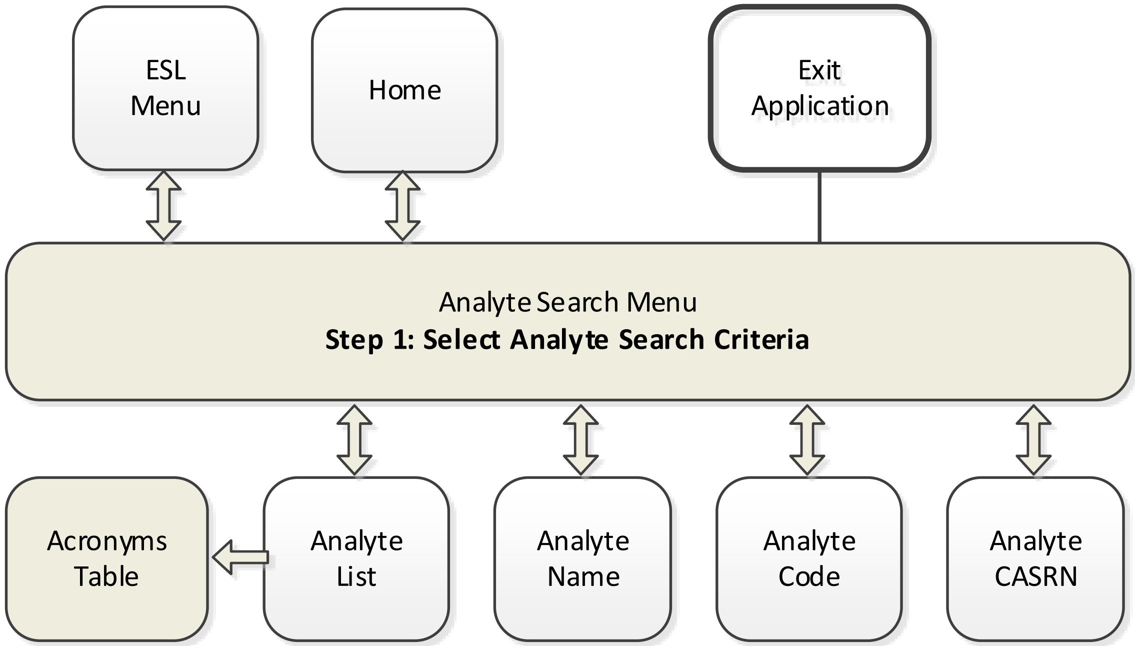


Figure 4.1-4 Analyte search menu – step 1, select an analyte

Figure 4.1-5 is a navigation guide for Figure 4.1-4.



Note: Bold outline indicates an exit from database.

Figure 4.1-5 Visual navigation guide for analyte search menu – step 1, select an analyte

Selecting the analyte list option displays the master analyte list for ESLs in the database by analyte group, name, code, CASRN, formula, and synonyms, where applicable (Figure 4.1-6). This screen also has a row of navigation buttons (A) to close the screen, open an acronym list report, or print the analyte list. Note, the acronym list report is accessible from many other screens within the database and is available in Report 4.1-1 in Appendix A.

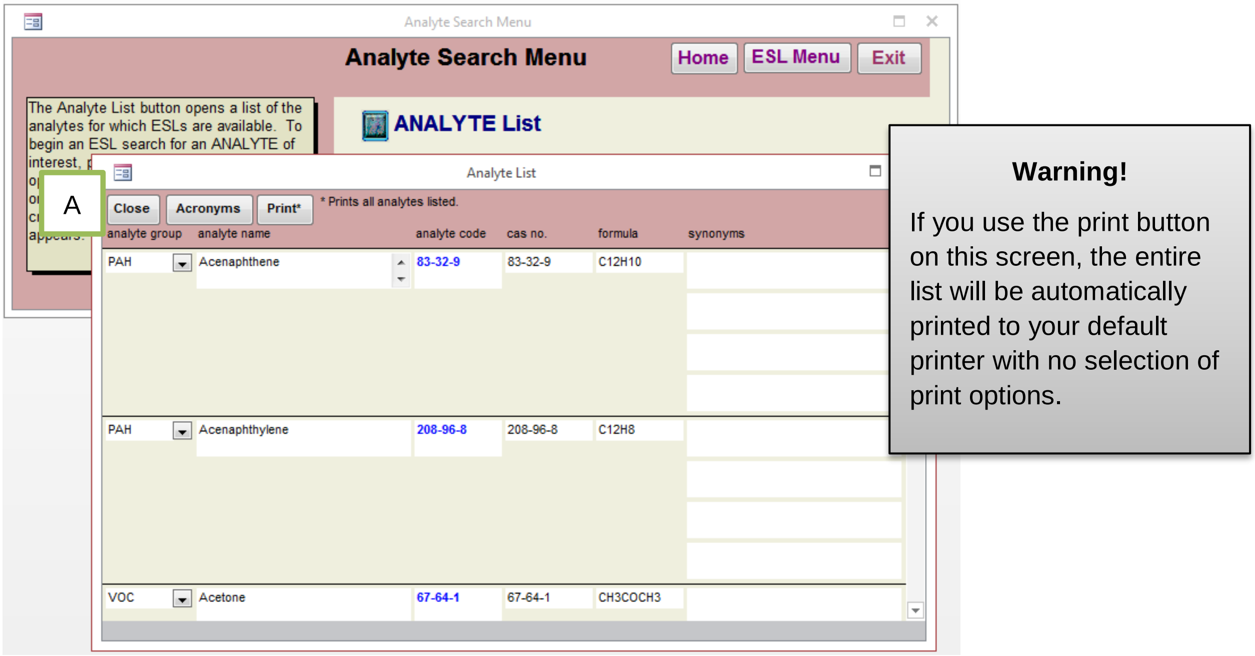


Figure 4.1-6 Analyte search menu – analyte list

4.1.1.1 Search by Name Option

Selecting the analyte by name option displays a pop-up box. Figure 4.1-7 shows the analyte name pull-down menu (A) in the pop-up box. The naming convention for analytes is the one used by the Laboratory's Environmental Programs Directorate to report analytical results collected in field studies. In this example, HMX (highlighted in black) is the selected analyte search criterion. After selecting the analyte, press the proceed button (B) to go to the next step or press the cancel button (C) to return to the previous screen.

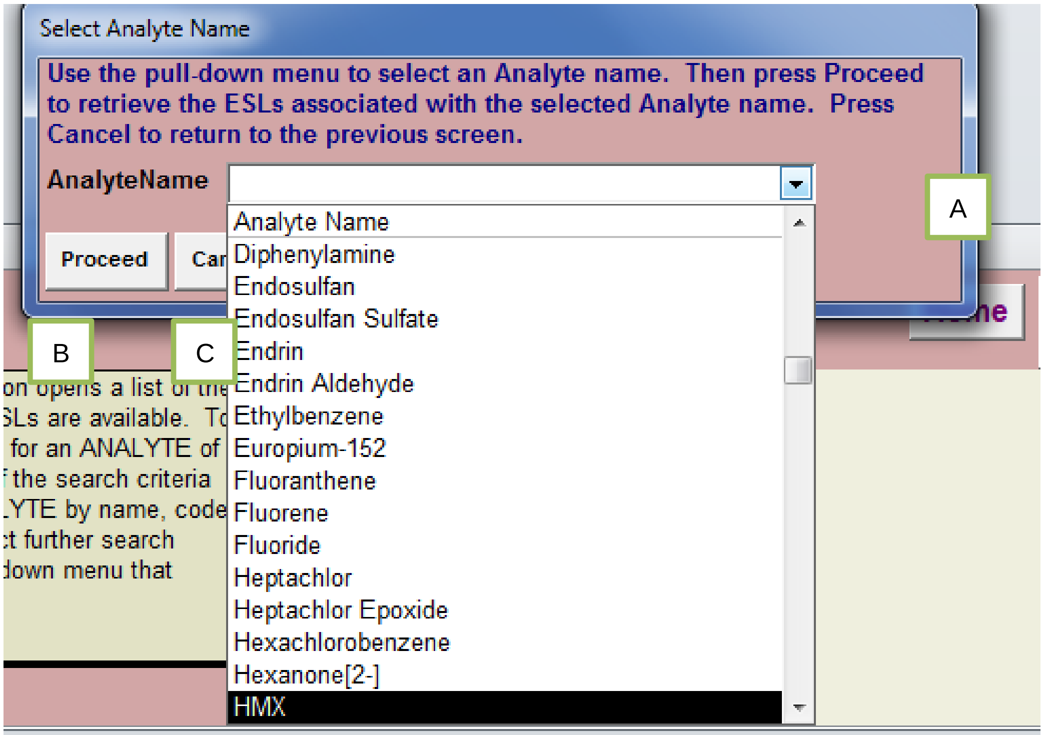


Figure 4.1-7 Analyte search menu – select analyte by name pop-up box with HMX selected

4.1.1.2 Search by Code Option

Selecting the analyte by code option displays a pop-up box. Figure 4.1-8 shows the analyte code pull-down menu (A) in the pop-up box. The coding convention for analytes is the one used by the Laboratory's Environmental Programs Directorate to report analytical results collected in field studies. The analyte code is equal to the CASRN for most organic analytes, while most inorganic analytes use a letter abbreviation based on the periodic chart of elements; e.g., lead is PB. In Figure 4.1-8, the code for HMX, 2691-41-0, is the selected analyte search criterion. After selecting the analyte code, press the proceed button (B) to go to the next step or press the cancel button (C) to return to the previous screen.

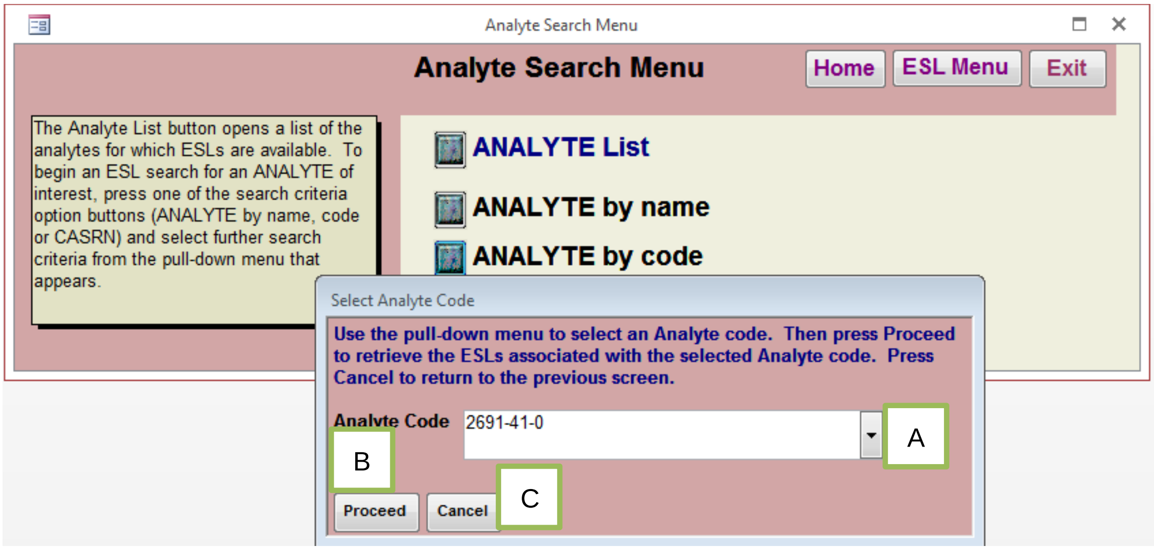


Figure 4.1-8 Analyte search menu – select analyte by code pop-up box with 2691-41-0 (HMX) selected

4.1.1.3 Search by CASRN Option

Selecting the analyte by CASRN option displays a pop-up box. Figure 4.1-9 shows the analyte CASRN pull-down menu (A) in the pop-up box. In Figure 4.1-9, the CASRN for HMX, 2691-40-0, is the selected analyte search criterion. After selecting the analyte CASRN, press the proceed button (B) to go to the next step or press the cancel button (C) to return to the previous screen.

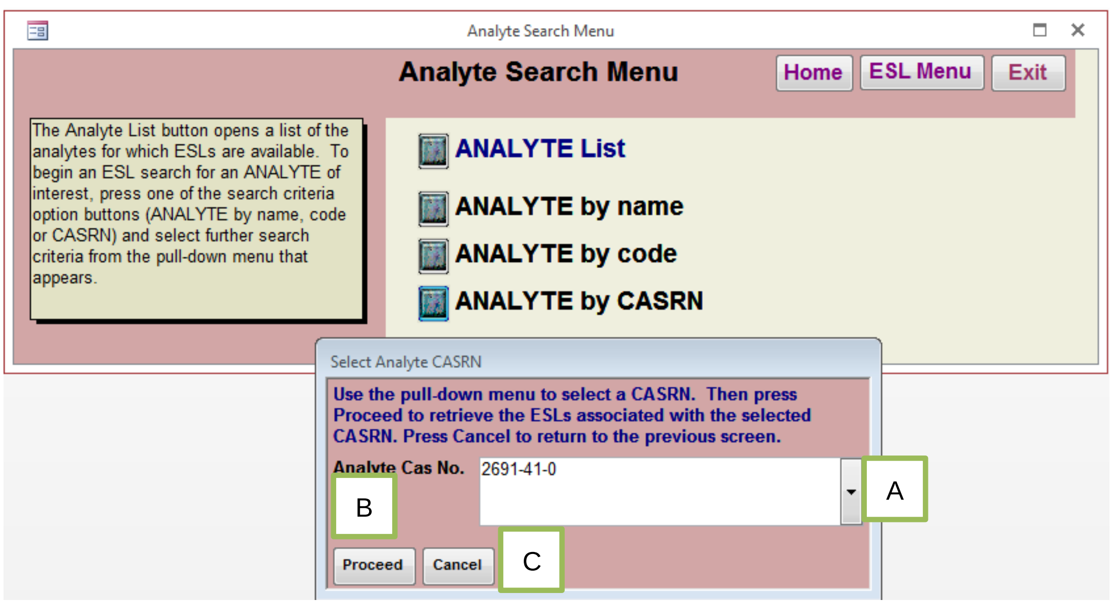


Figure 4.1-9 Analyte search menu – select analyte by CASRN pop-up box with 2691-41-0 (HMX) selected

4.1.2 Step 2: Select Receptor Search Criteria

Following selection of an analyte of interest, a pop-up box appears as shown in Figure 4.1-10. ESL records for all receptors (A) or for a specific receptor (B) for the analyte of interest may be viewed. Figure 4.1-10 shows HMX as the analyte of interest.

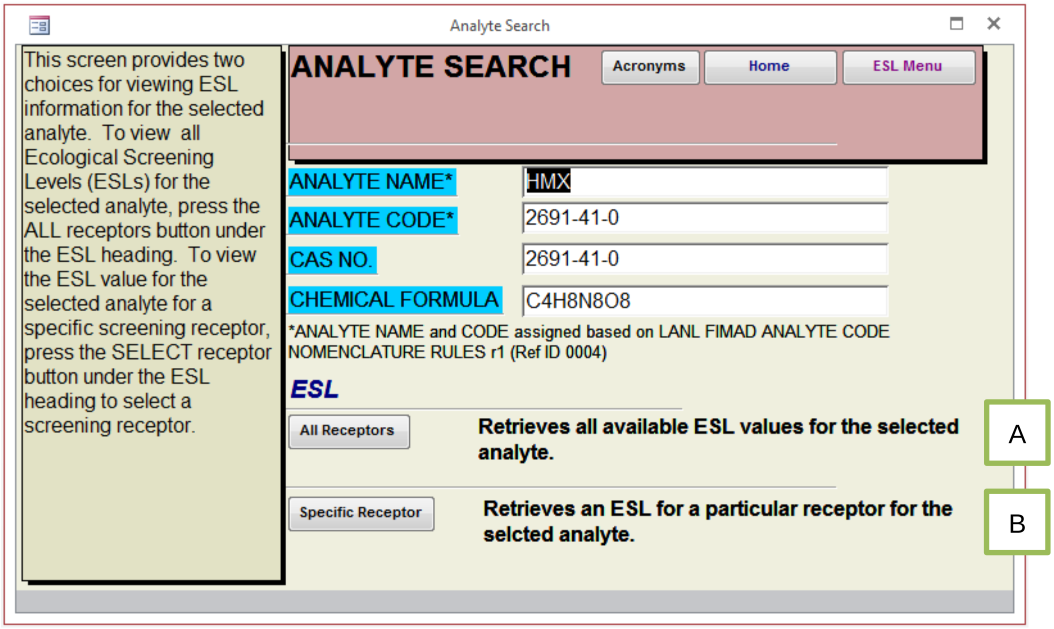


Figure 4.1-10 Analyte search menu – HMX – step 2, select receptor screen

Figure 4.1-11 is a navigation guide for Figure 4.1-10.

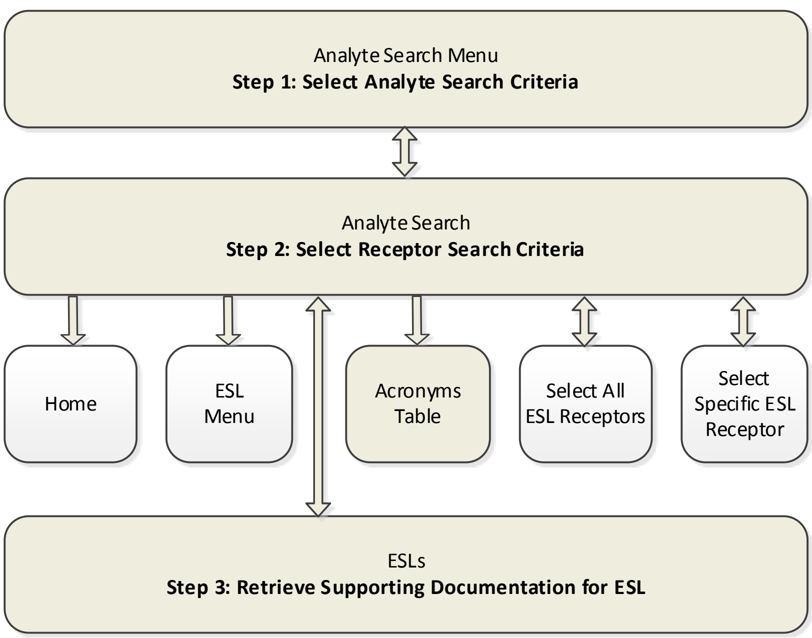


Figure 4.1-11 Visual navigation guide for analyte search menu – step 2, select receptor(s)

4.1.2.1 ESLs for All Receptors Option

Figure 4.1-12 displays the results retrieved for all receptors for HMX. In this example, 12 ESLs are available with 5 ESLs shown. This screen displays the following data fields: analyte group, analyte name, analyte code, screening receptor, receptor diet, ESL medium, no observed adverse effect level (NOAEL)/no observed effect concentration (NOEC) ESL, lowest observed adverse effect level (LOAEL)/lowest observed effect concentration (LOEC) ESL, ESL units, minimum ESL designation, and ESL notes. This screen also has two rows of navigation buttons. Row A has acronyms, analyte search (return), menu (return), and home (return) buttons. Row B has overview, ESL model, receptor parameters, TRV, transfer factor (TF), radionuclide (rad) parameters, and ESL reference buttons.

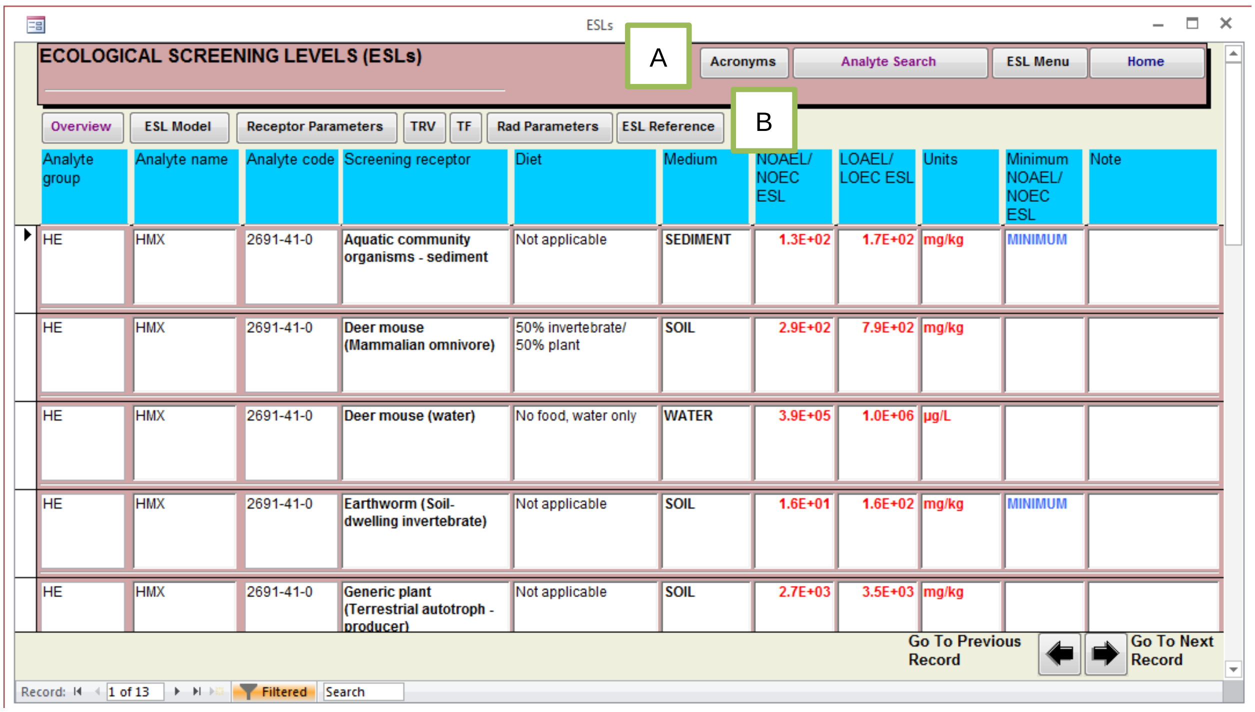


Figure 4.1-12 Analyte search menu – HMX – ESLs for all receptors screen

4.1.2.2 ESL for a Specific Receptor Option

Figure 4.1-13 displays the select screening receptor pop-up box with the deer mouse (mammalian omnivore) selected (highlighted in black) from the pull-down menu.

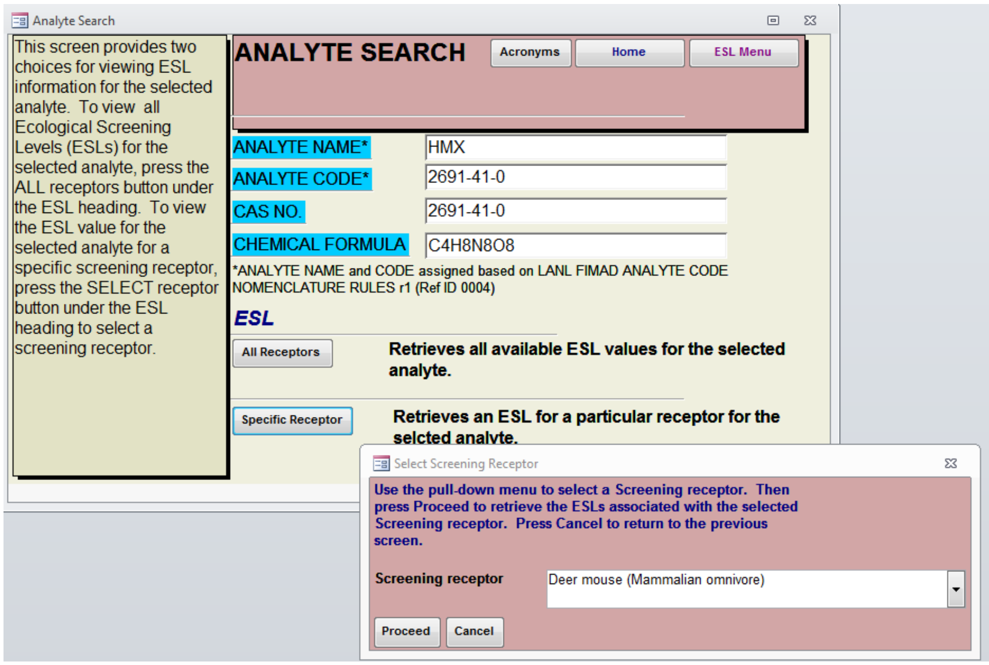


Figure 4.1-13 Analyte search menu – HMX – select a specific receptor screen with deer mouse selected

Figure 4.1-14 displays the ESL retrieved for the deer mouse (mammalian omnivore) and HMX. The same data fields and navigation buttons are available on this screen as shown in Figure 4.1-12.

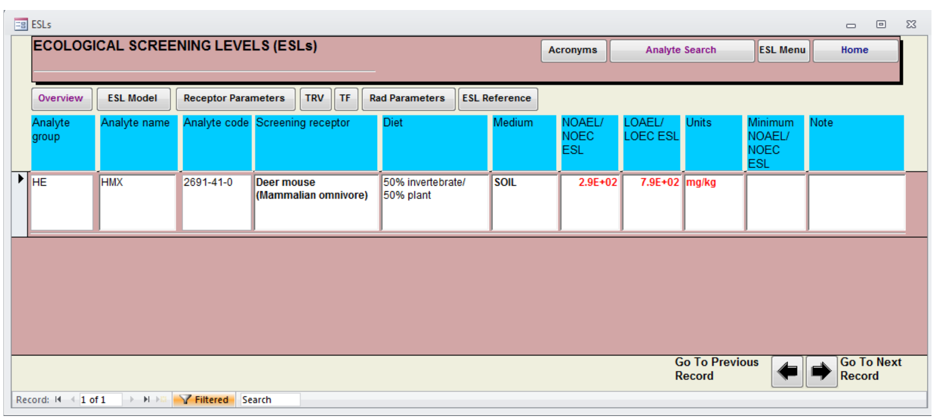


Figure 4.1-14 Analyte search menu – HMX – ESL for a specific receptor (deer mouse) screen

Figure 4.1-15 displays a navigation guide for Figure 4.1-14.

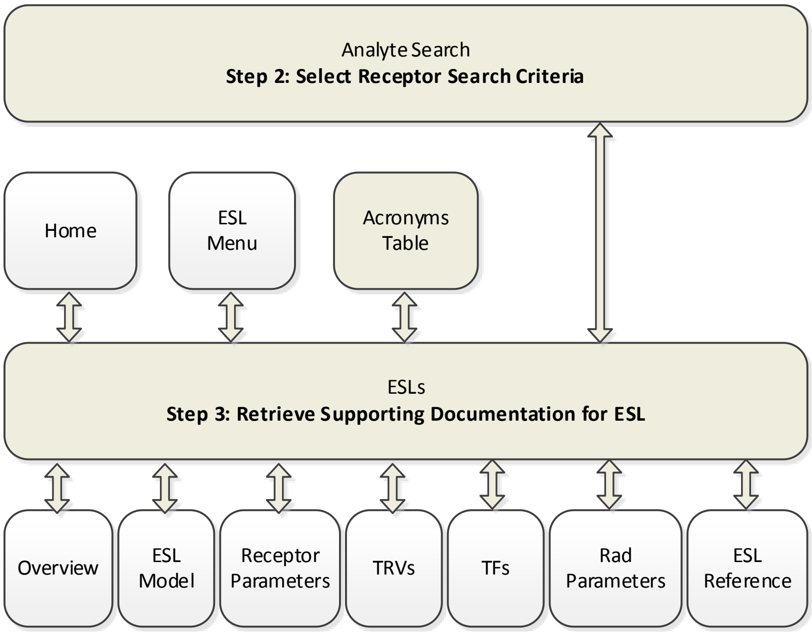


Figure 4.1-15 Visual navigation guide for ESL screen

4.1.3 Step 3: Retrieve Supporting Documentation for ESL

The following sections describe the properties of each navigation button available in row B as shown in Figure 4.1-12 (section 4.1.2, also see Figure 4.1-14). Navigation buttons for returning to previous screens are not described here. The acronym list report is in Appendix A, Report 4.1-1.

4.1.3.1 Overview

Figure 4.1-16 displays the overview screen, which provides a description of each of the supporting documentation buttons on the ESL screens.

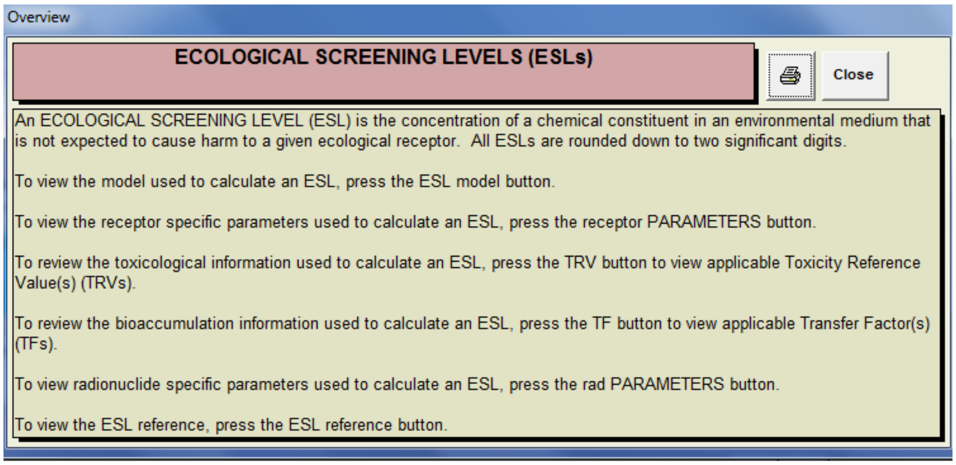


Figure 4.1-16 ESL screen supporting documentation – overview screen

4.1.3.2 ESL Model

Figure 4.1-17 displays the ESL model screen that contains the following data fields: ESL media, receptor group, receptor name, diet composition, and ESL equation. Figure 4.1-17 shows the deer mouse (mammalian omnivore) ecological screening receptor.

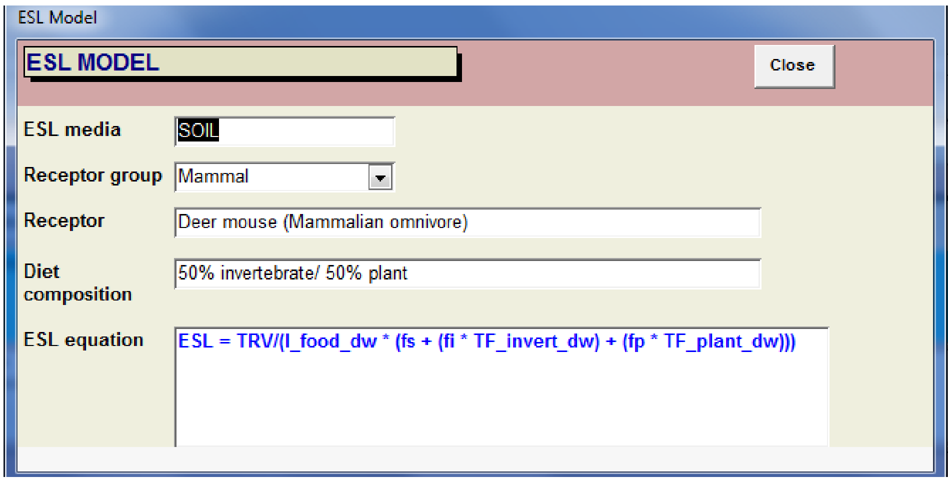


Figure 4.1-17 ESL screen supporting documentation – ESL model screen

4.1.3.3 Receptor Parameters

Figure 4.1-18 displays the receptor parameters screen, which lists each parameter used to calculate an ESL for a particular ecological screening receptor. Along with the parameter name, this screen displays the parameter value, units, notes, and reference. In Figure 4.1-18, ESL receptor specific parameters are listed for the deer mouse (mammalian omnivore), and 2 of 14 parameters associated with this screening receptor are shown.

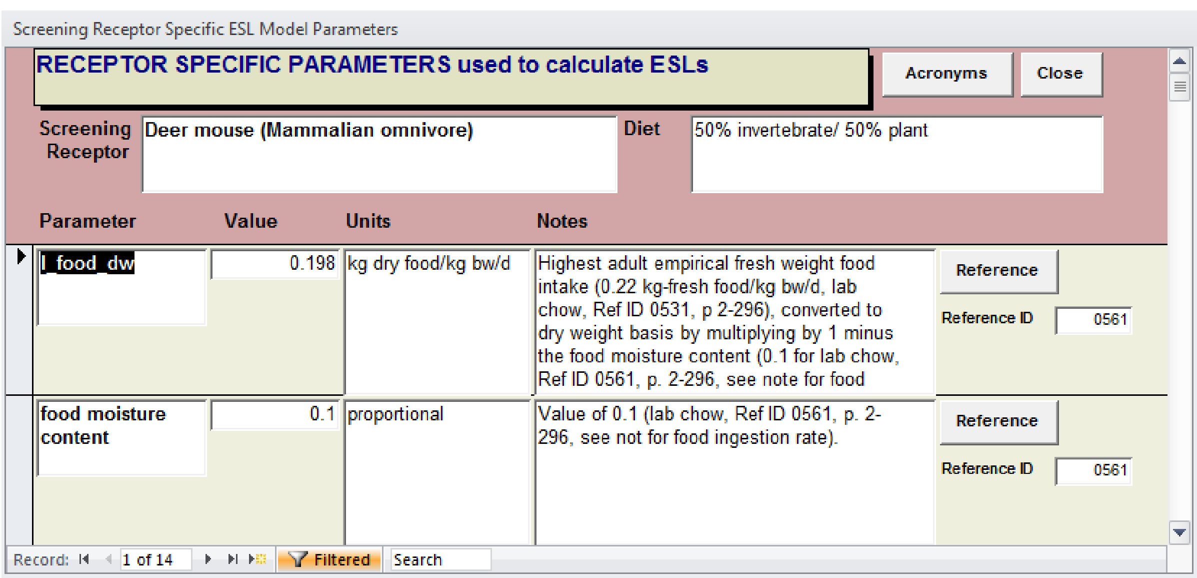


Figure 4.1-18 ESL screen supporting documentation – receptor parameters screen

4.1.3.4 TRV

Figure 4.1-19 displays the main screen in this section, the TRV summary screen, which provides a list of all the TRVs contained in the database for a particular analyte and receptor group, e.g., barium and mammals. The TRV type, NOAEL/NOEC TRV, LOAEL/LOEC TRV, TRV units, TRV organism, TRV exposure route, TRV exposure medium, selected as TRV, and TRV tier are the fields displayed on this screen. Besides the data fields presented for each TRV, a TRV details button is available that links to a detailed report about the derivation of a specific TRV. The TRV summary screen also links to the TRV development methods document, as well as an acronym list, definitions of TRV tiers, and a printable report. Applicable screens are displayed in sections 4.1.3 to 4.1.4. The acronym list report is available in Appendix A, Report 4.1-1.

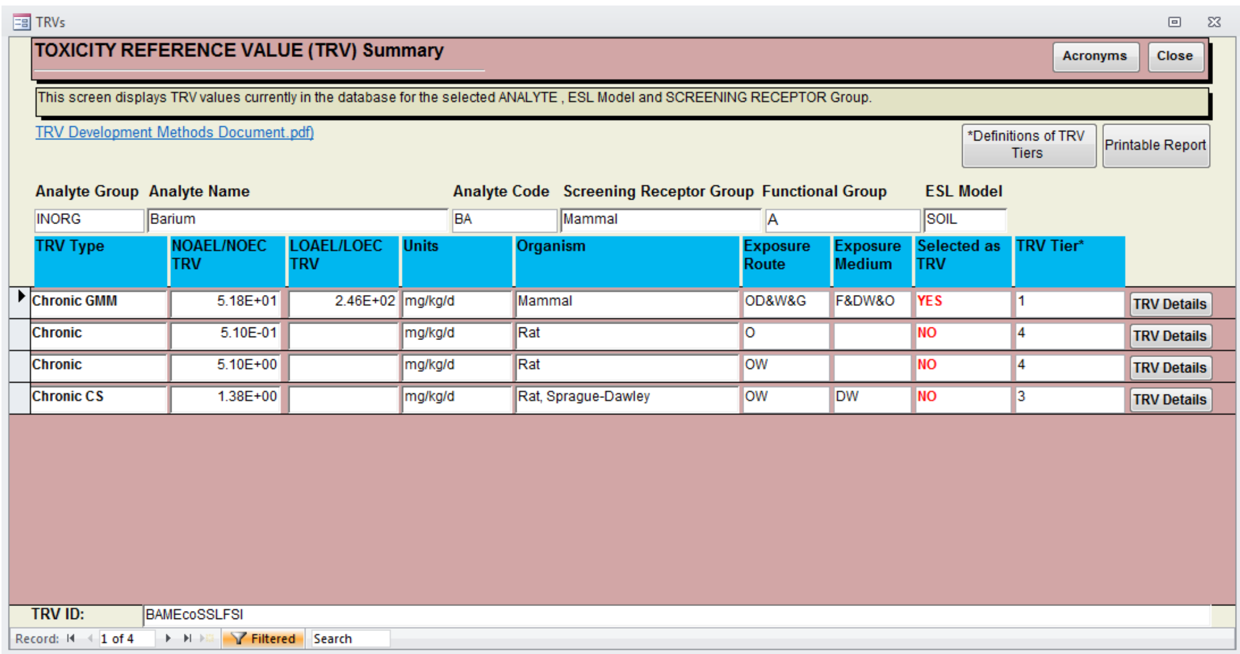


Figure 4.1-19 ESL screen supporting documentation – TRV summary screen – Tier 1 TRV for barium and mammals

Figure 4.1-20 is a guide for navigation among the main database screens pertaining to TRV documentation described in detail in sections 4.1.3.4.1 to 4.1.3.4.4. The main screens pertaining to TRV documentation include the TRV summary, TRV details report, primary toxicity values (PTVs) considered, and PTV screens.

ESLs in the database are associated with four tiers of TRVs: 1, 2, 3, and 4. Tier 1, 2, 3, and 4 TRVs are described in sections 4.1.3.4.1 to 4.1.3.4.4, respectively.

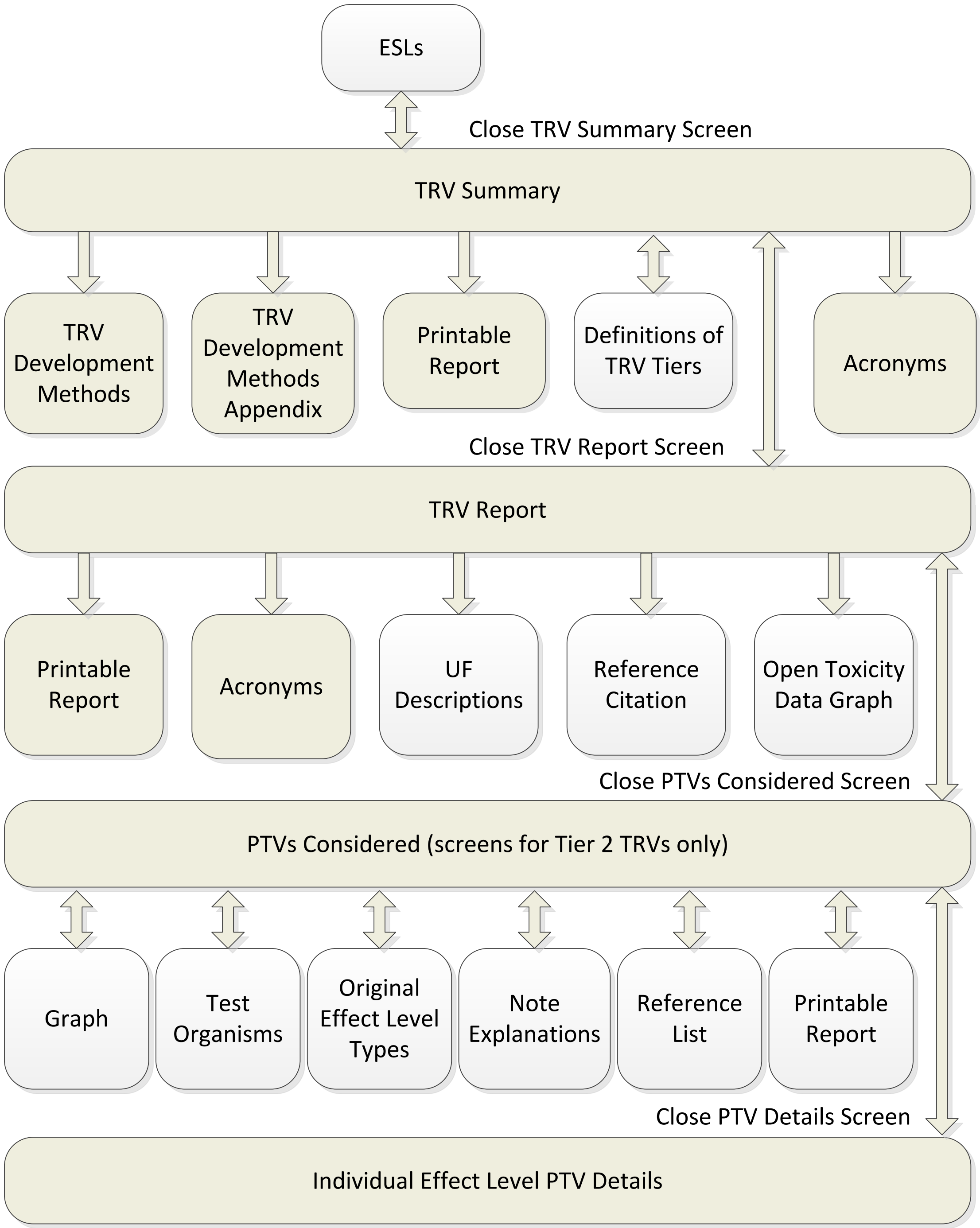


Figure 4.1-20 Visual navigation guide for TRV documentation

4.1.3.4.1 Tier 1 TRV

A Tier 1 TRV is a nationally accepted TRV, such as the EPA Eco-SSLs. Tier 1 TRVs are given highest preference for use in deriving an ESL. A Tier 1 TRV can be a critical study (CS) or GMM TRV (see Figure 4.1-21 for definitions). The figures in the following section show the relevant TRV information screenshots available for the Tier 1 TRV for barium and mammals and include the TRV tier descriptions

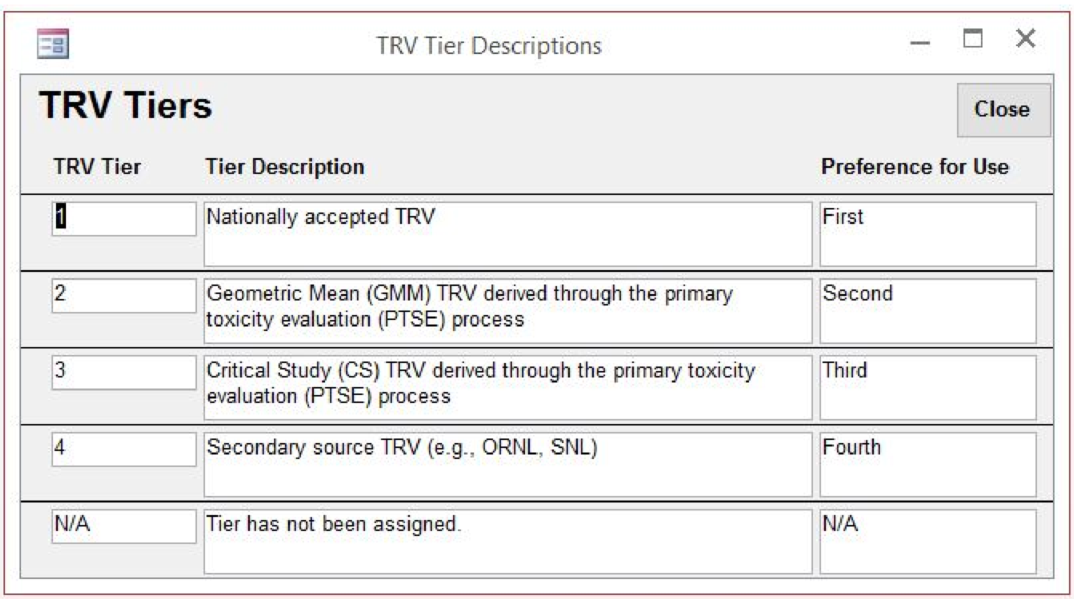
(Figure 4.1-21); TRV details report screen (Figure 4.1-22); uncertainty factor descriptions (Figure 4.1-23); and reference citation (Figure 4.1-24). The TRV details report screen with PTVs considered and TRV details report open toxicity data graph are not available for the Tier 1 TRV and are not displayed in this section (see Tier 2 TRV example in section 4.1.3.4.2).

The Laboratory has derived 25% of the TRVs (n = 911) for plants, earthworms, birds, and mammals based on evaluation of peer-reviewed toxicity study literature (Tier 2 and 3 TRVs).

The TRV summary screen printable report button, which provides a datasheet view report, is available in Appendix A, Report 4.1-2. The example report is for barium and mammals for the Tier 1 TRV. The following data fields are included in the report:

- Analyte group
- Analyte name
- Analyte code
- ESL receptor class
- ESL model
- TRV selected
- TRV type
- No-effect TRV
- Low-effect TRV
- TRV units
- Test organism common name
- TRV exposure route
- TRV exposure medium
- TRV summary ID
- TRV tier

As shown in Figure 4.1-21, selecting the definitions of TRV tiers button displays the descriptions for each of the four tiers of TRVs and lists them in order of preference for use in calculating an ESL.



TRV Tier	Tier Description	Preference for Use
1	Nationally accepted TRV	First
2	Geometric Mean (GMM) TRV derived through the primary toxicity evaluation (PTSE) process	Second
3	Critical Study (CS) TRV derived through the primary toxicity evaluation (PTSE) process	Third
4	Secondary source TRV (e.g., ORNL, SNL)	Fourth
N/A	Tier has not been assigned.	N/A

Figure 4.1-21 TRV summary screen – TRV tier descriptions

Figure 4.1-22 is the TRV details report screen for the barium and mammals Tier 1 TRV. This screen displays the details for a particular TRV listed on the TRV summary screen. The TRV details report screen includes the following data fields:

- TRV summary ID
- Analyte group
- Analyte name
- Analyte code
- Screening receptor group
- Functional group
- ESL model
- TRV type
- NOAEL/NOEC TRV
- LOAEL/LOEC TRV
- Units
- Organism
- Exposure route
- Exposure medium
- Selected as TRV
- TRV tier
- TRV data source
- Confidence rating
- New Mexico Environment Department (NMED) concurrence date
- NOAEL/NOEC derivation notes
- Uncertainty factor(s)
- Calculation
- Logarithm to the octanol/water partition coefficient (Log Kow)
- Organic carbon partition coefficient (Koc)
- Fraction of organic compound (foc)
- Data set distribution comments
- LOAEL/LOEC comparison
- LANL CS TRV comparison
- LANL ORNL TRV comparison
- EPA Region 6 TRV comparison
- LANL threatened and endangered (T&E) TRV comparison
- Reference ID
- NOAEL/NOEC Value last updated on
- NOAEL/NOEC Text last updated on
- LOAEL/LOEC derivation notes
- LOAEL/LOEC value last updated on
- LOAEL/LOEC text last updated on

The printable report version of the TRV details report screen contains the same data fields and is available using the navigation button (A) shown in Figure 4.1-22. The report is available in Appendix A, Report 4.1-3, for the barium and mammals Tier 1 TRV. Figure 4.1-22 also shows the navigation buttons to access PTVs considered (B), the open toxicity data graph (C), uncertainty factor (UF) descriptions (D), and the reference citation (E). Buttons B and C are not applicable to the Tier 1 TRV and are not explained in this section (see section 4.1.3.4.2).

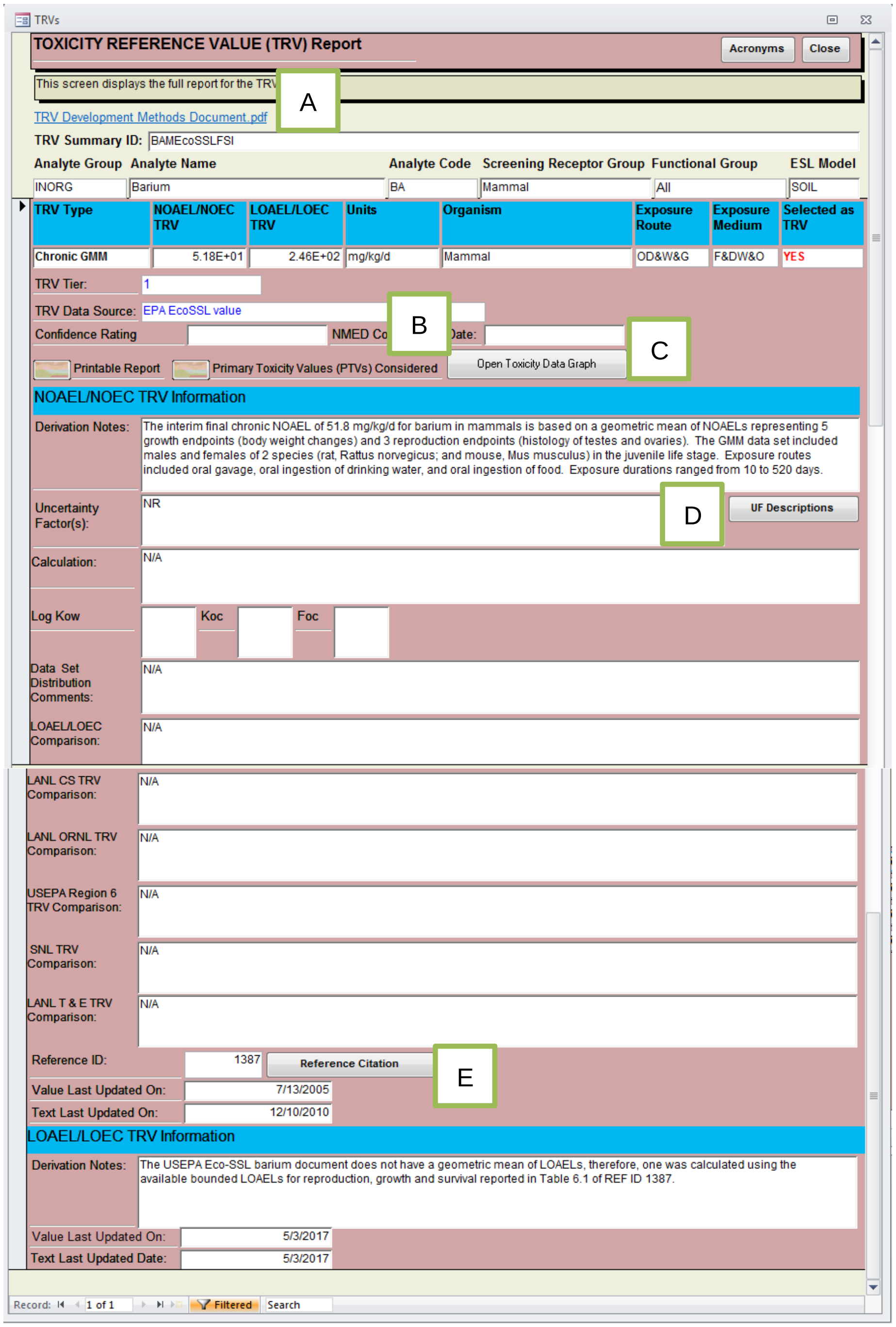
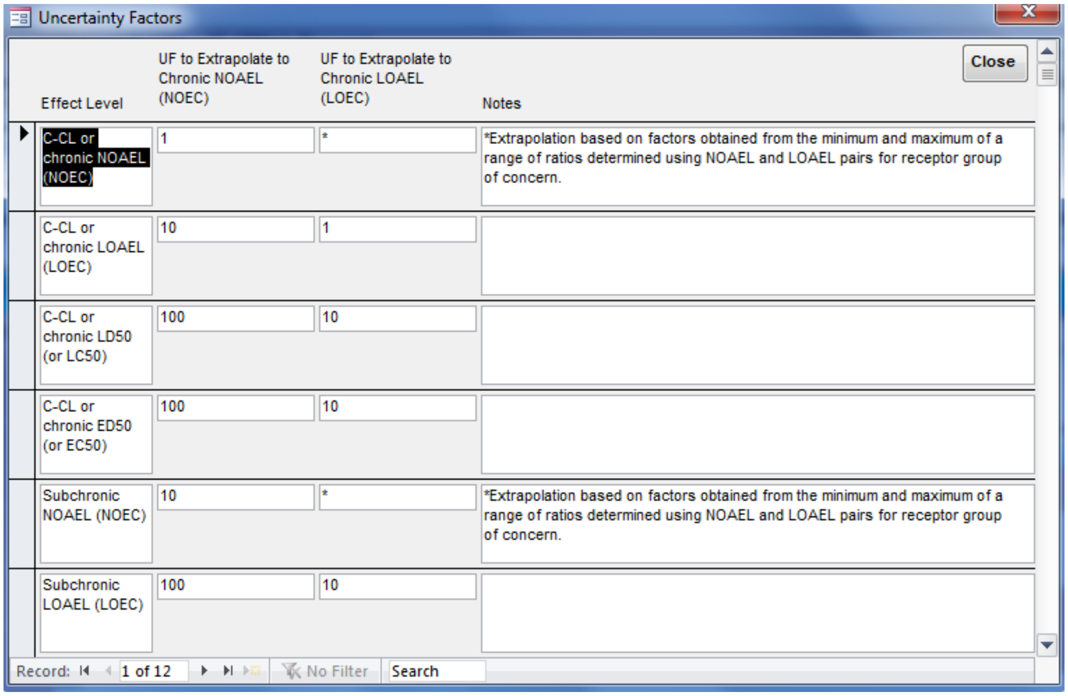


Figure 4.1-22 TRV details report – Tier 1 TRV for barium and mammals

The UF descriptions button (D) opens the uncertainty factors screen, Figure 4.1-23, which displays the uncertainty factors used in the database along with their descriptions. The uncertainty factors are used to extrapolate from various effect level types to a chronic NOAEL/NOEC, which is the required effect level for deriving a TRV.



Uncertainty Factors

Effect Level	UF to Extrapolate to Chronic NOAEL (NOEC)	UF to Extrapolate to Chronic LOAEL (LOEC)	Notes
C-CL or chronic NOAEL (NOEC)	1	*	*Extrapolation based on factors obtained from the minimum and maximum of a range of ratios determined using NOAEL and LOAEL pairs for receptor group of concern.
C-CL or chronic LOAEL (LOEC)	10	1	
C-CL or chronic LD50 (or LC50)	100	10	
C-CL or chronic ED50 (or EC50)	100	10	
Subchronic NOAEL (NOEC)	10	*	*Extrapolation based on factors obtained from the minimum and maximum of a range of ratios determined using NOAEL and LOAEL pairs for receptor group of concern.
Subchronic LOAEL (LOEC)	100	10	

Figure 4.1-23 TRV details report – uncertainty factors

The reference citation button (E) opens the reference screen, Figure 4.1-24, which displays the reference information for the TRV and reports the full citation, the Laboratory's Records Processing Facility's ID (ER ID), and the ECORISK Database's reference ID.

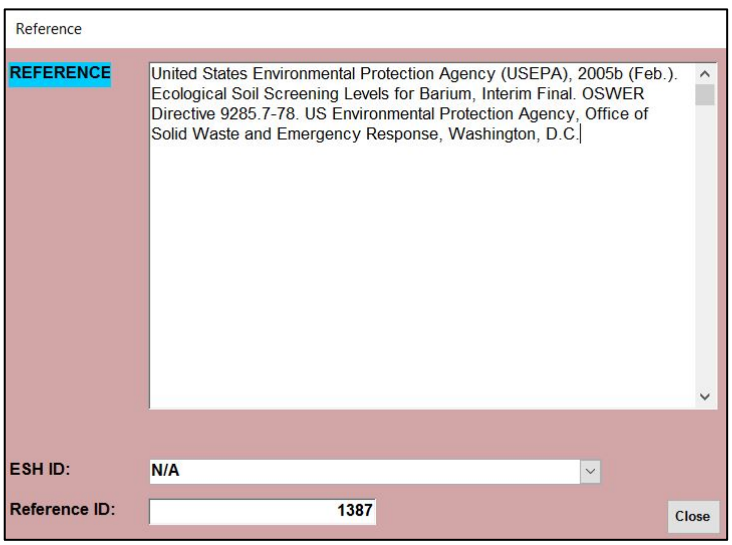


Figure 4.1-24 TRV details report – reference citation – Tier 1 TRV for barium and mammals

4.1.3.4.2 Tier 2 TRV

A Tier 2 TRV is a Laboratory-derived TRV. Tier 2 TRVs are given second highest preference for use in deriving an ESL. A Tier 2 TRV is a GMM TRV derived by the Laboratory following review of the scientific literature using the PTSE process (LANL 2010, 110623). The following figures display the relevant TRV information screenshots available for the Tier 2 TRV that were not already shown in the previous section for the Tier 1 TRV. Figures include the open toxicity data graph (Figure 4.1-25) and PTVs considered screen (Figure 4.1-26) with associated PTV information screens, including test organisms (Figure 4.1-28), original effect level types (Figure 4.1-29), note explanations (Figure 4.1-30), reference list (Figure 4.1-31), and individual effect level PTV details (Figure 4.1-32).

> **Note**
>
> 9% of the TRVs for plants, earthworms, birds, and mammals are Tier 2 TRVs.

Figure 4.1-25 displays the open toxicity data graph of the NOAEL-/NOEC-based effect levels (ELs) used to calculate the GMM TRV along with their associated chronic LOAEL-/LOEC-based ELs. The confidence of high, medium, or low is assigned to each NOAEL-/NOEC-based EL and is indicated in the legend of the graph. There may be several graphs (records) associated with a particular TRV, depending on the number of effect levels included in the data set. The record navigation button at the bottom of the screen can be used to move between records.

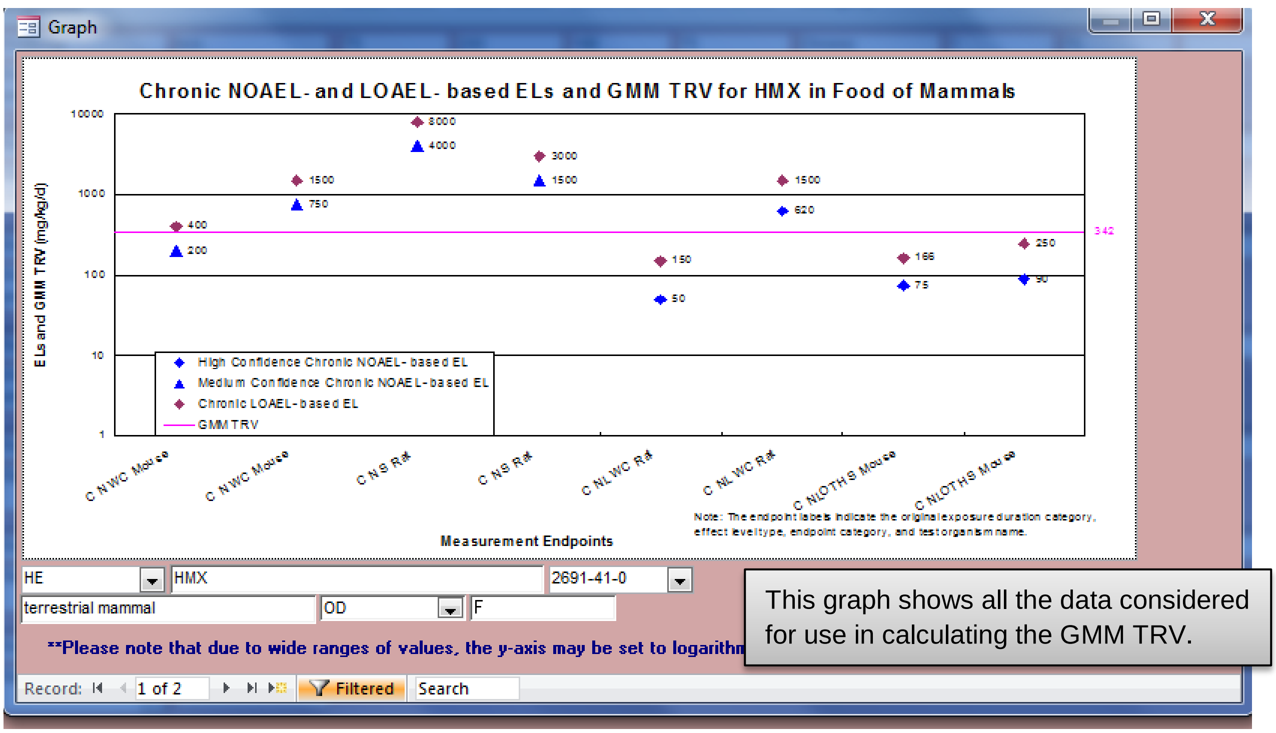


Figure 4.1-25 TRV details report – open toxicity data graph of NOAEL-/NOEC- and LOAEL-/LOEC-based ELs – Tier 2 TRV for HMX and mammals

Figure 4.1-26 shows the TRV details report with the PTVs considered for HMX and mammals. Data for all the NOAEL-/NOEC-based ELs considered for deriving the Tier 2, NOAEL-/NOEC-based GMM TRV are displayed and include the following fields:

- Analyte code
- TRV organism ID
- TRV reference ID
- GMM TRV ID
- GMM EL ID
- PTV ID
- Endpoint category ID/endpoint
- Test organism order/test organism
- Test chemical form
- NOAEL/no observed effect level (NOEL)/NOEC
- LOAEL/lowest observed effect level (LOEL)/LOEC
- Other effect level
- Selected effect level
- Exposure period category
- Uncertainty factor
- GMM NOAEL (NOEC) EL
- GMM LOAEL (LOEC) EL minimum
- GMM LOAEL (LOEC) EL maximum
- Notes
- Confidence rating and %max. score

This screen also has navigation buttons to access summary information screens for the effect level data set, including the graph of NOAEL-/NOEC- and LOAEL-/LOEC-based ELs (Figure 4.1-25), test organisms (Figure 4.1-28), original effect level types (Figure 4.1-29), note explanations (Figure 4.1-30), reference list (Figure 4.1-31), printable report (Appendix A, Report 4.1-4), and individual effect level PTV details (Figure 4.1-32).

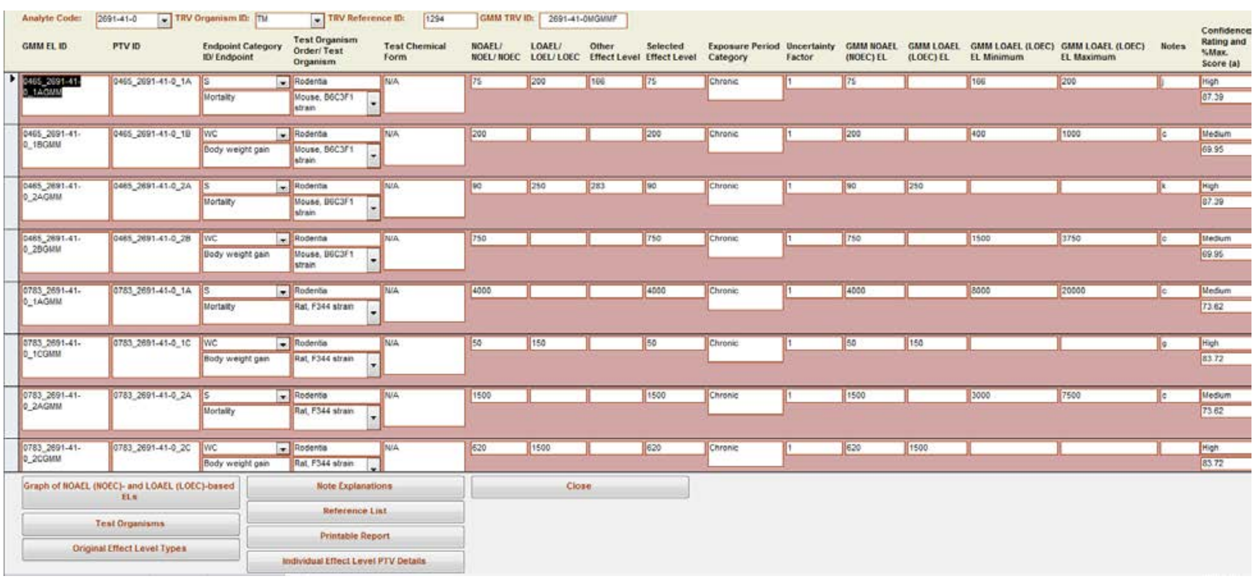


Figure 4.1-26 TRV details report – PTVs considered GMM TRV data set ELs – Tier 2 TRV for HMX and mammals

Figure 4.1-27 is a visual navigation guide for the PTVs considered screen in Figure 4.1-26.

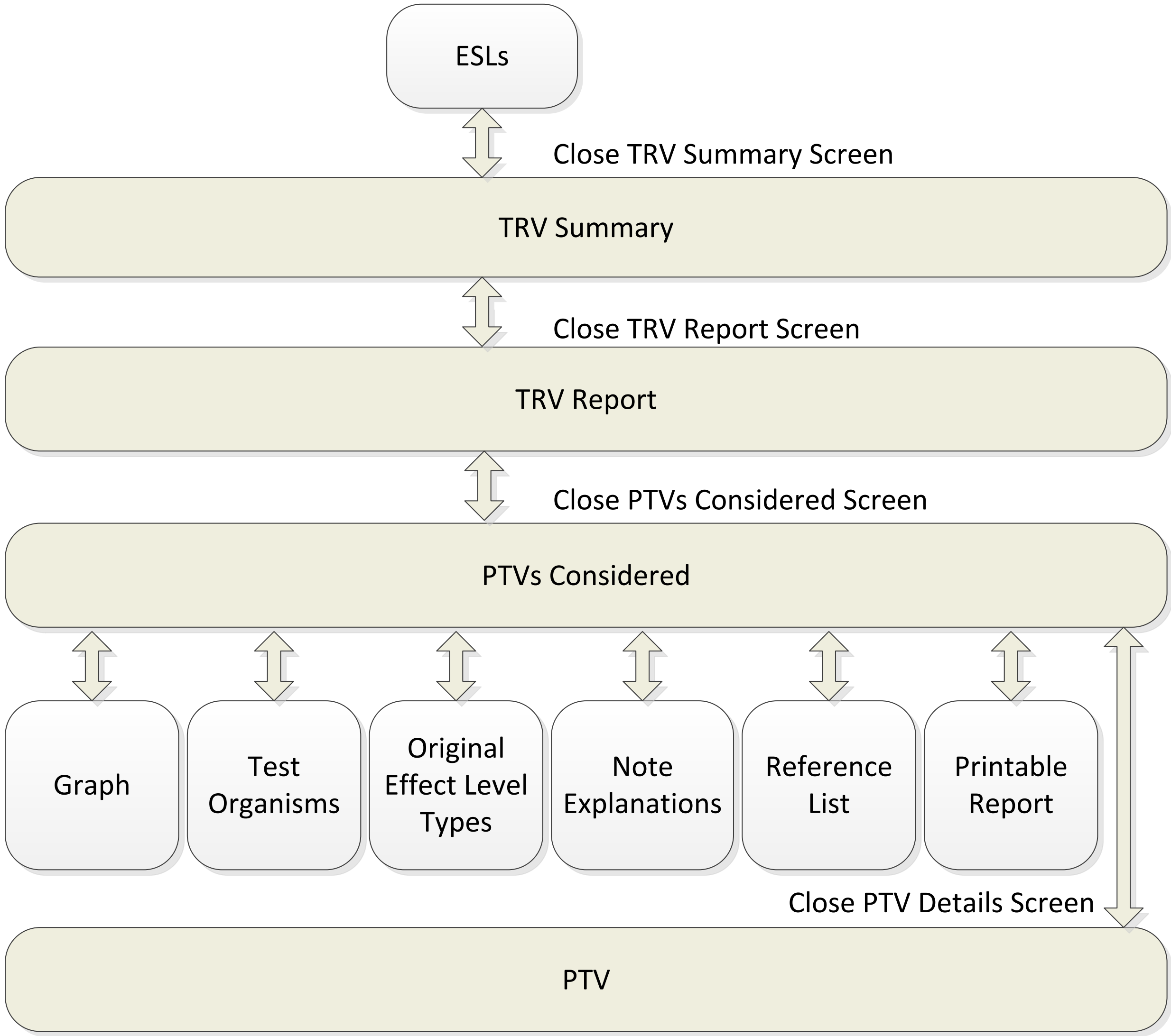


Figure 4.1-27 Visual navigation guide for PTVs considered screen

The graph of the NOAEL-/NOEC-based ELs considered for use to calculate the GMM TRV along with their associated chronic LOAEL-/LOEC-based ELs is the same as the graph shown in Figure 4.1-25. The confidence of high, medium, or low is assigned to each NOAEL-/NOEC-based EL and is indicated in the legend of the graph.

Figure 4.1-28 displays the types of test organisms in the effect level data set considered for use in calculating the GMM TRV, including the order, common name, and count of test organism per type.

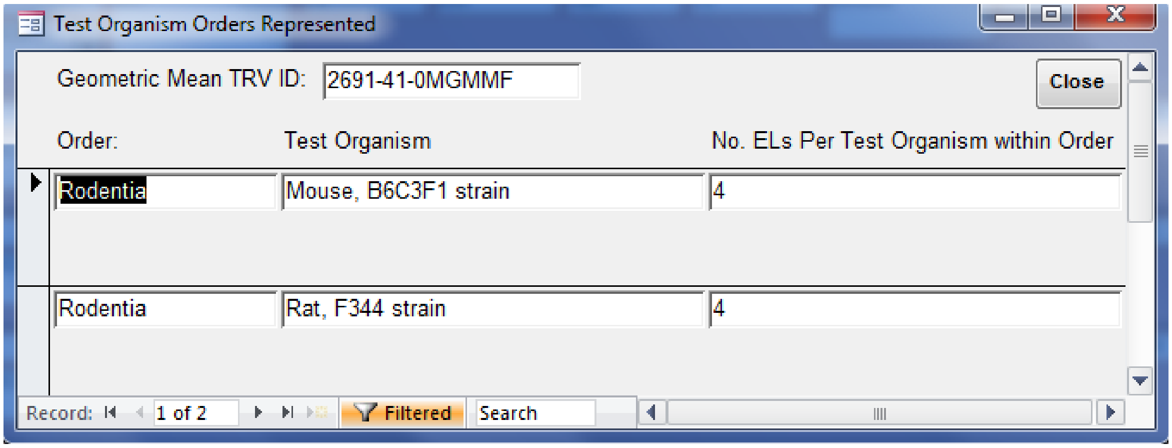


Figure 4.1-28 TRV details report – PTVs considered – test organisms – Tier 2 TRV for HMX and mammals

Figure 4.1-29 displays the types and number of original effect levels associated with the effect levels in the data set considered for calculating the GMM TRV.

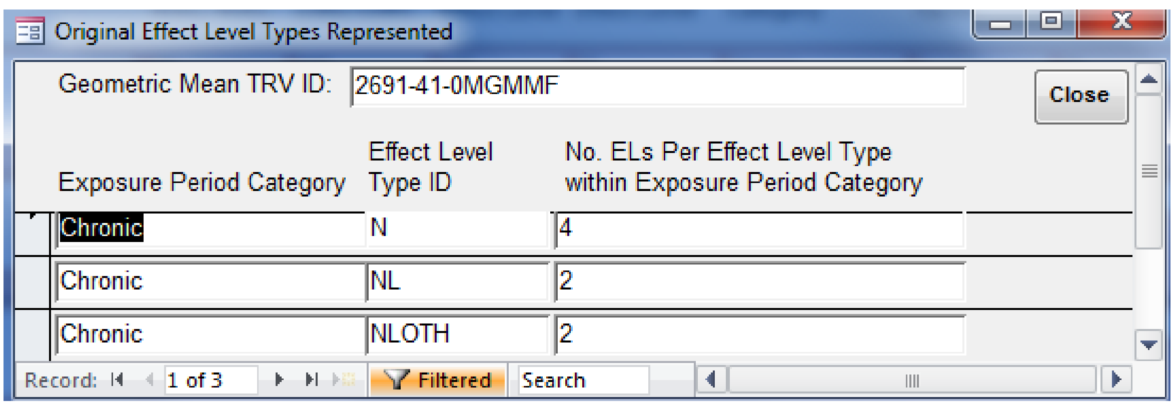
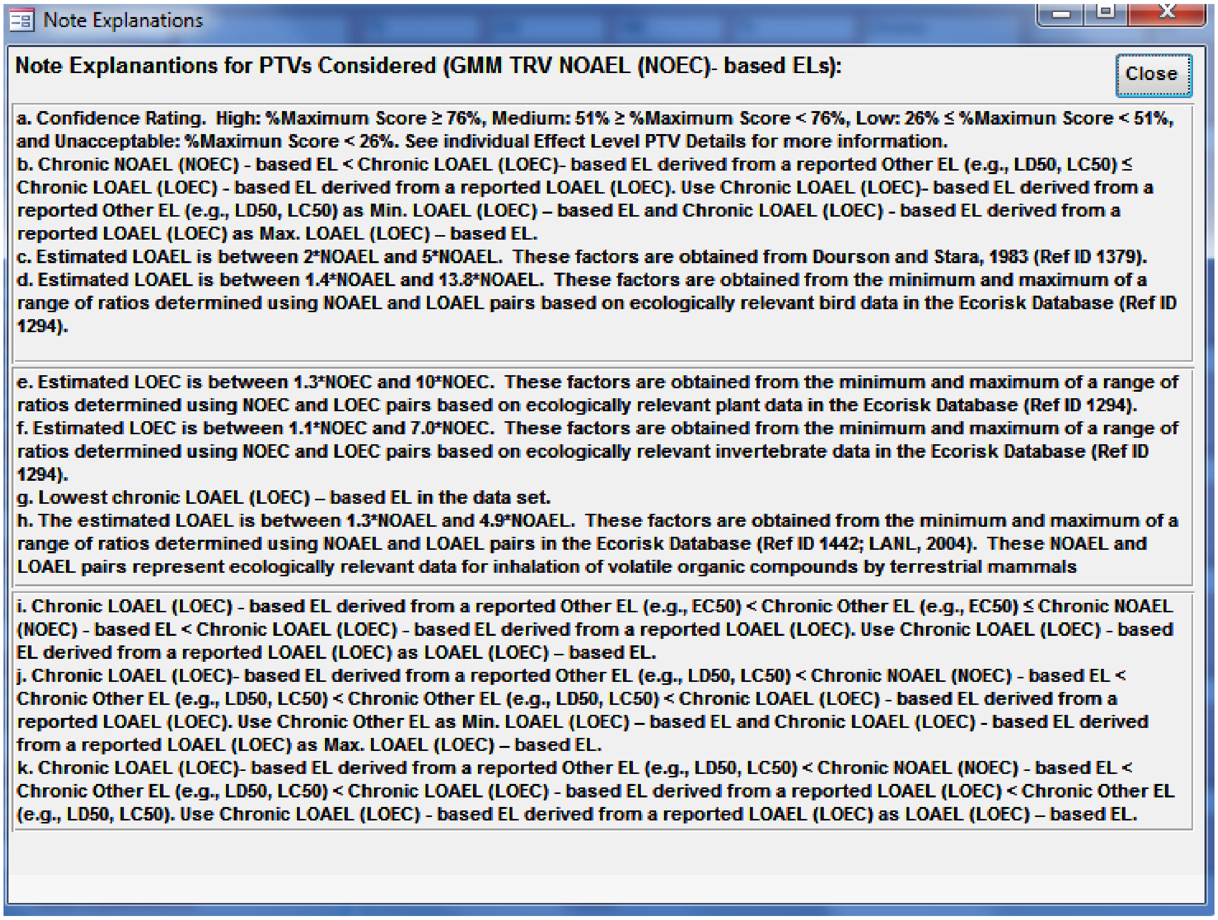


Figure 4.1-29 TRV details report – PTVs considered – original effect level types – Tier 2 TRV for HMX and mammals

Figure 4.1-30 displays the note explanations for the letters entered in the notes data field for the effect levels considered for calculating the GMM TRV. The notes have explanations for confidence ratings and scores as well as explanations for how the effect levels were derived from the original PTV.



Note Explanations

Note Explanantions for PTVs Considered (GMM TRV NOAEL (NOEC)- based ELs):

Close

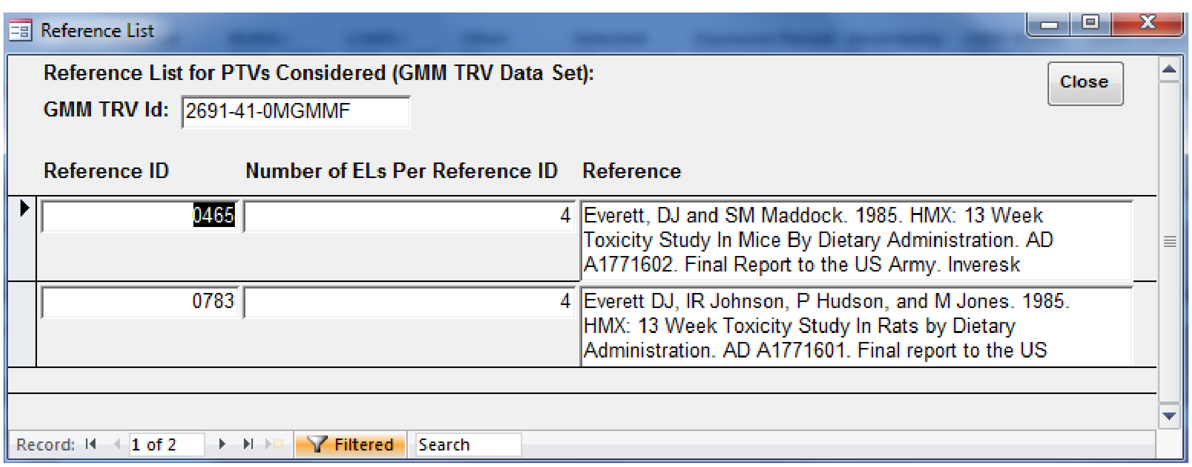
a. Confidence Rating. High: %Maximum Score ≥ 76%, Medium: 51% ≥ %Maximum Score < 76%, Low: 26% ≤ %Maximun Score < 51%, and Unacceptable: %Maximun Score < 26%. See individual Effect Level PTV Details for more information.
b. Chronic NOAEL (NOEC) - based EL < Chronic LOAEL (LOEC)- based EL derived from a reported Other EL (e.g., LD50, LC50) ≤ Chronic LOAEL (LOEC) - based EL derived from a reported LOAEL (LOEC). Use Chronic LOAEL (LOEC)- based EL derived from a reported Other EL (e.g., LD50, LC50) as Min. LOAEL (LOEC) – based EL and Chronic LOAEL (LOEC) - based EL derived from a reported LOAEL (LOEC) as Max. LOAEL (LOEC) – based EL.
c. Estimated LOAEL is between 2*NOAEL and 5*NOAEL. These factors are obtained from Dourson and Stara, 1983 (Ref ID 1379).
d. Estimated LOAEL is between 1.4*NOAEL and 13.8*NOAEL. These factors are obtained from the minimum and maximum of a range of ratios determined using NOAEL and LOAEL pairs based on ecologically relevant bird data in the Ecorisk Database (Ref ID 1294).

e. Estimated LOEC is between 1.3*NOEC and 10*NOEC. These factors are obtained from the minimum and maximum of a range of ratios determined using NOEC and LOEC pairs based on ecologically relevant plant data in the Ecorisk Database (Ref ID 1294).
f. Estimated LOEC is between 1.1*NOEC and 7.0*NOEC. These factors are obtained from the minimum and maximum of a range of ratios determined using NOEC and LOEC pairs based on ecologically relevant invertebrate data in the Ecorisk Database (Ref ID 1294).
g. Lowest chronic LOAEL (LOEC) – based EL in the data set.
h. The estimated LOAEL is between 1.3*NOAEL and 4.9*NOAEL. These factors are obtained from the minimum and maximum of a range of ratios determined using NOAEL and LOAEL pairs in the Ecorisk Database (Ref ID 1442; LANL, 2004). These NOAEL and LOAEL pairs represent ecologically relevant data for inhalation of volatile organic compounds by terrestrial mammals

i. Chronic LOAEL (LOEC) - based EL derived from a reported Other EL (e.g., EC50) < Chronic Other EL (e.g., EC50) ≤ Chronic NOAEL (NOEC) - based EL < Chronic LOAEL (LOEC) - based EL derived from a reported LOAEL (LOEC). Use Chronic LOAEL (LOEC) - based EL derived from a reported LOAEL (LOEC) as LOAEL (LOEC) – based EL.
j. Chronic LOAEL (LOEC)- based EL derived from a reported Other EL (e.g., LD50, LC50) < Chronic NOAEL (NOEC) - based EL < Chronic Other EL (e.g., LD50, LC50) < Chronic Other EL (e.g., LD50, LC50) < Chronic LOAEL (LOEC) - based EL derived from a reported LOAEL (LOEC). Use Chronic Other EL as Min. LOAEL (LOEC) – based EL and Chronic LOAEL (LOEC) - based EL derived from a reported LOAEL (LOEC) as Max. LOAEL (LOEC) – based EL.
k. Chronic LOAEL (LOEC)- based EL derived from a reported Other EL (e.g., LD50, LC50) < Chronic NOAEL (NOEC) - based EL < Chronic Other EL (e.g., LD50, LC50) < Chronic LOAEL (LOEC) - based EL derived from a reported LOAEL (LOEC) < Chronic Other EL (e.g., LD50, LC50). Use Chronic LOAEL (LOEC) - based EL derived from a reported LOAEL (LOEC) as LOAEL (LOEC) – based EL.

Figure 4.1-30 TRV details report – PTVs considered – note explanations – Tier 2 TRV for HMX and mammals

Figure 4.1-31 displays the descriptions and number of unique references associated with the effect levels considered for use in calculating the GMM TRV. The reference ID refers to the unique identifier for each reference within the database.



Reference List

Reference List for PTVs Considered (GMM TRV Data Set):

GMM TRV Id: 2691-41-0MGMMF

Close

Reference ID	Number of ELs Per Reference ID	Reference
0465	4	Everett, DJ and SM Maddock. 1985. HMX: 13 Week Toxicity Study In Mice By Dietary Administration. AD A1771602. Final Report to the US Army. Inveresk
0783	4	Everett DJ, IR Johnson, P Hudson, and M Jones. 1985. HMX: 13 Week Toxicity Study In Rats by Dietary Administration. AD A1771601. Final report to the US

Record: 1 of 2 Filtered Search

Figure 4.1-31 TRV details report – PTVs considered – reference list – Tier 2 TRV for HMX and mammals

The printable report version of the PTVs considered screen (Figure 4.1-26) for HMX and mammals for the Tier 2 TRV is available in Appendix A, Report 4.1-4.

Figure 4.1-32 displays the individual effect level PTV details for a specific PTV from the PTVs considered screen, including the analyte group, analyte name, analyte code, exposure duration, NOAEL or NOEC, LOAEL or LOEC, other effect level, units, organism, measured effect, reference ID, selected for CS TRV field, review status, and effect ID. This screen also has navigation buttons to access the acronym list report and further PTV information, including study details, study evaluation, effect level derivation, the summary graph, and three printable reports.

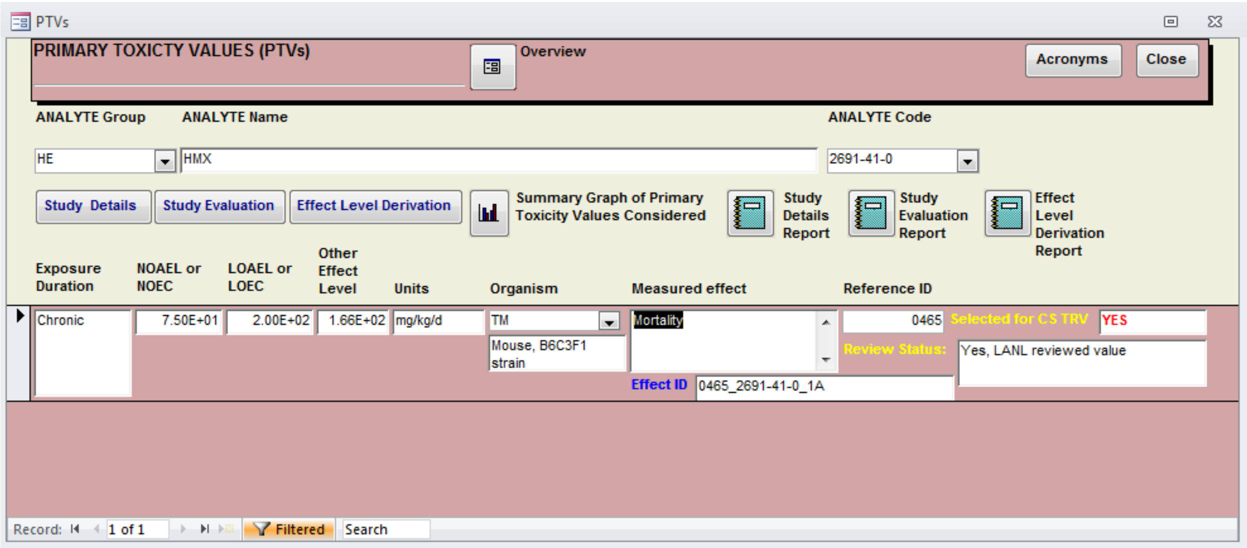


Figure 4.1-32 TRV details report – PTVs considered – individual effect level PTV details – Tier 2 TRV for HMX and mammals

Figure 4.1-33 is a visual navigation guide for the PTV screen shown in Figure 4.1-32.

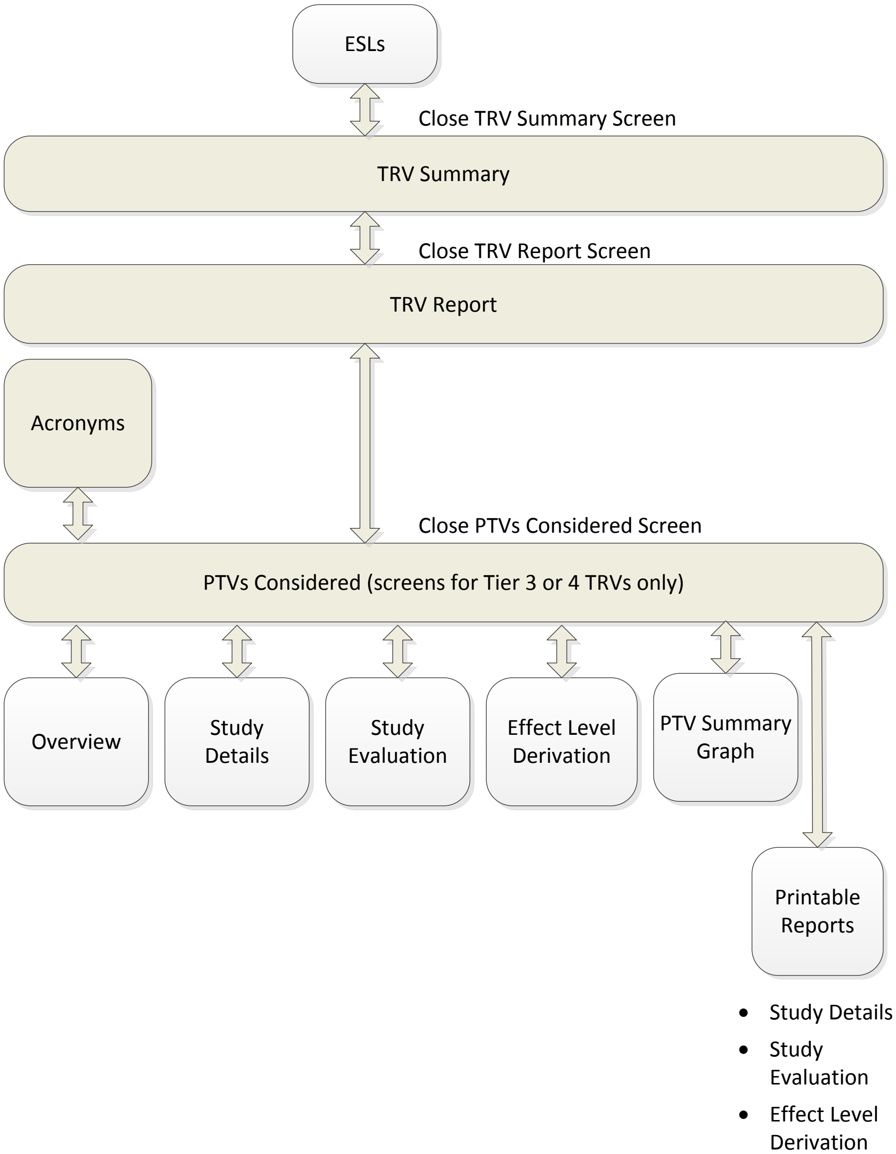


Figure 4.1-33 Visual navigation guide for the PTV screen

Figure 4.1-34 displays an overview of the PTV documentation available on the PTV screen shown in Figure 4.1-32.

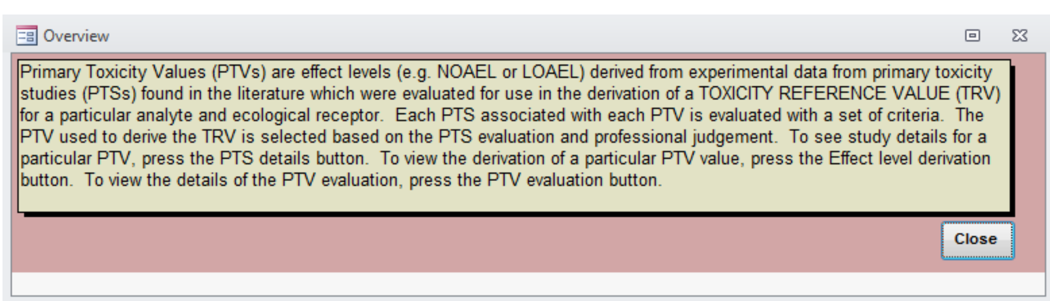


Figure 4.1-34 PTVs considered – individual effect level PTV details – overview – Tier 2 TRV for HMX and mammals

The acronym list report that can be accessed from the PTV screen is available in Appendix A, Report 4.1-1.

Figure 4.1-35 displays the study details for the primary toxicity study (PTS), which include all the data extracted from a primary toxicity reference, such as a journal article. The fields include information on the analyte, the test organism, exposure conditions, measurements and results, and general comments.

This screen also has navigation buttons for acronyms, analyte details, reference citation, and reference summary.

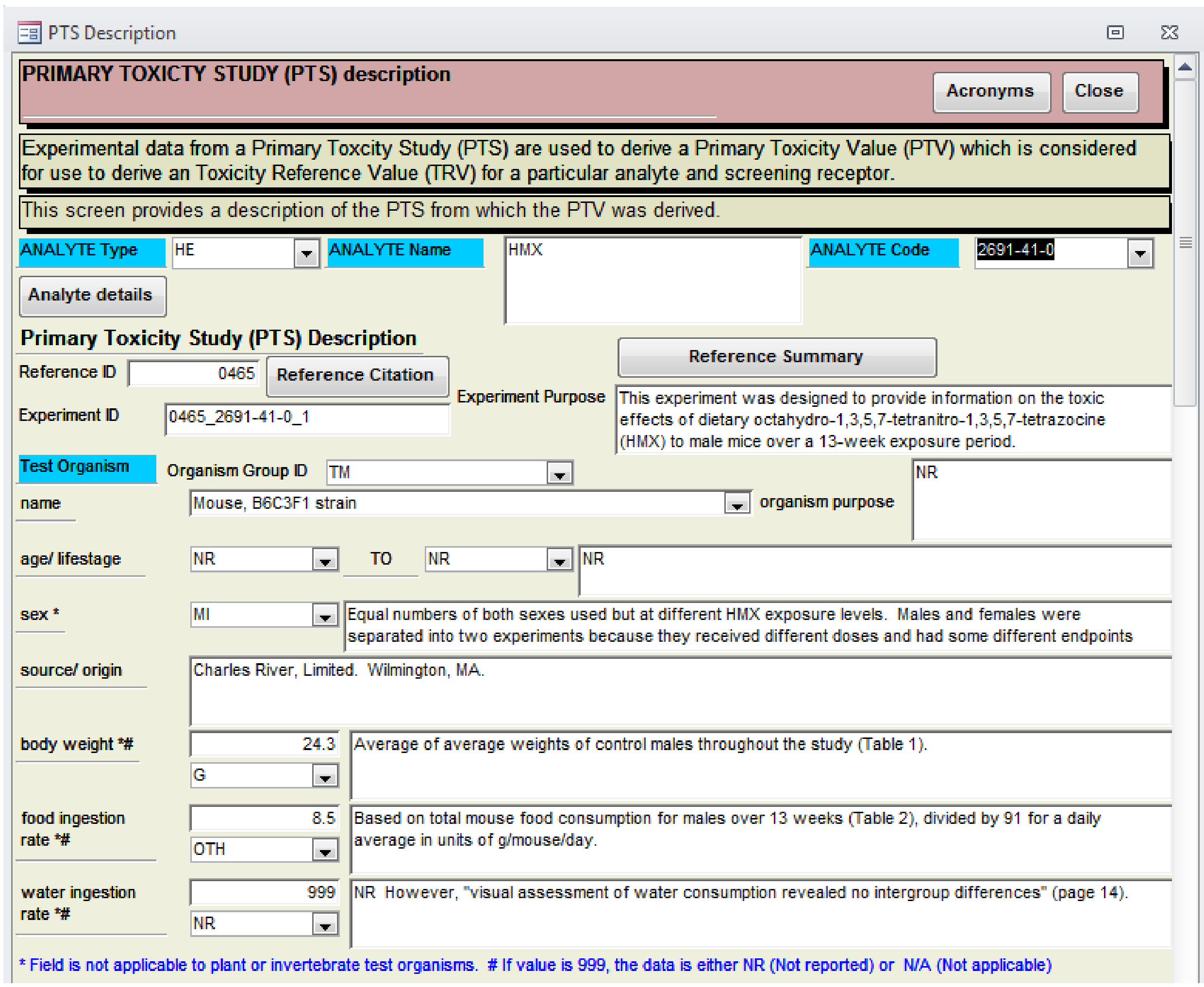


Figure 4.1-35 PTVs considered – individual effect level PTV details – study details – Tier 2 TRV for HMX and mammals

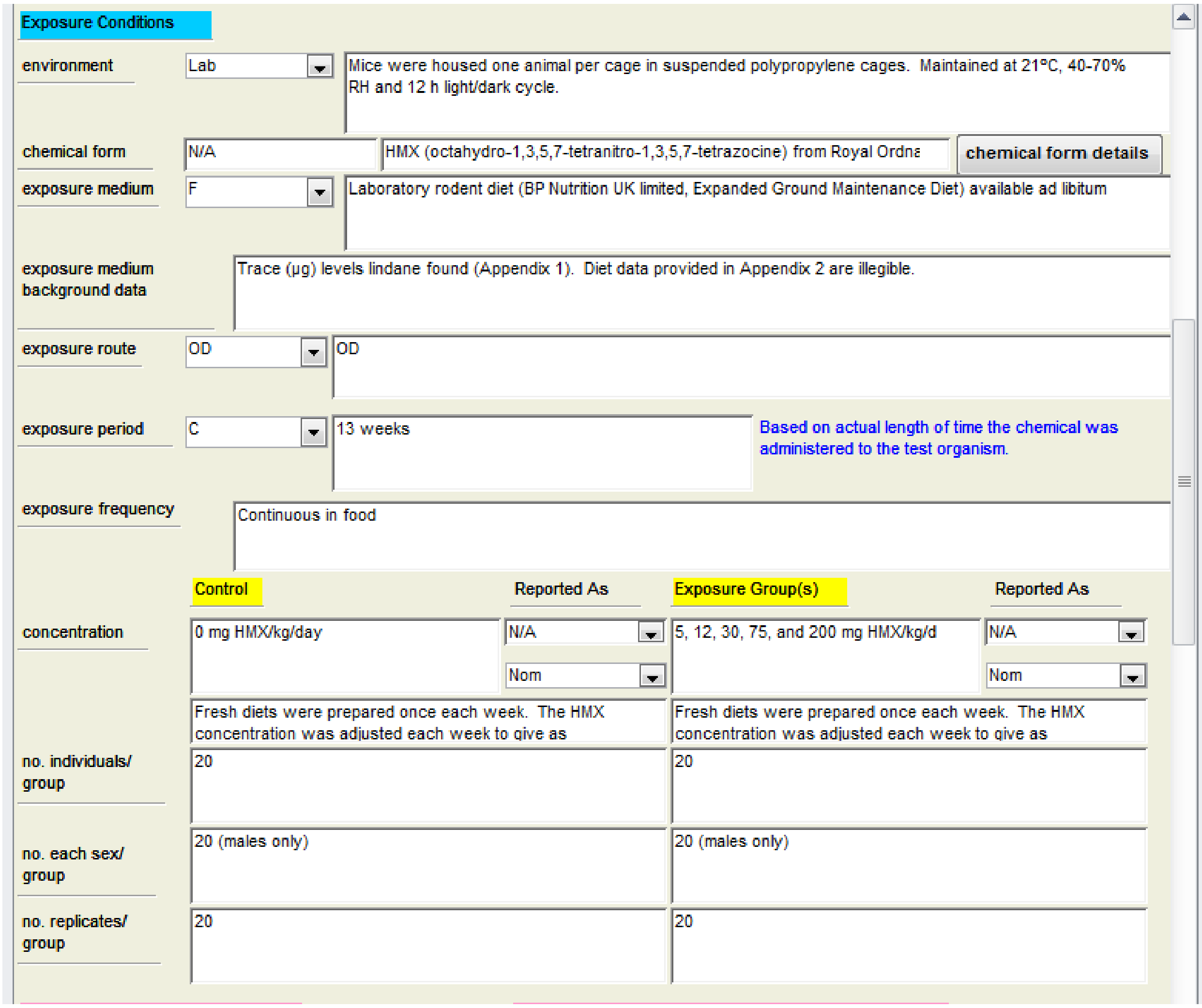
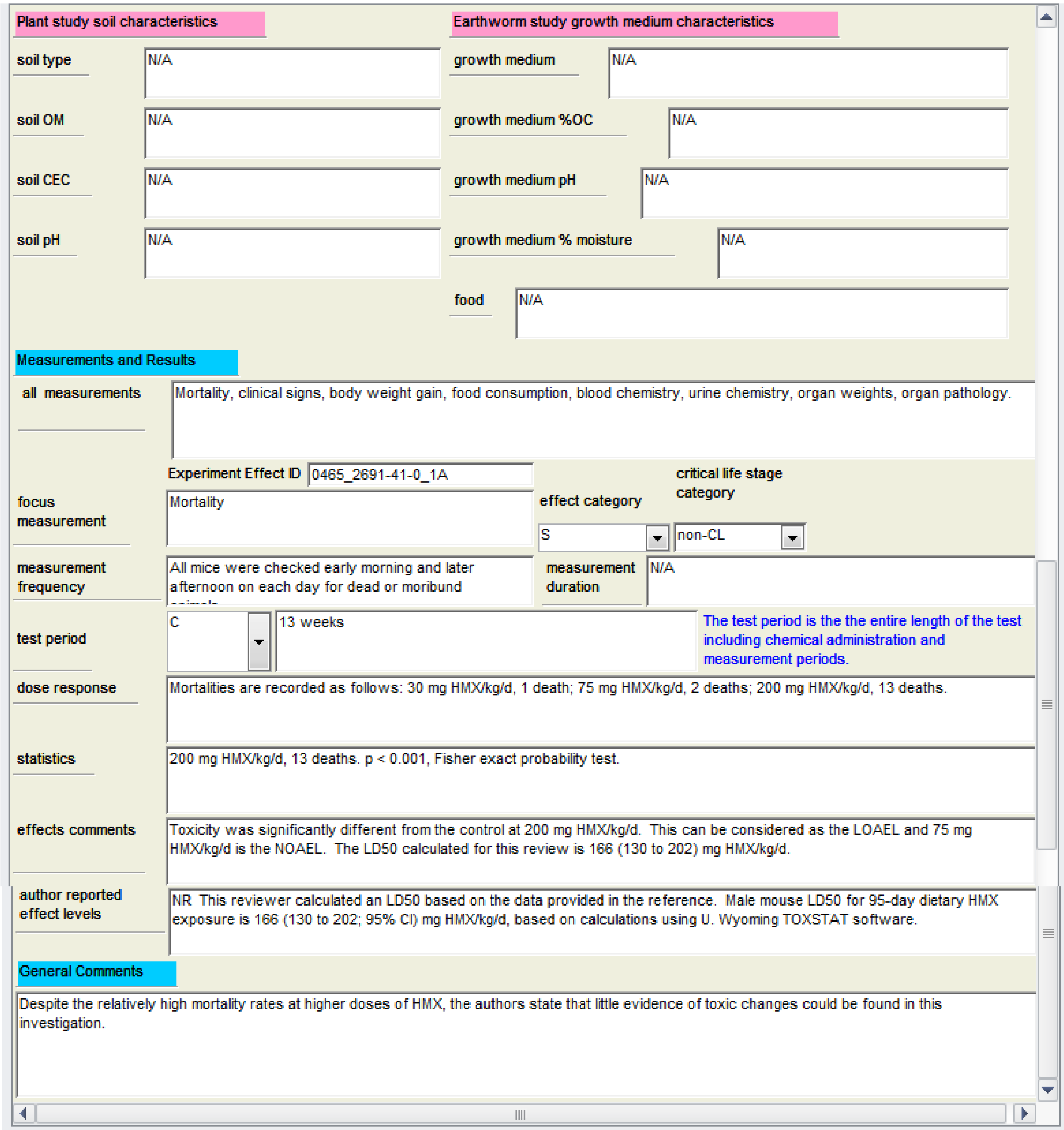


Figure 4.1-35 (continued) **PTVs considered – individual effect level PTV details – study details – Tier 2 TRV for HMX and mammals**



Plant study soil characteristics

soil type: N/A

soil OM: N/A

soil CEC: N/A

soil pH: N/A

Earthworm study growth medium characteristics

growth medium: N/A

growth medium %OC: N/A

growth medium pH: N/A

growth medium % moisture: N/A

food: N/A

Measurements and Results

all measurements: Mortality, clinical signs, body weight gain, food consumption, blood chemistry, urine chemistry, organ weights, organ pathology.

Experiment Effect ID: 0465_2691-41-0_1A

focus measurement: Mortality

effect category: S

critical life stage category: non-CL

measurement frequency: All mice were checked early morning and later afternoon on each day for dead or moribund animals

measurement duration: N/A

test period: C | 13 weeks

The test period is the the entire length of the test including chemical administration and measurement periods.

dose response: Mortalities are recorded as follows: 30 mg HMX/kg/d, 1 death; 75 mg HMX/kg/d, 2 deaths; 200 mg HMX/kg/d, 13 deaths.

statistics: 200 mg HMX/kg/d, 13 deaths. p < 0.001, Fisher exact probability test.

effects comments: Toxicity was significantly different from the control at 200 mg HMX/kg/d. This can be considered as the LOAEL and 75 mg HMX/kg/d is the NOAEL. The LD50 calculated for this review is 166 (130 to 202) mg HMX/kg/d.

author reported effect levels: NR This reviewer calculated an LD50 based on the data provided in the reference. Male mouse LD50 for 95-day dietary HMX exposure is 166 (130 to 202; 95% CI) mg HMX/kg/d, based on calculations using U. Wyoming TOXSTAT software.

General Comments

Despite the relatively high mortality rates at higher doses of HMX, the authors state that little evidence of toxic changes could be found in this investigation.

Figure 4.1-35 (continued) PTVs considered – individual effect level PTV details – study details – Tier 2 TRV for HMX and mammals

Figure 4.1-36 displays the analyte details for the chemical tested in the PTS, such as synonyms, chemical formula, and Laboratory background value or estimated quantitation limit (EQL).

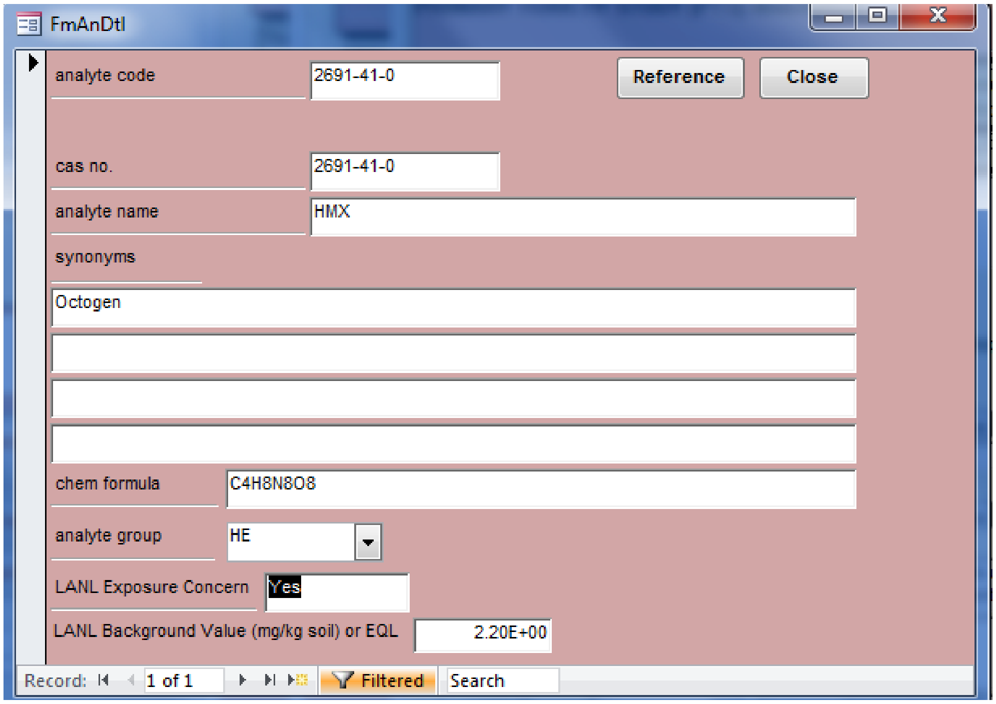


Figure 4.1-36 Individual effect level PTV details – study details – analyte details – Tier 2 TRV for HMX and mammals

The analyte details screen also has a navigation button to access the reference for the chemical-specific information as shown in Figure 4.1-37.

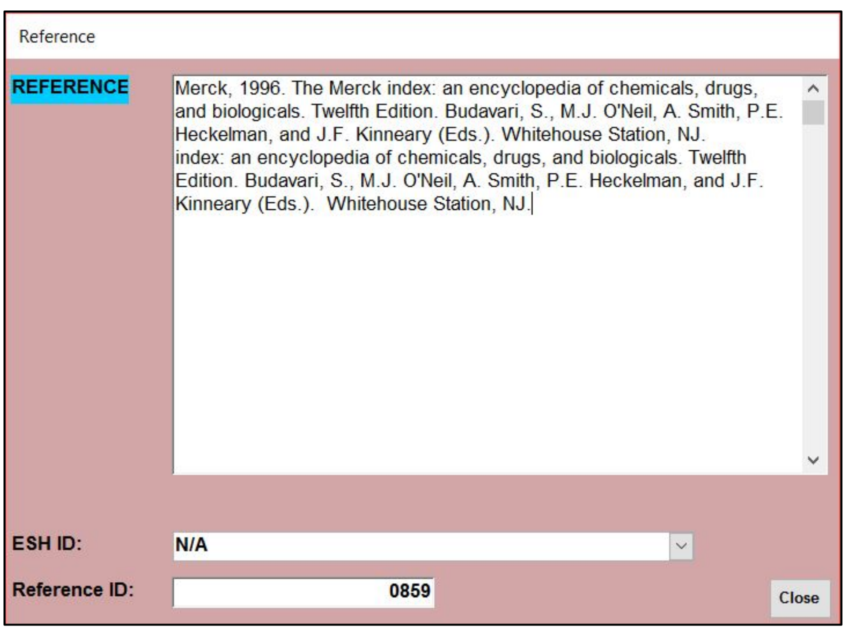


Figure 4.1-37 Individual effect level PTV details – study details – analyte details – reference – Tier 2 TRV for HMX and mammals

Figure 4.1-38 shows the reference citation when accessed from the PTS description screen. The ER ID and reference ID for the PTS data source are also included.

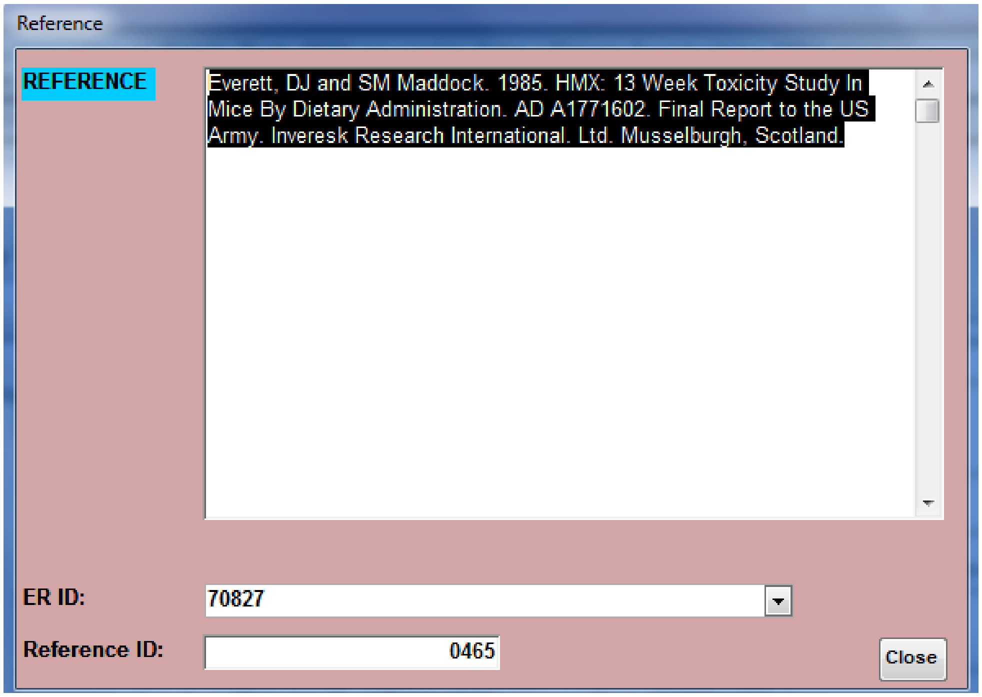


Figure 4.1-38 Individual effect level PTV details – study details – reference citation – Tier 2 TRV for HMX and mammals

Figure 4.1-39 displays the reference summary of the main elements of the PTS, such as the chemical tested, the organism tested, and the number of experiments.

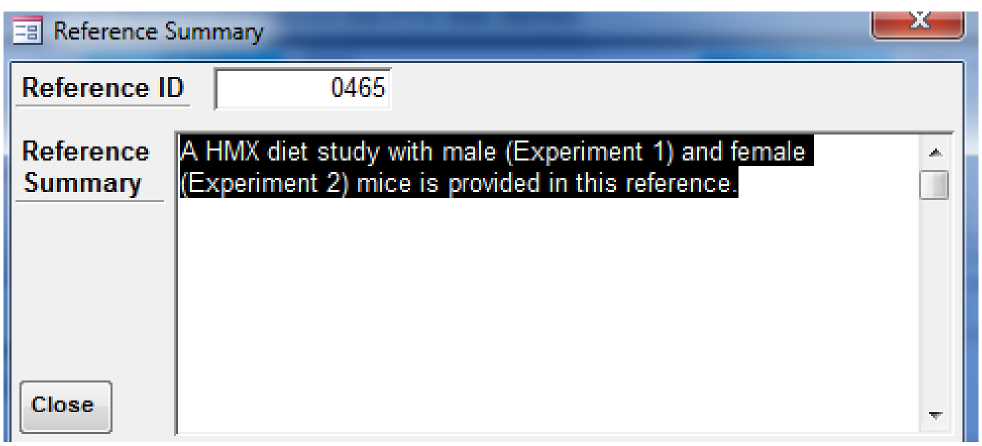


Figure 4.1-39 Individual effect level PTV details – study details – reference summary – Tier 2 TRV for HMX and mammals

Figure 4.1-40 displays the chemical details for the actual form of the chemical tested, such as synonyms and chemical formula. This is useful for inorganic chemicals that have many forms, such as copper (as a sulfate or acetate).

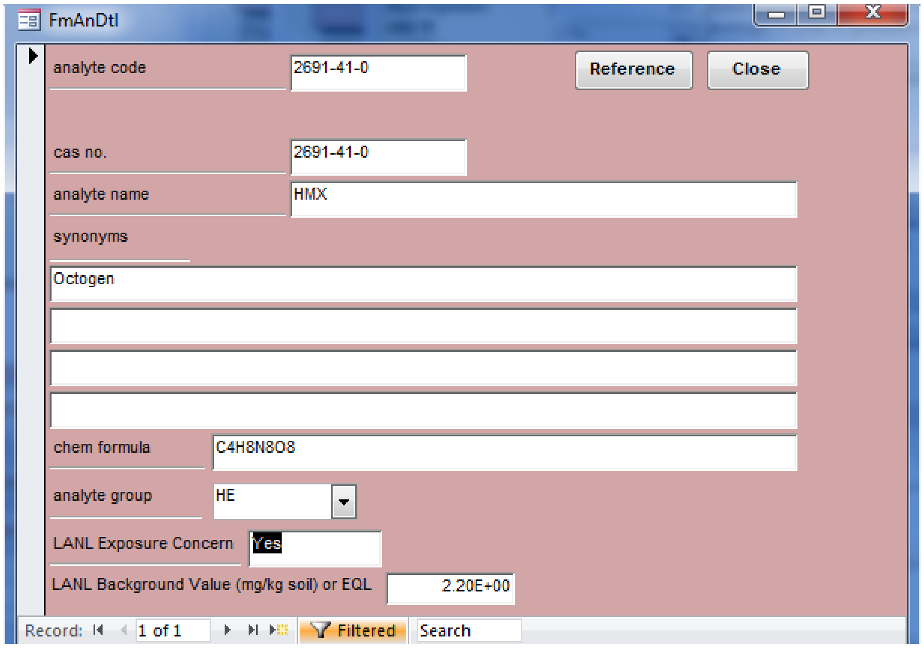


Figure 4.1-40 Individual effect level PTV details – study details – chemical form details – Tier 2 TRV for HMX and mammals

Figure 4.1-41 displays the reference citation accessed from the chemical form details.

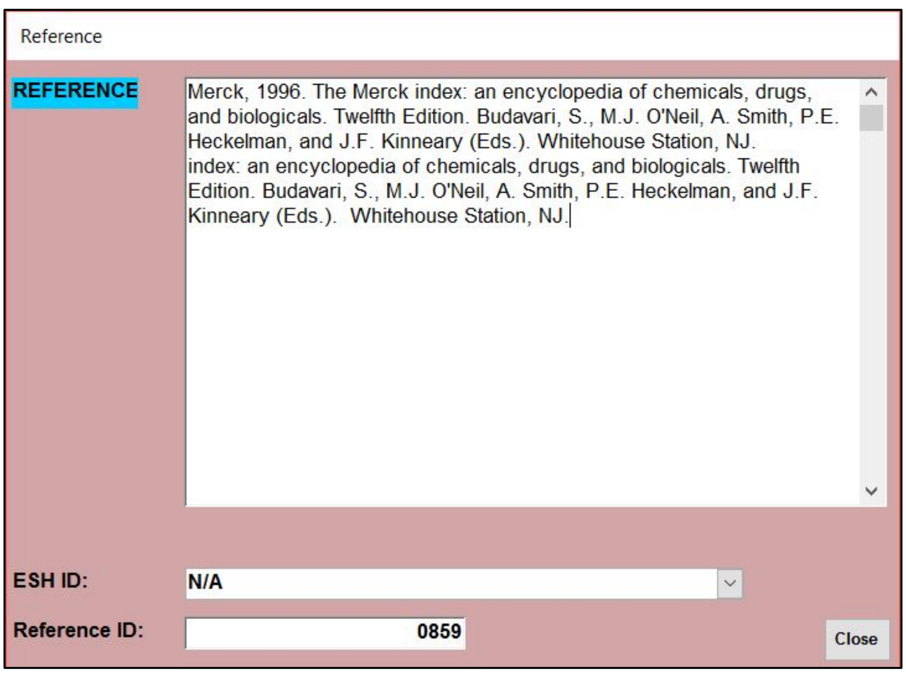


Figure 4.1-41 Individual effect level PTV details – study details – chemical form details – reference – Tier 2 TRV for HMX and mammals

Accessed from the individual effect level PTV details screen, Figure 4.1-42 displays the study evaluation summary screen, which reports the evaluation scores for each of the four evaluation categories. The PTS overall confidence rating, percent of maximum total score possible, possible maximum total scores per evaluation category, and total score are also reported on this screen.

This screen also has navigation buttons to access evaluation details for each of the four evaluation categories and a button to access a description of the weighting factors used to achieve the maximum weighted scores displayed on this screen.

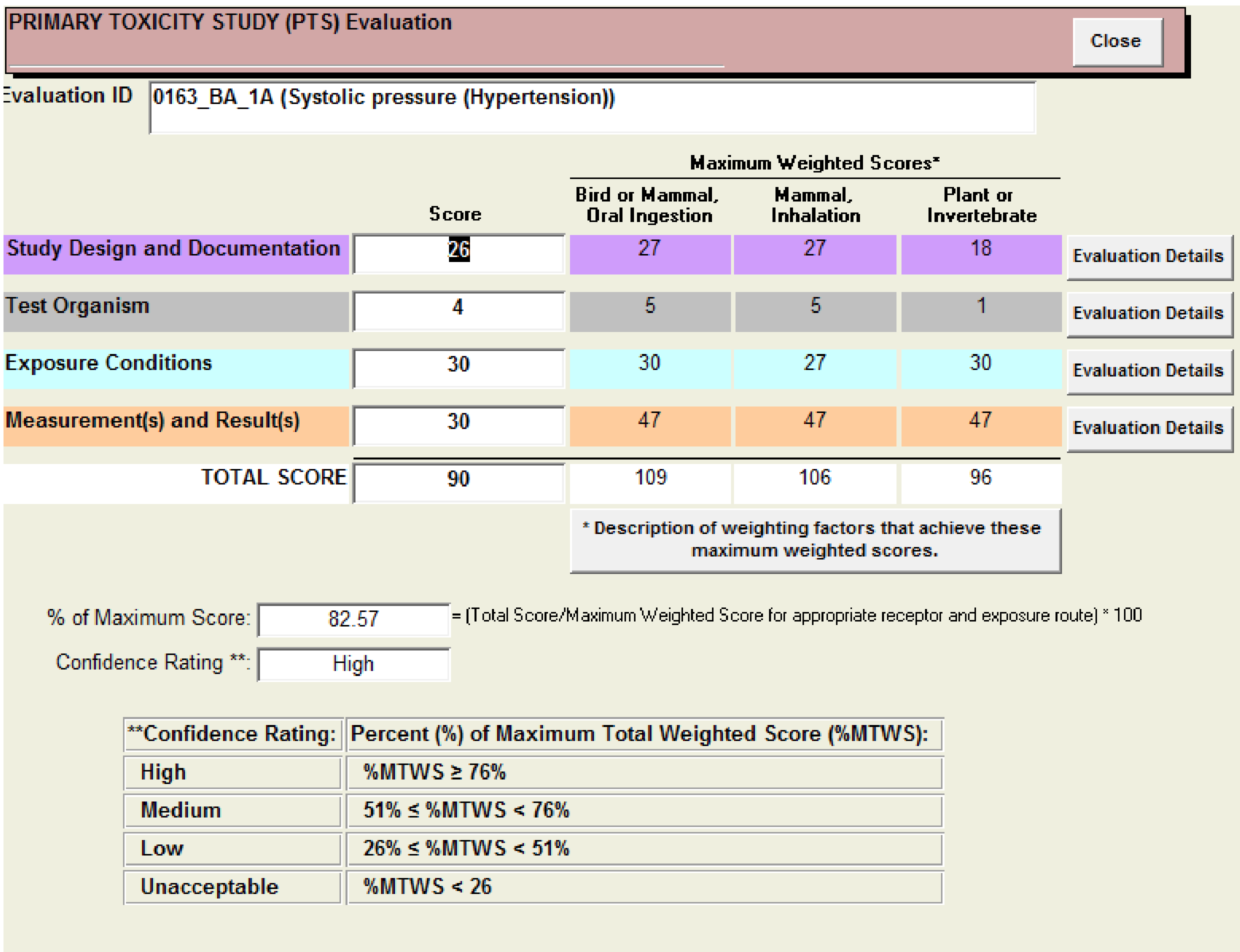


Figure 4.1-42 PTVs considered – individual effect level PTV details – study evaluation – Tier 2 TRV for HMX and mammals

Figure 4.1-43 displays the descriptions of the weighting factors used to determine the evaluation score for each of the four evaluation categories. The weighting factors reflect the degree of influence a particular criterion is expected to have on the usability/applicability for deriving a TRV. Weighting factors range from 1 to 5 with 5 having the highest degree of influence on a TRV.

Weighting Factors

Close

A weighting factor is multiplied to each score to achieve a weighted score for each criterion within each category (i.e., Study Design and Documentation, Test Organism Details, etc.). The weighting factor for each score is based on the influence the data for the criterion has on the TRV. The weighted scores for each category are summed to achieve the maximum weighted score presented in the PRIMARY TOXICITY STUDY (PTS) Evaluation screen. Weighting factors for each category and their respective criteria are shown in the table below.

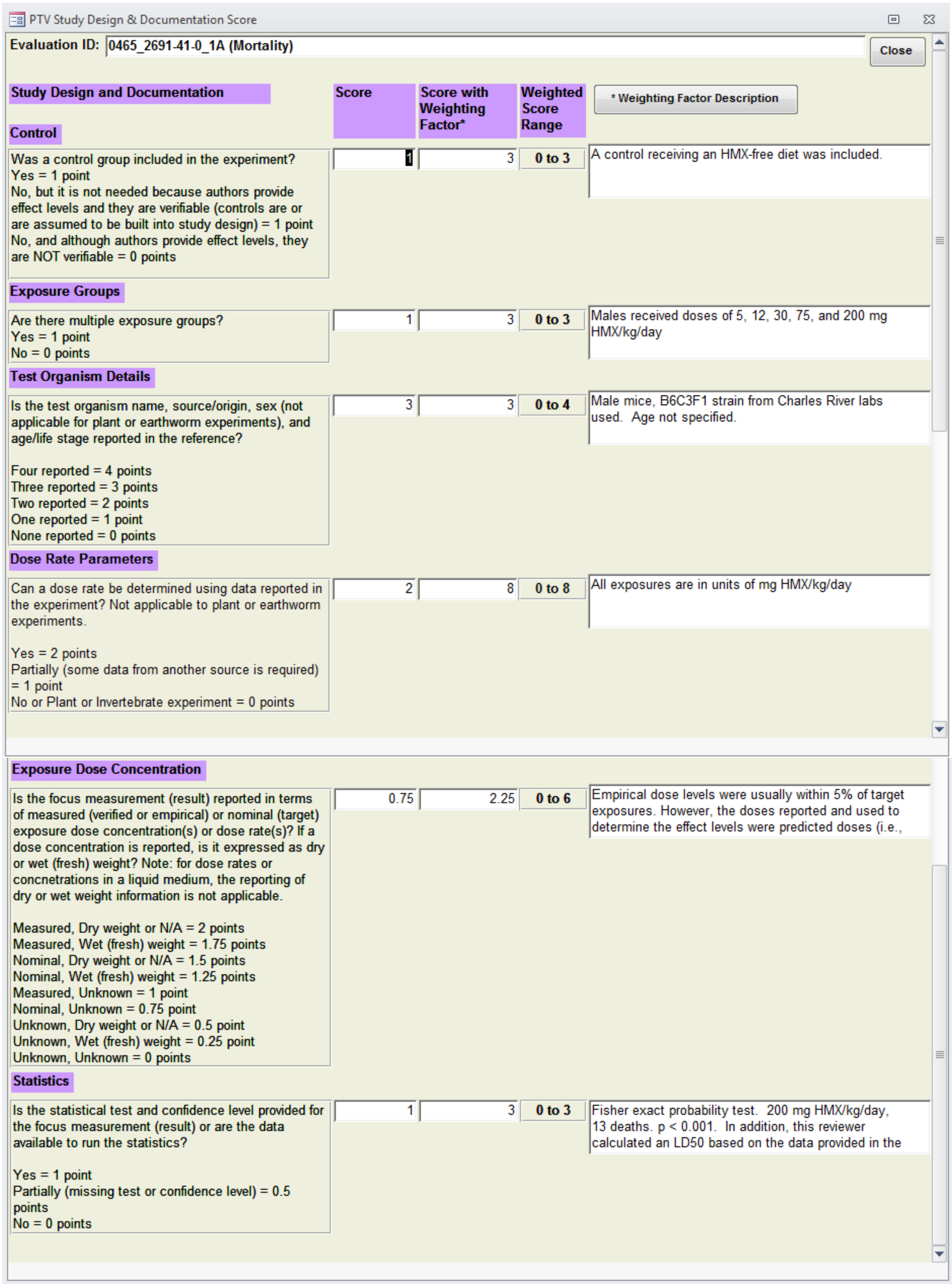
Category	Criterion	Weighting Factor*
Study Design and Documentation	-Control group included	3
	-Multiple exposure groups	3
	-Test organism details	1
	-Dose rate parameters	4
	-Exposure dose concentration	3
	-Statistics	3
Test Organism Details	-Taxonomic relationship of test organism	2
	-Basis for use of test organism	1
Exposure Conditions	-Test environment	1
	-Test exposure medium similar to exposure medium of concern	3
	-Chemical interactions	2
	-Test exposure route	3
	-Test period and chemical administration	5
	-Critical life stage	4
	-Test exposure frequency	2
Measurement and Result	-Focus measurement category	4
	-Measurement length	1
	-Effect level category	5

*The weighting factors correspond with the following degrees of influence on the TRV:

1 – Low. The data for the criterion either serves to more specifically characterize the experiment details or is used to include or exclude an endpoint during the initial review of a reference.
2 – Low-Medium. The information has a minor effect on the selection of a TRV for use but does not affect the derived value.
3 - Medium. The information has a medium effect on the selection of a TRV for use or a medium effect on the derived value.
4 – Medium-High. The information has a medium-high effect on the selection of a TRV for use and/or a medium-high effect on the derived value.
5 - High. The information has a high effect on the selection of a TRV for use and/or a high effect on the derived value.

Figure 4.1-43 Individual effect level PTV details – study evaluation – description of weighting factors

Figure 4.1-44 displays the evaluation details that include criteria descriptions, score, score with weighting factor, weighted score range, and notes for the PTV study design and documentation score. This screen also has a navigation button to access the weighting factors descriptions.



PTV Study Design & Documentation Score

Evaluation ID: 0465_2691-41-0_1A (Mortality)

Close

Study Design and Documentation	Score	Score with Weighting Factor*	Weighted Score Range	* Weighting Factor Description
Control				
Was a control group included in the experiment? Yes = 1 point No, but it is not needed because authors provide effect levels and they are verifiable (controls are or are assumed to be built into study design) = 1 point No, and although authors provide effect levels, they are NOT verifiable = 0 points	1	3	0 to 3	A control receiving an HMX-free diet was included.
Exposure Groups				
Are there multiple exposure groups? Yes = 1 point No = 0 points	1	3	0 to 3	Males received doses of 5, 12, 30, 75, and 200 mg HMX/kg/day
Test Organism Details				
Is the test organism name, source/origin, sex (not applicable for plant or earthworm experiments), and age/life stage reported in the reference? Four reported = 4 points Three reported = 3 points Two reported = 2 points One reported = 1 point None reported = 0 points	3	3	0 to 4	Male mice, B6C3F1 strain from Charles River labs used. Age not specified.
Dose Rate Parameters				
Can a dose rate be determined using data reported in the experiment? Not applicable to plant or earthworm experiments. Yes = 2 points Partially (some data from another source is required) = 1 point No or Plant or Invertebrate experiment = 0 points	2	8	0 to 8	All exposures are in units of mg HMX/kg/day
Exposure Dose Concentration				
Is the focus measurement (result) reported in terms of measured (verified or empirical) or nominal (target) exposure dose concentration(s) or dose rate(s)? If a dose concentration is reported, is it expressed as dry or wet (fresh) weight? Note: for dose rates or concnetrations in a liquid medium, the reporting of dry or wet weight information is not applicable. Measured, Dry weight or N/A = 2 points Measured, Wet (fresh) weight = 1.75 points Nominal, Dry weight or N/A = 1.5 points Nominal, Wet (fresh) weight = 1.25 points Measured, Unknown = 1 point Nominal, Unknown = 0.75 point Unknown, Dry weight or N/A = 0.5 point Unknown, Wet (fresh) weight = 0.25 point Unknown, Unknown = 0 points	0.75	2.25	0 to 6	Empirical dose levels were usually within 5% of target exposures. However, the doses reported and used to determine the effect levels were predicted doses (i.e.,
Statistics				
Is the statistical test and confidence level provided for the focus measurement (result) or are the data available to run the statistics? Yes = 1 point Partially (missing test or confidence level) = 0.5 points No = 0 points	1	3	0 to 3	Fisher exact probability test. 200 mg HMX/kg/day, 13 deaths. p < 0.001. In addition, this reviewer calculated an LD50 based on the data provided in the

Figure 4.1-44 Individual effect level PTV details – study evaluation – evaluation details (study design and documentation) – Tier 2 TRV for HMX and mammals

Figure 4.1-45 displays the evaluation details that include criteria descriptions, score, score with weighting factor, weighted score range, and notes for the PTV test organism score. This screen also has a navigation button to access the weighting factors descriptions.

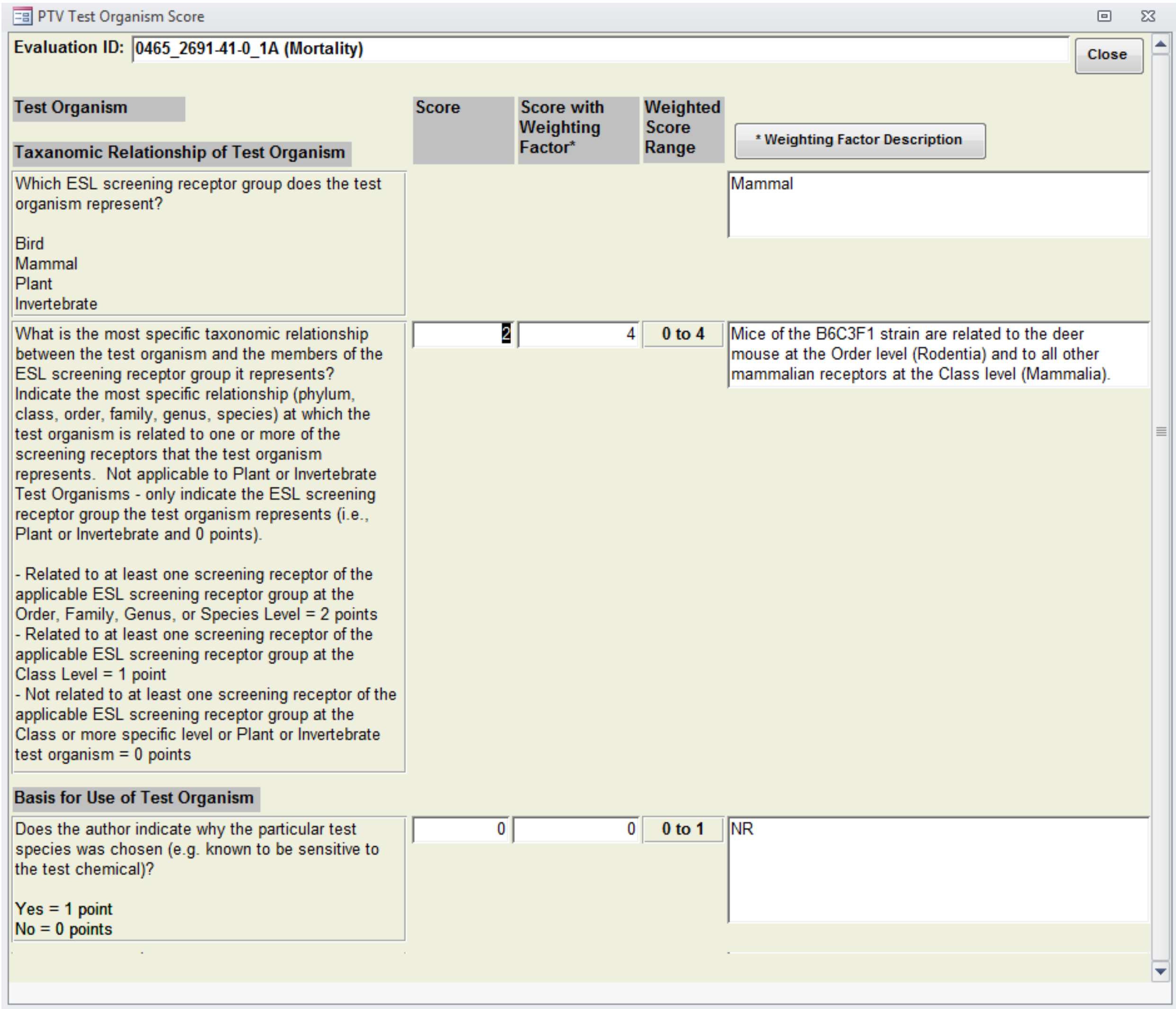


Figure 4.1-45 Individual effect level PTV details – study evaluation – evaluation details (test organism) – Tier 2 TRV for HMX and mammals

Figure 4.1-46 displays the evaluation details that include criteria descriptions, score, score with weighting factor, weighted score range, and notes for the PTV exposure conditions score. This screen also has a navigation button to access the weighting factors descriptions.

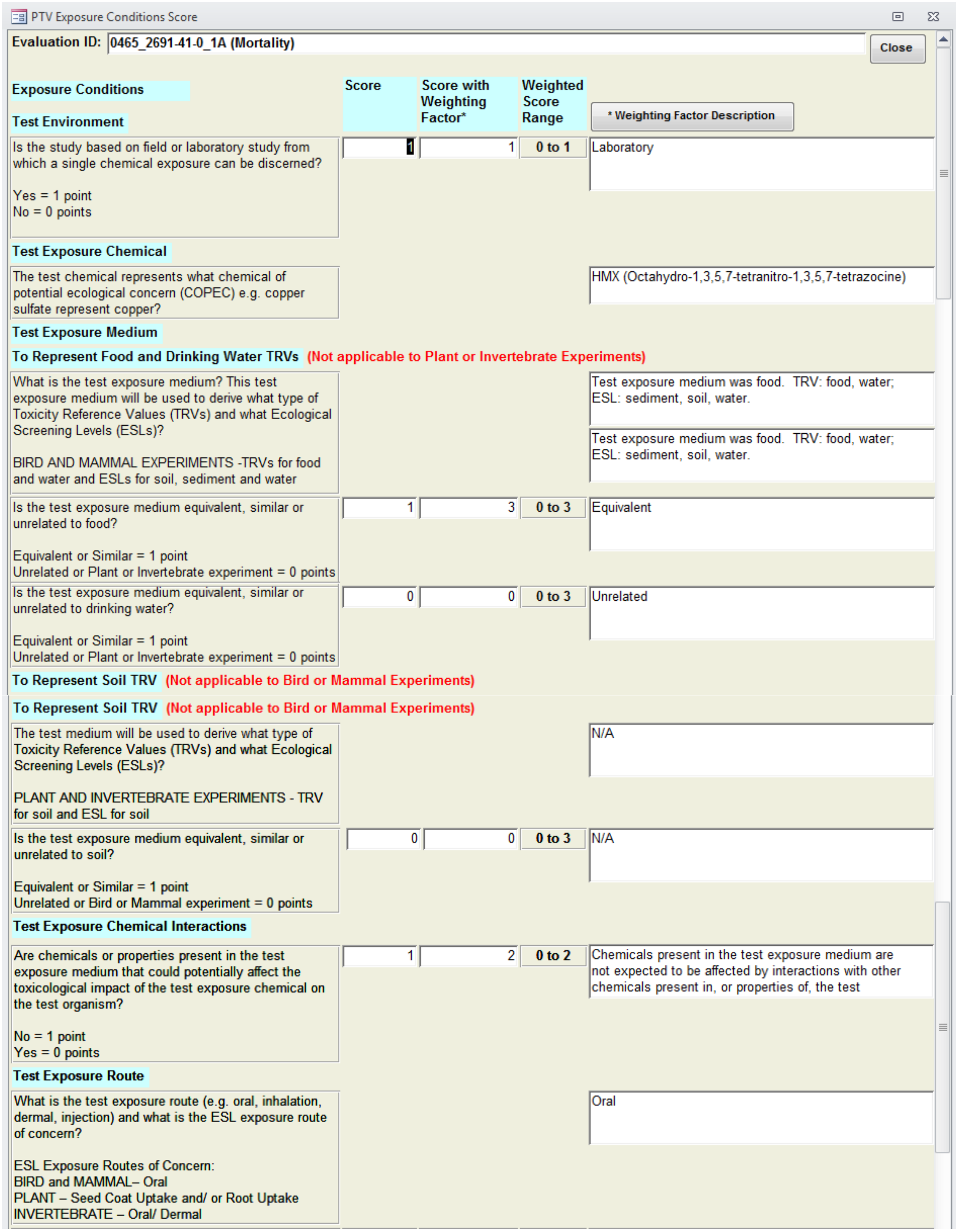
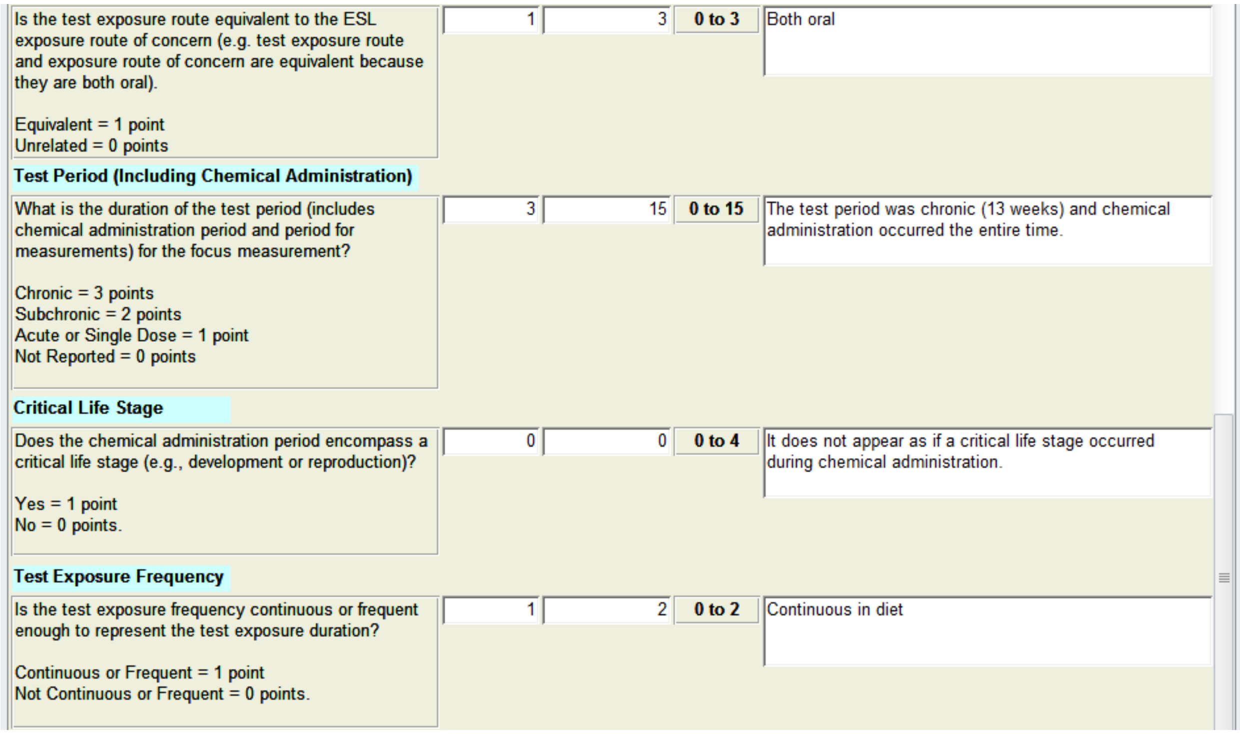


Figure 4.1-46 Individual effect level PTV details – study evaluation – evaluation details (exposure conditions) – Tier 2 TRV for HMX and mammals



Is the test exposure route equivalent to the ESL exposure route of concern (e.g. test exposure route and exposure route of concern are equivalent because they are both oral). Equivalent = 1 point Unrelated = 0 points	1	3	**0 to 3**	Both oral
Test Period (Including Chemical Administration)				
What is the duration of the test period (includes chemical administration period and period for measurements) for the focus measurement? Chronic = 3 points Subchronic = 2 points Acute or Single Dose = 1 point Not Reported = 0 points	3	15	**0 to 15**	The test period was chronic (13 weeks) and chemical administration occurred the entire time.
Critical Life Stage				
Does the chemical administration period encompass a critical life stage (e.g., development or reproduction)? Yes = 1 point No = 0 points.	0	0	**0 to 4**	It does not appear as if a critical life stage occurred during chemical administration.
Test Exposure Frequency				
Is the test exposure frequency continuous or frequent enough to represent the test exposure duration? Continuous or Frequent = 1 point Not Continuous or Frequent = 0 points.	1	2	**0 to 2**	Continuous in diet

Figure 4.1-46 (continued) Individual effect level PTV details – study evaluation – evaluation details (exposure conditions) – Tier 2 TRV for HMX and mammals

Figure 4.1-47 displays the evaluation details that include criteria descriptions, score, score with weighting factor, weighted score range, and notes for the PTV measurement and result score. This screen also has a navigation button to access the weighting factors descriptions.

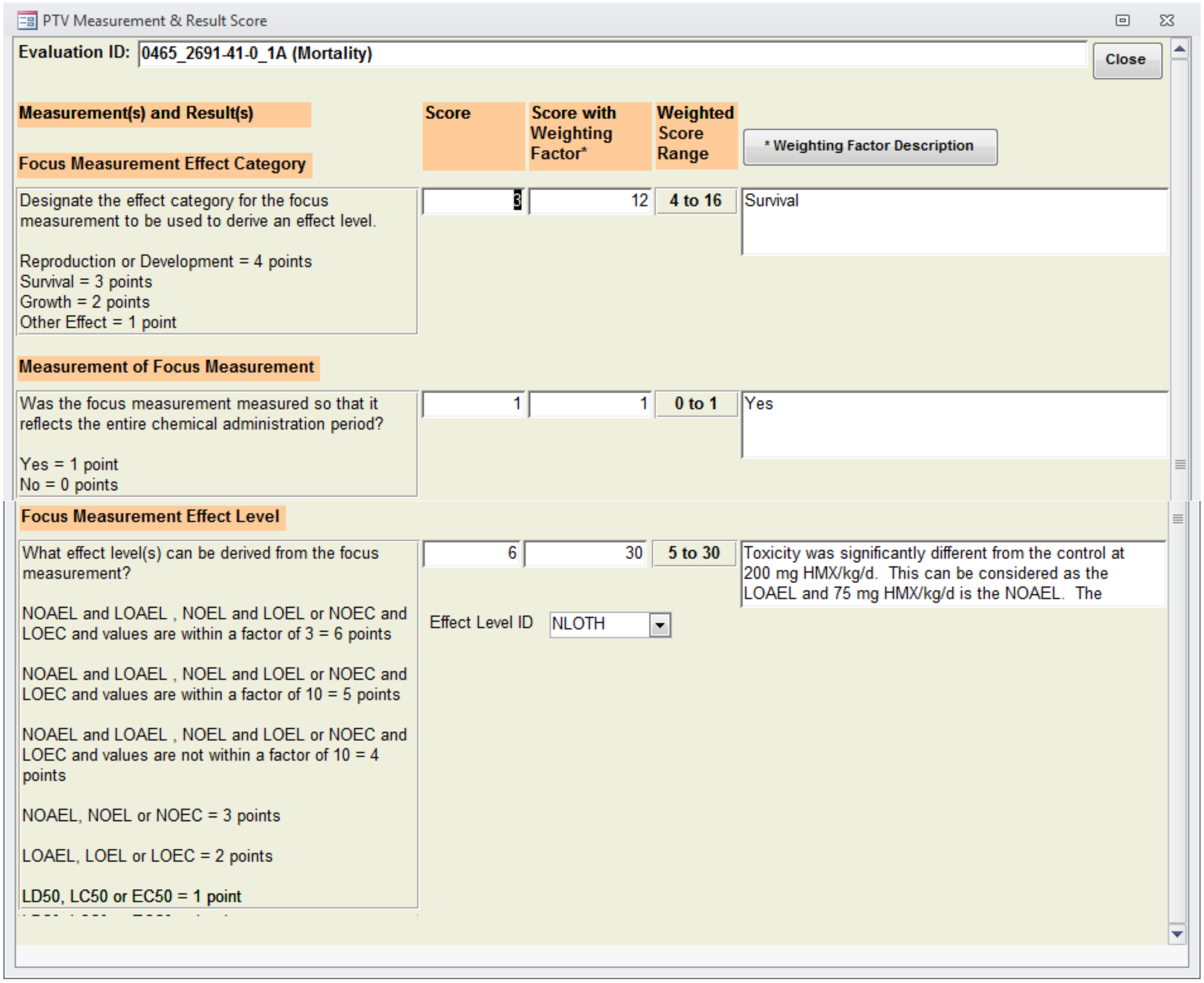


Figure 4.1-47 Individual effect level PTV details – study evaluation – evaluation details (measurement and result) – Tier 2 TRV for HMX and mammals

Accessed from the individual effect level PTV details screen using the effect level derivation button, Figure 4.1-48 displays the PTV derivation screen for chronic NOAEL/NOEC, LOAEL/LOEC, and other effect levels. This screen explains how the data reviewer calculated a chronic-based effect level from the originally available effect levels from the reviewed PTS. This screen also reports general comments and parameters, such as body weight, food ingestion rate, and water ingestion rate, which are used in the calculations. Navigation buttons are provided to access the parameter reference citations. This screen also has a navigation button to access the acronym list report.

The acronym list report accessed from the PTV derivation screen is available in Appendix A, Report 4.1-1.

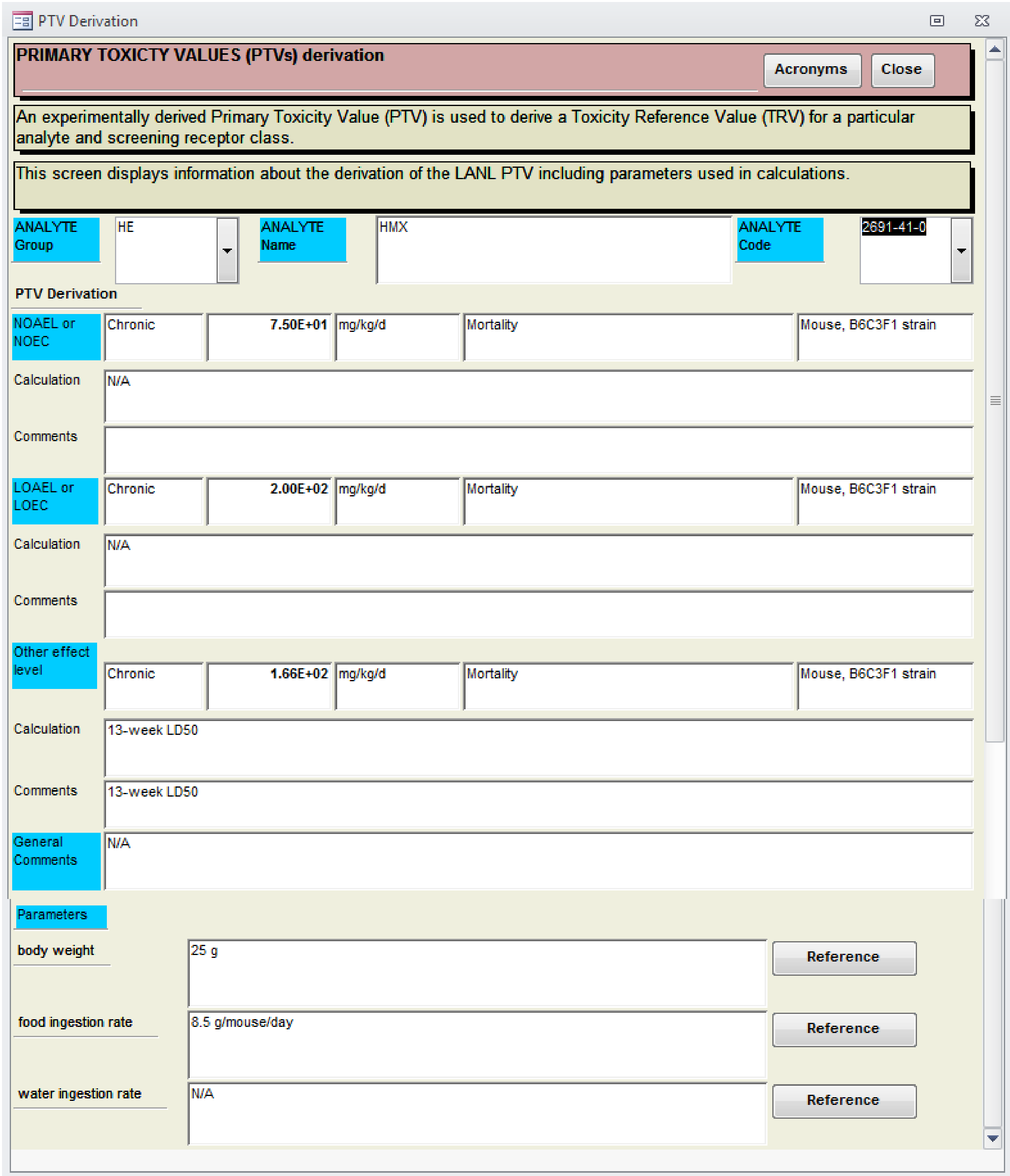


Figure 4.1-48 PTVs considered – individual effect level PTV details – effect level derivation – Tier 2 TRV for HMX and mammals

Figure 4.1-49 displays the reference citation for body weight used in the PTV derivation shown in Figure 4.1-48.

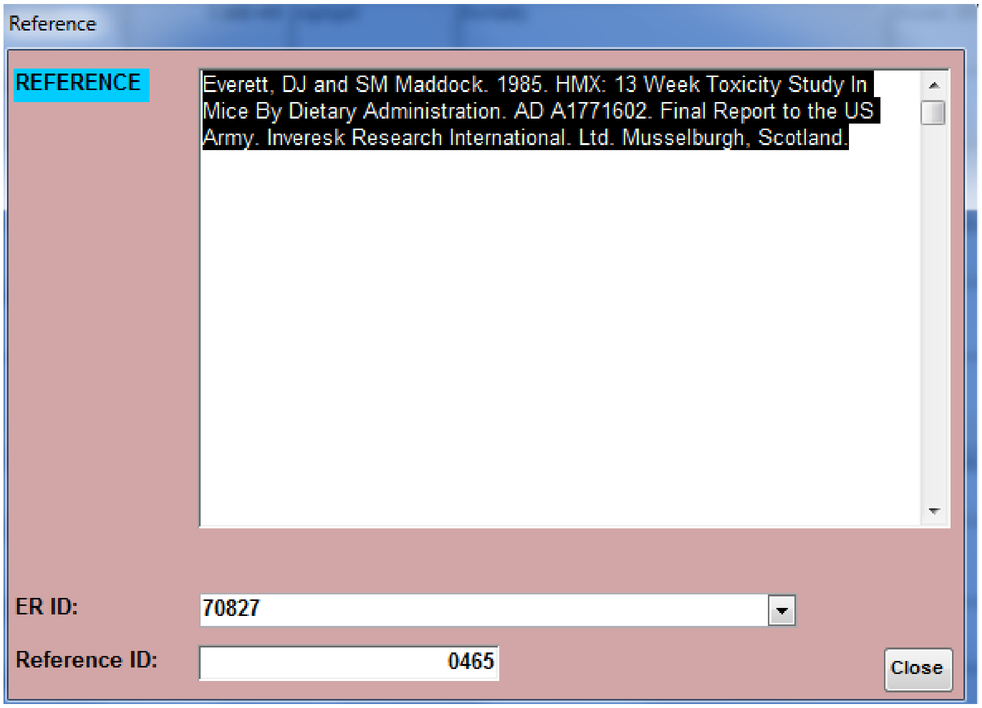


Figure 4.1-49 Individual effect level PTV details – effect level derivation – reference (body weight) – Tier 2 TRV for HMX and mammals

Figure 4.1-50 displays the reference citation for the food ingestion rate used in the PTV derivation shown in Figure 4.1-48.

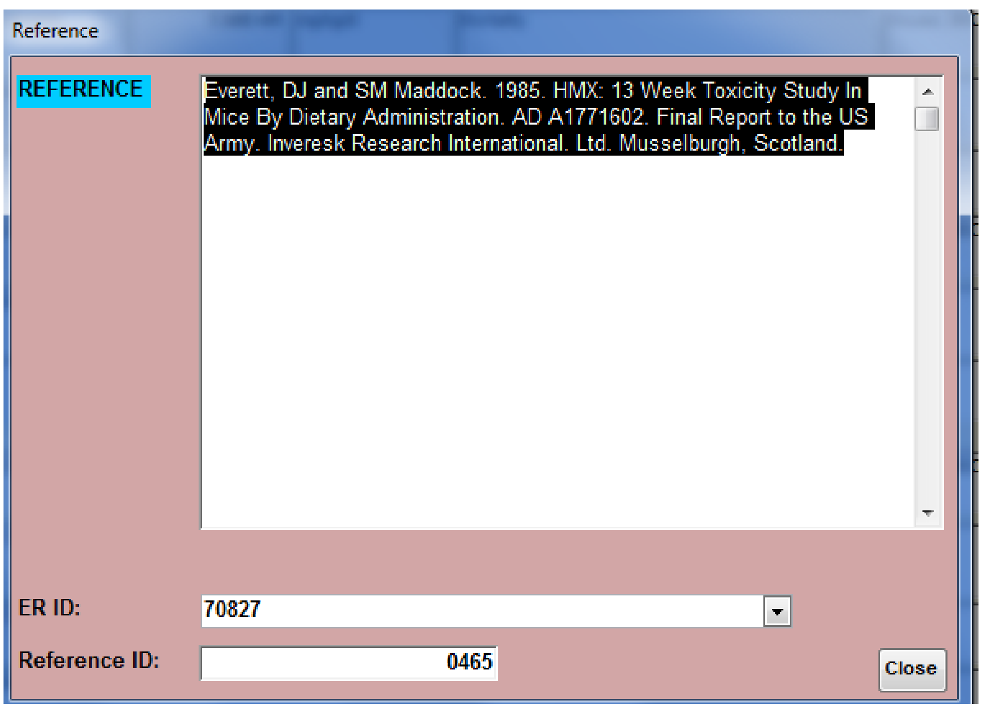


Figure 4.1-50 Individual effect level PTV details – effect level derivation – reference (food ingestion rate) – Tier 2 TRV for HMX and mammals

Figure 4.1-51 displays the reference citation for the water ingestion rate used in the PTV derivation shown in Figure 4.1-48.

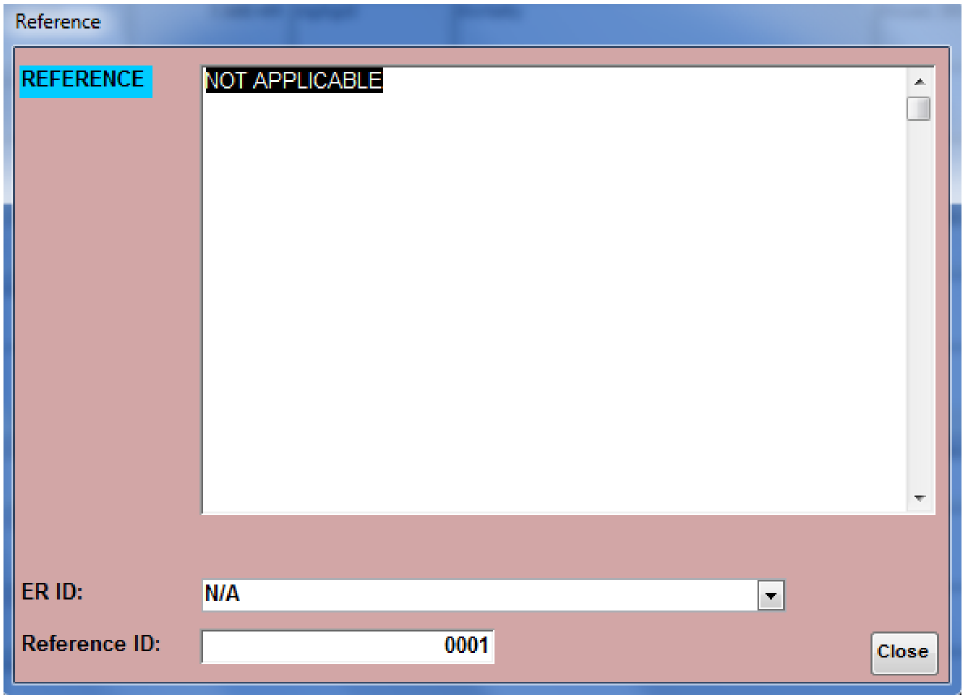


Figure 4.1-51 Individual effect level PTV details – effect level derivation – reference (water ingestion rate) – Tier 2 TRV for HMX and mammals

Figure 4.1-52 displays the summary graph of PTVs considered for the TRV data set and includes information identifying the NOAELs, LOAEL, or other effect levels and the type of endpoint, such as survival (S) or growth (G); the exposure duration, such as chronic (C); the exposure route, such as oral diet (OD); and the exposure medium, such as food (F).

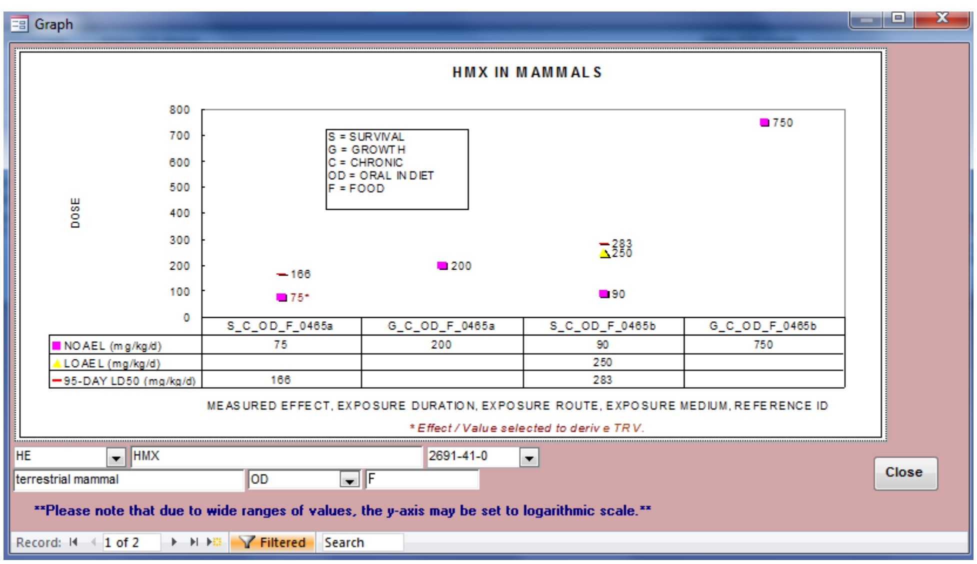


Figure 4.1-52 PTVs considered – individual effect level PTV details – summary graph of PTVs considered – Tier 2 TRV for HMX and mammals

The printable reports for PTV study details, study evaluation, and effect level derivation for the example of the Tier 2 TRV for HMX and mammals are available in Appendix A, Reports 4.1-5, 4.1-6, and 4.1-7, respectively.

4.1.3.4.3 Tier 3 TRV

A Tier 3 TRV is a Laboratory-derived TRV. Tier 3 TRVs are given third highest preference for use in deriving an ESL. A Tier 3 TRV is a CS TRV derived by the Laboratory following review of the scientific literature using the PTSE process (LANL 2010, 110623). Figures showing screens that are used in this section are available in the Tier 1 and 2 TRV sections.

Note

16% of the TRVs for plants, earthworms, birds, and mammals are Tier 3 TRVs.

4.1.3.4.4 Tier 4 TRV

A Tier 4 TRV is a secondary data source TRV, such as a value taken from ORNL. Tier 4 TRVs are given lowest preference for use in deriving an ESL. A Tier 4 TRV can be a CS or GMM TRV. Figures showing screens that are used in this section are available in the Tier 1 and 2 TRV sections.

Note

44% of the TRVs for plants, earthworms, birds, and mammals are Tier 4 TRVs.

4.1.3.5 TFs

Accessed from the ESL screen, Figure 4.1-53 shows the TF summary screen, which provides a list of all the TFs associated with the calculation of a particular ESL. This screen also provides an acronym list, printable report, and access to details and references for each type of TF listed.

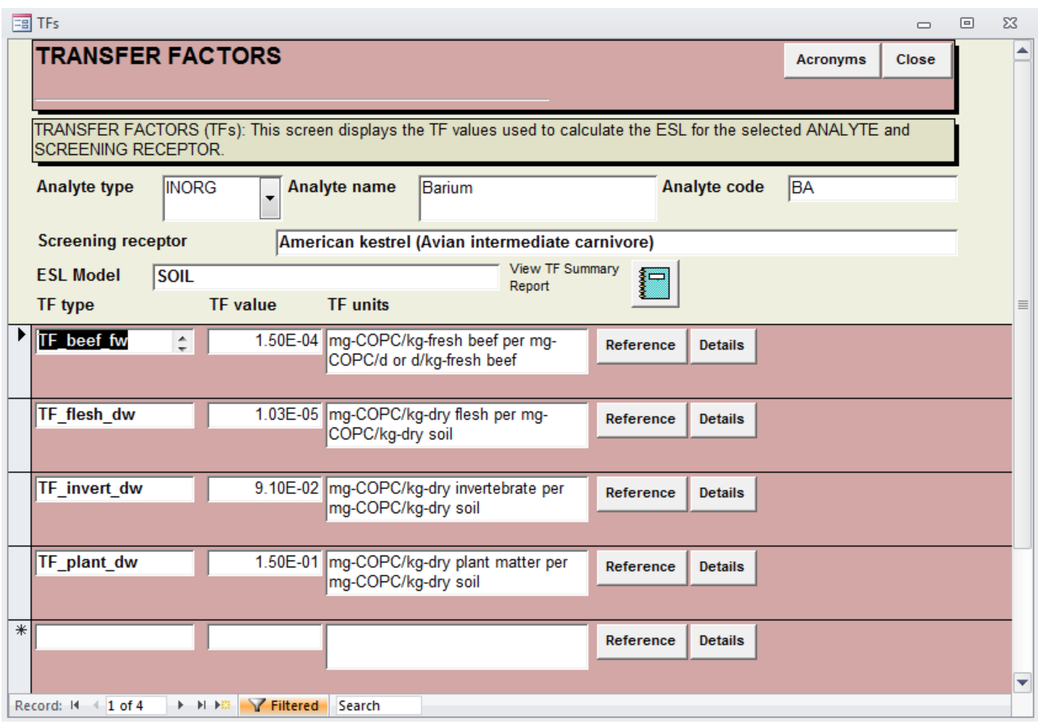


Figure 4.1-53 ESL screen supporting documentation – TF summary screen – barium and American kestrel (avian intermediate carnivore)

The acronym list report that is accessible from the TF summary screen is available in Appendix A, Report 4.1-1.

The printable report version of the TF summary for barium and the American kestrel (avian intermediate carnivore) is available in Appendix A, Report 4.1-8.

Figure 4.1-54 is the reference citation for the transfer factor for beef as fresh weight (TF_beef_fw) for barium and the American kestrel (avian intermediate carnivore).

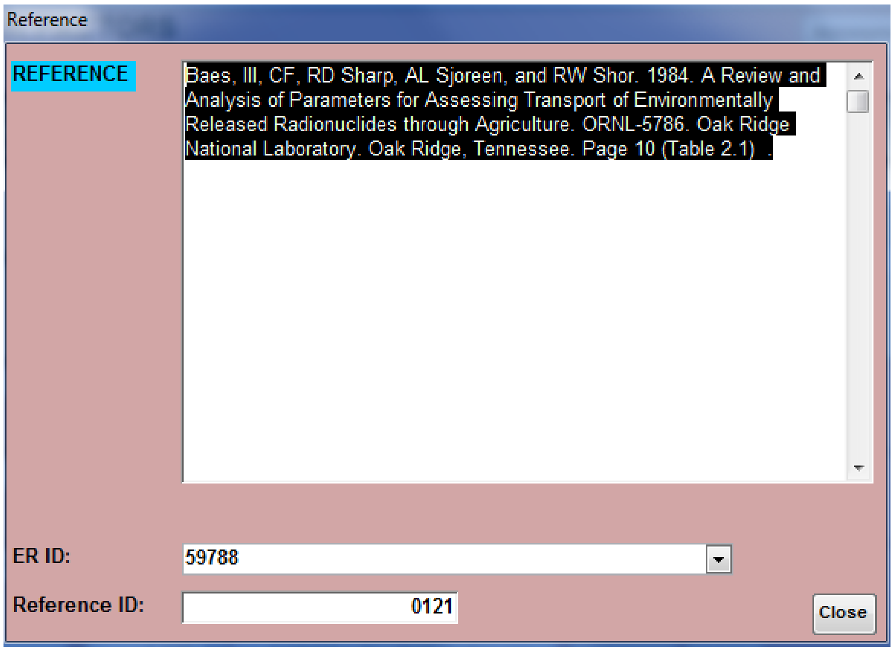


Figure 4.1-54 TF summary screen – reference (TF_beef_fw) – barium and American kestrel (avian intermediate carnivore)

4.1.3.5.1 TF Details

Figure 4.1-55 is the TF details screen, which displays the derivation information for the selected TF, including the calculation, explanation, and parameters, i.e., log (kow) and koc, as applicable, and a link to references for the calculation and parameters. This screen also links to a TF details report and acronym list report.

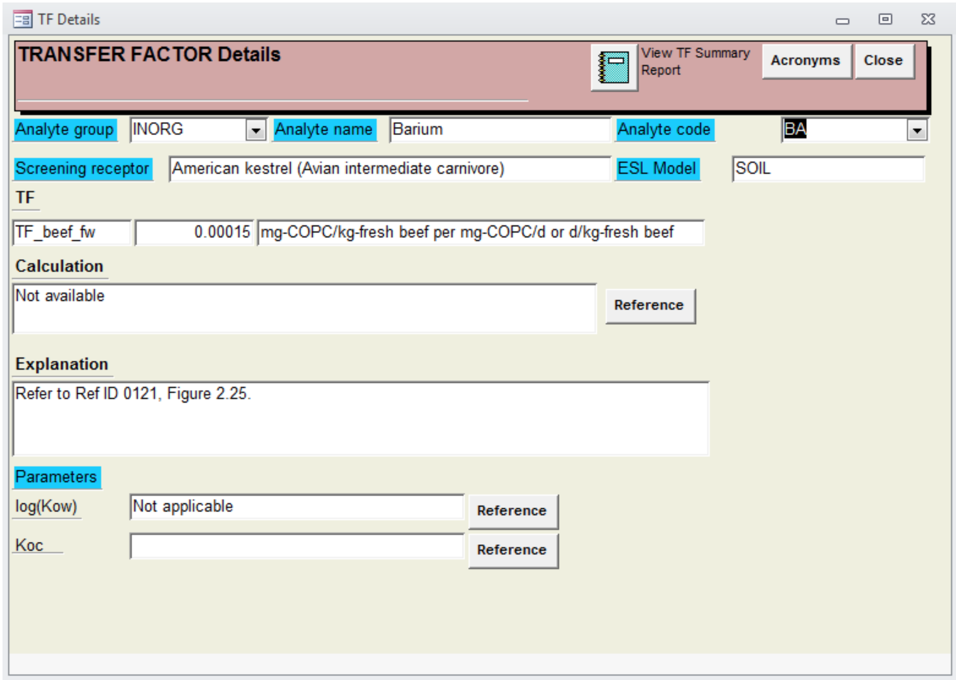


Figure 4.1-55 TF summary screen – TF details – TF details (TF_beef_fw) – barium and American kestrel (avian intermediate carnivore)

The acronym list report accessed from the TF details screen is available in Appendix A, Report 4.1-1.

The printable report version of the TF details screen for TF_beef_fw for barium and American kestrel (intermediate carnivore) is available in Appendix A, Report 4.1-9.

Figure 4.1-56 is the reference citation for the calculation field on the TF details screen. This example is for the transfer factor for flesh as dry weight (TF_flesh_dw) for barium and birds.

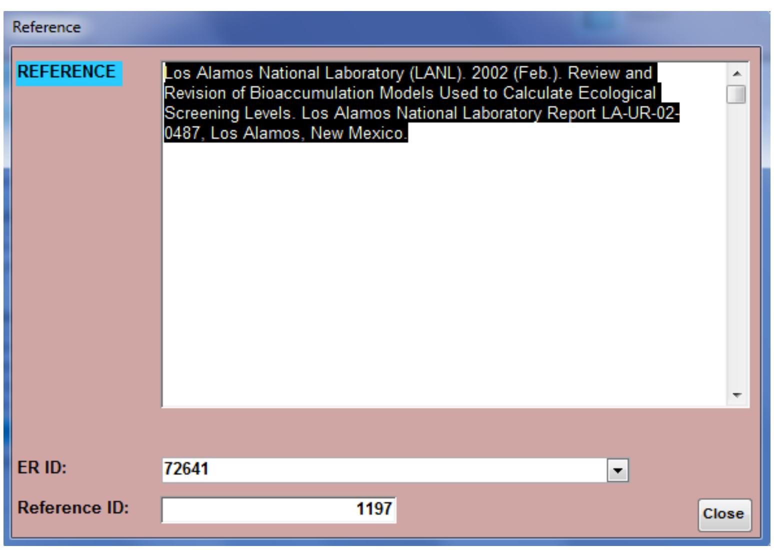


Figure 4.1-56 TF summary screen – TF details (TF_flesh_dw) – reference for calculation – barium and birds

Figure 4.1-57 is the reference citation for the log(Kow) field on the TF details screen. This example is for acetone and birds.

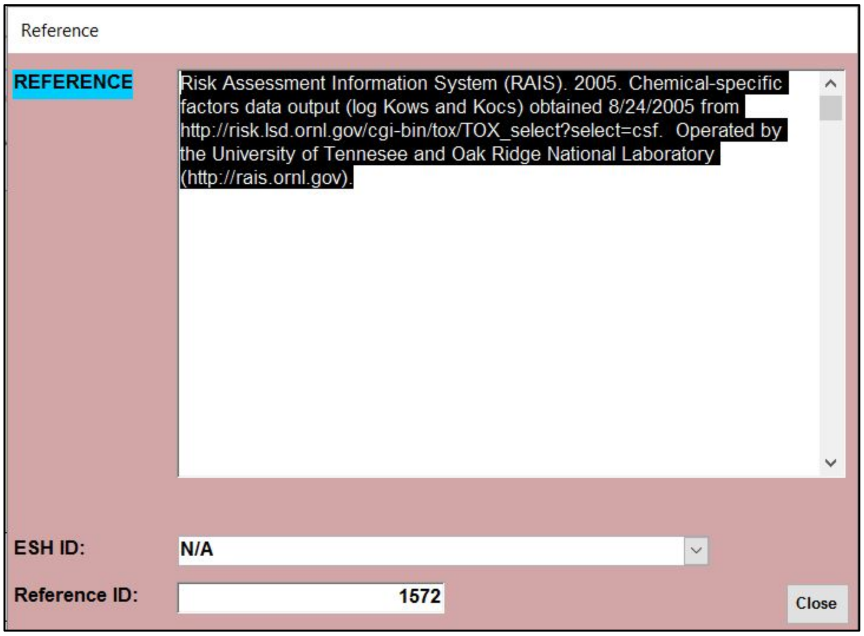


Figure 4.1-57 TF summary screen – TF details (TF_beef_fw) – reference [log(kow)] – acetone and birds

Figure 4.1-58 is the reference citation for the Koc field on the TF details screen. This example is for Aroclor-1254 and birds.

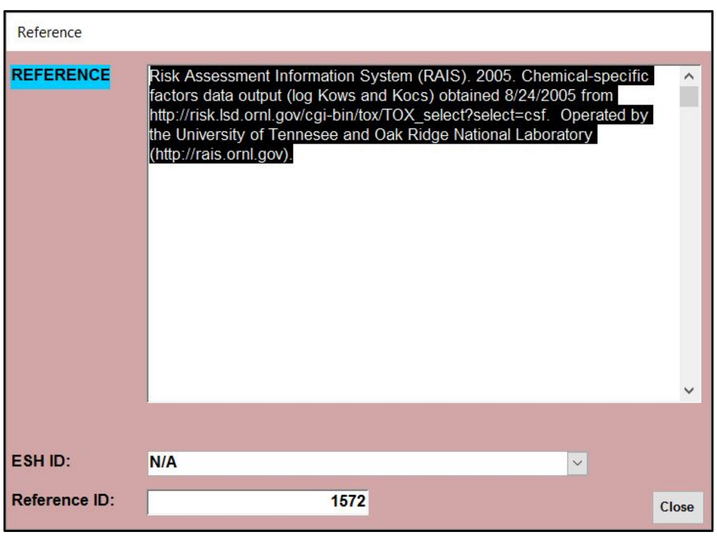


Figure 4.1-58 TF summary screen – TF details (TF_invert_fw) – reference (Koc) – Aroclor-1254 and birds

4.1.3.6 Radionuclide-Specific Parameters Used to Calculate ESLs

Accessed from the ESL screen using the rad parameters button, Figure 4.1-59 shows all of the radionuclide-specific parameters associated with the calculation of a particular ESL. This screen also provides an acronym list report and access to a reference for each type of parameter listed.

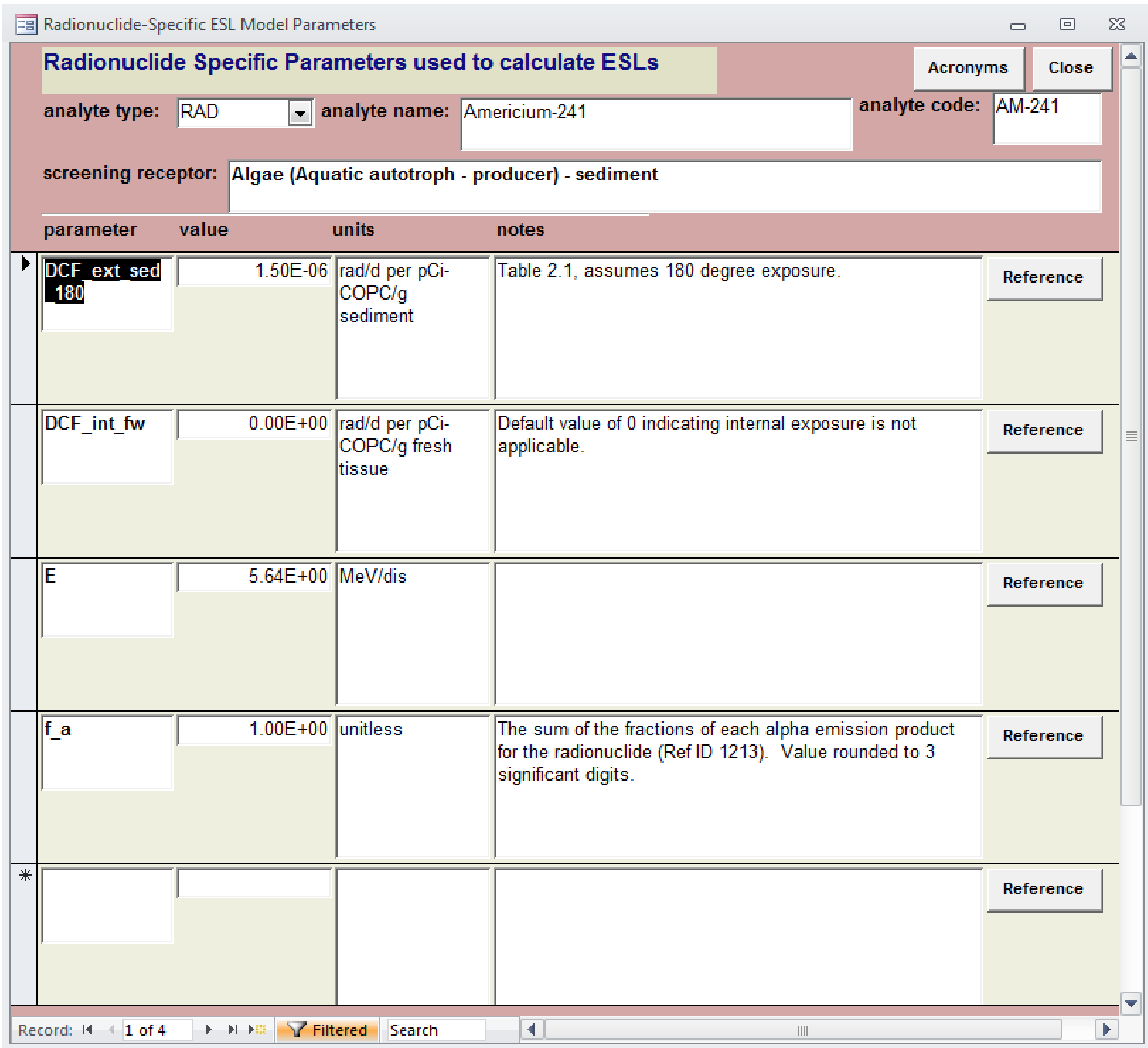


Figure 4.1-59 ESL screen supporting documentation – radionuclide-specific parameters used to calculate ESLs – americium-241 and algae

The acronym list report accessed from the radionuclide-specific parameters used to calculate ESLs screen is available in Appendix A, Report 4.1-1.

Figure 4.1-60 is the reference citation for the 180-degree external dose conversion factor for sediment (DCF_ext_sed_180) on the radionuclide-specific parameters used to calculate ESLs screen. This example is for americium-241 and algae.

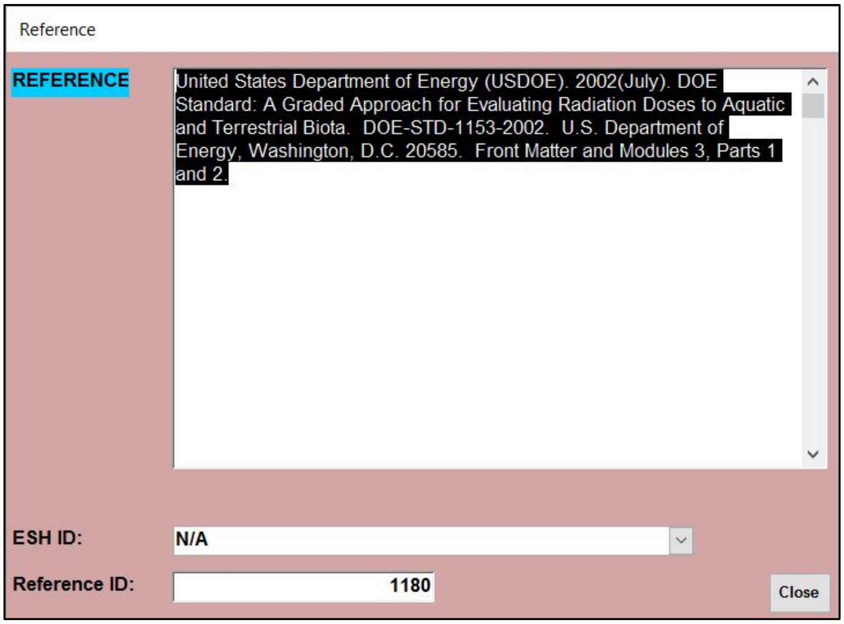


Figure 4.1-60 Radionuclide-specific parameters used to calculate ESLs – reference (DCF_ext_sed_180) – americium-241 and algae

4.1.3.7 ESL Reference

Accessed from the ESL screen, Figure 4.1-61 is the ESL reference screen, and is the only screen in this section. This screen displays the version of the database associated with a particular ESL. The version should always be the most current release of the database.

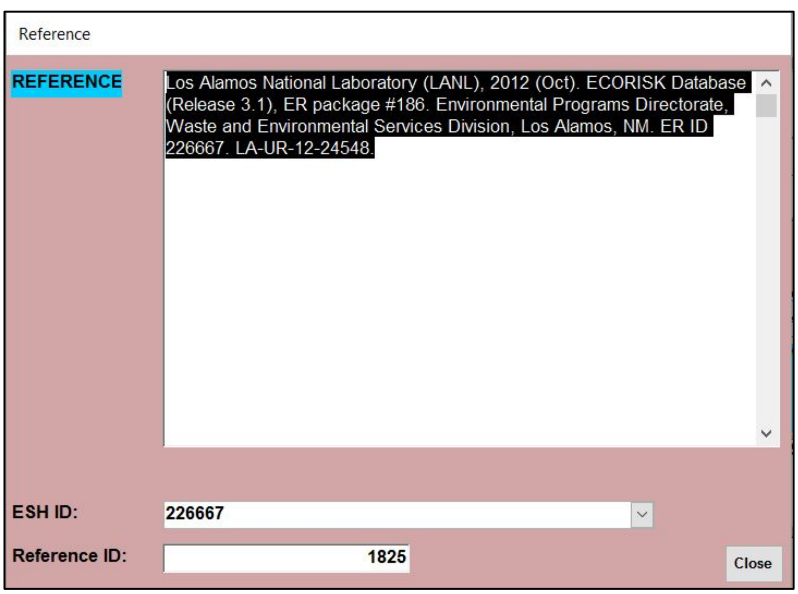
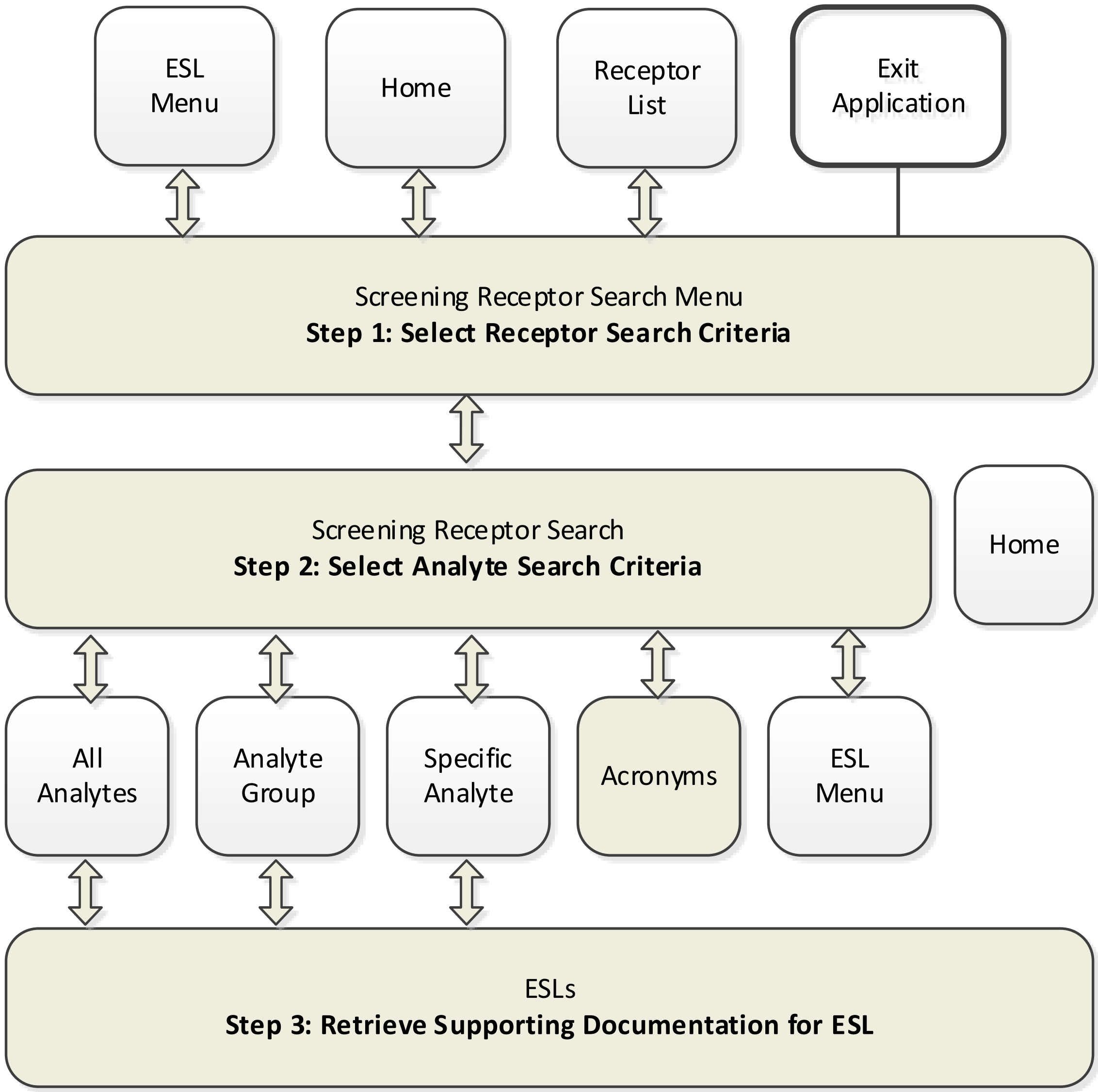


Figure 4.1-61 ESL screen supporting documentation – ESL reference

4.2 Ecological Screening Receptor Search

The ecological screening receptor search is the second search option for retrieving ESLs and supporting documentation for one or more analytes at the Laboratory.

Figure 4.2-1 is a navigation guide for the screening receptor search.



Note: Bold outline indicates an exit from database.

Figure 4.2-1 Visual navigation guide for a screening receptor search

4.2.1 Step 1: Select Receptor

Figure 4.2-2 is the screening receptor search menu. A complete list of ecological screening receptors may be viewed (A) or a specific ecological screening receptor may be selected from a pull-down list of receptors (B).

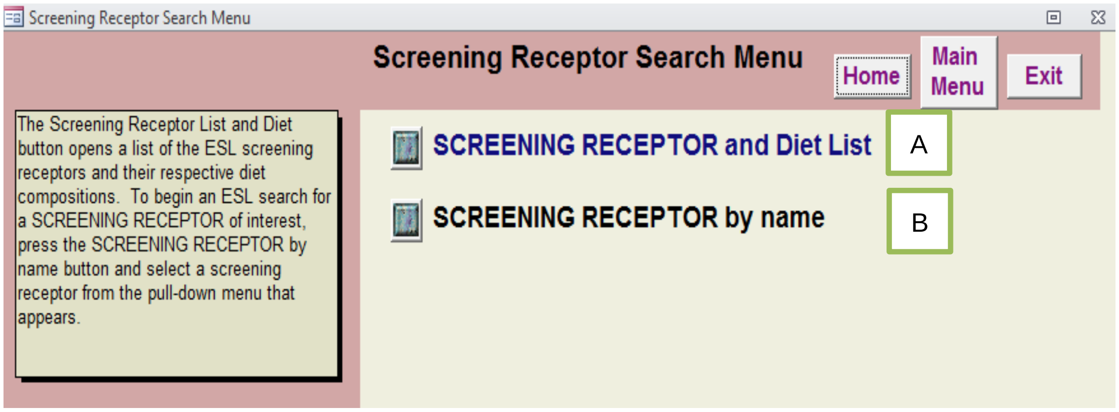


Figure 4.2-2 Screening receptor search menu

Figure 4.2-3 shows the first three items from the screening receptor and diet list. This list contains all the screening receptors utilized in the database.

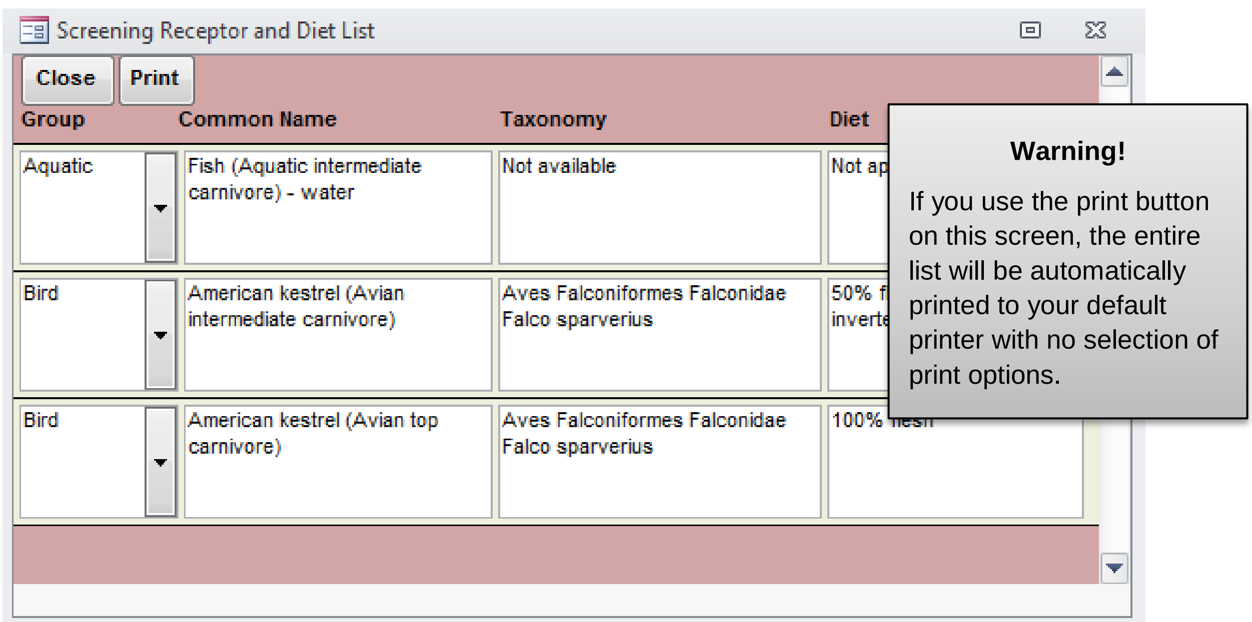


Figure 4.2-3 Screening receptor search menu screen – screening receptor and diet list

Selecting the screening receptor by name option displays a pop-up box. Figure 4.2-4 shows the pull-down menu of available screening receptors in the pop-up box. After selecting a screening receptor, press the proceed button to continue to the next step.

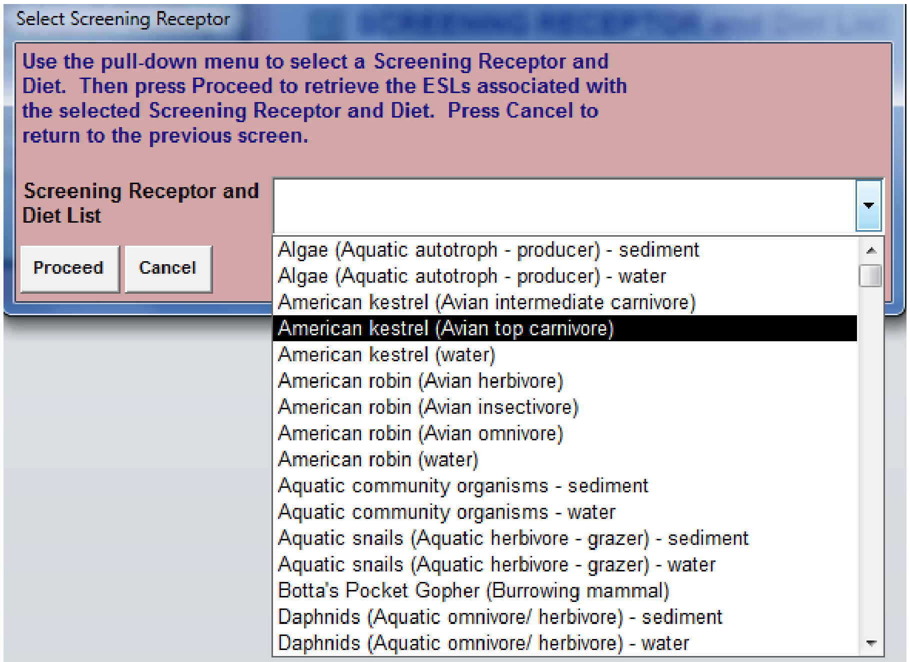


Figure 4.2-4 Screening receptor search menu screen – select screening receptor pop-up box with American kestrel selected

4.2.2 Step 2: Select Analyte(s)

Figure 4.2-5 shows the screening receptor result screen and allows selection of the analyte. ESLs for all analytes (A), a group of analytes (B), or a specific analyte (C) for the ecological screening receptor of interest can be viewed.

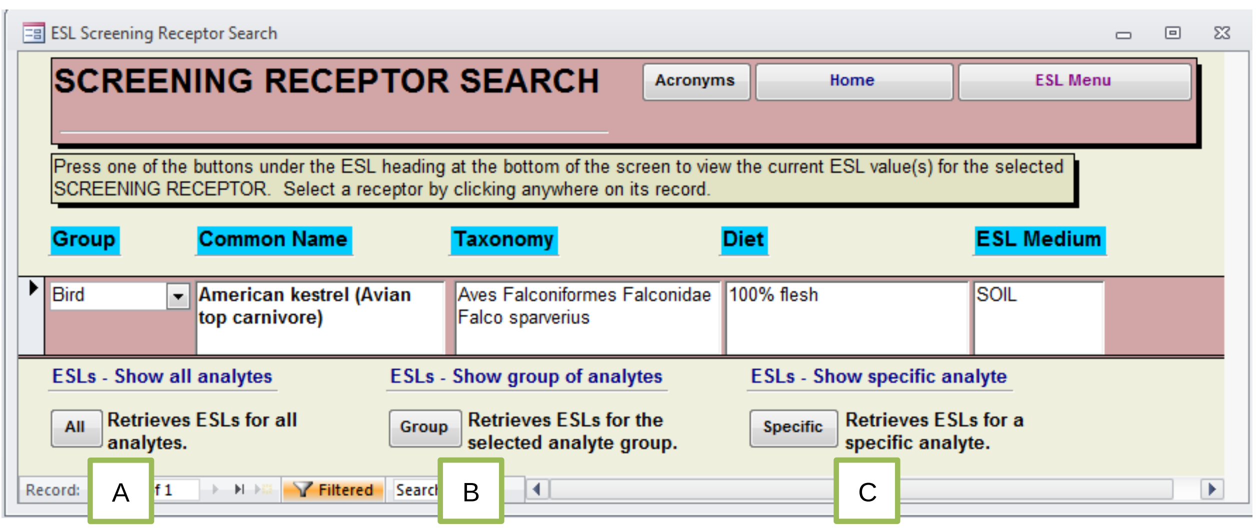


Figure 4.2-5 Screening receptor search menu screen – American kestrel – select analyte screen

4.2.2.1 All Analytes Option

Figure 4.2-6 is the ESL screen showing results when button A (retrieves ESLs for all analytes) is selected.

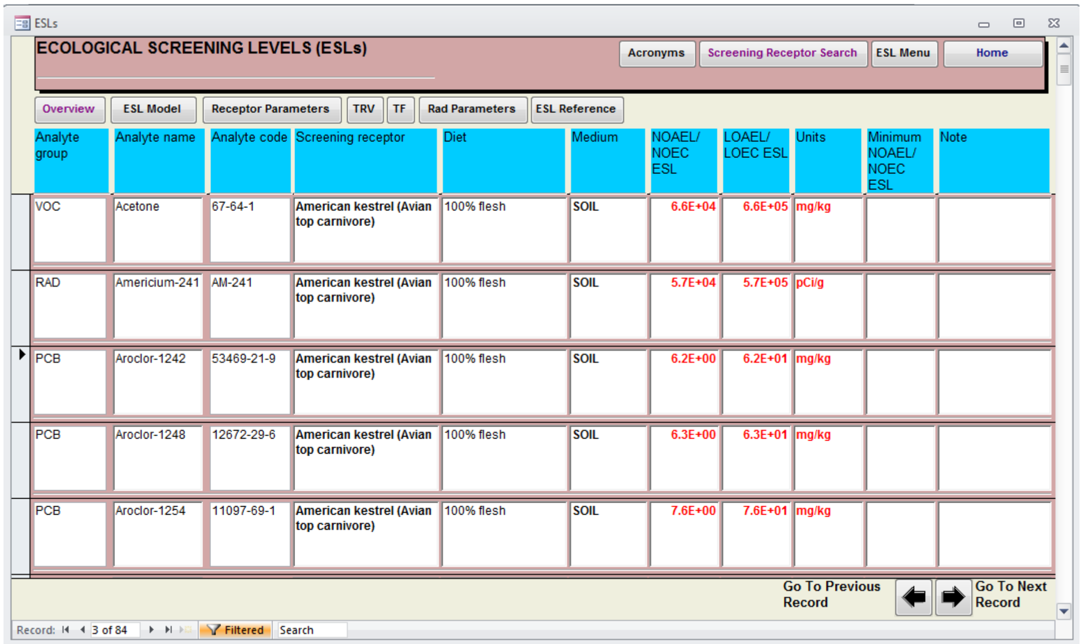


Figure 4.2-6 Screening receptor search menu screen – select analyte screen – American kestrel (avian top carnivore) with all analytes

4.2.2.2 Group of Analytes Option

Selecting button B in Figure 4.2-5 (retrieves ESLs for the selected analyte group) from the screening receptor search menu displays a pop-up box. Figure 4.2-7 shows the pop-up box with the pull-down menu used to select analyte groups for which ESLs can be retrieved.

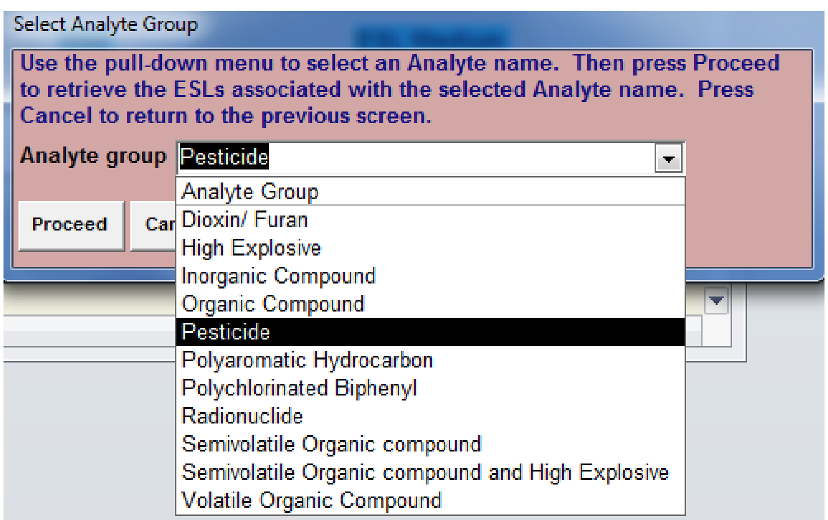


Figure 4.2-7 Screening receptor search menu screen – select analyte screen – select analyte group pop-up box

Figure 4.2-8 is the ESL screen showing results retrieved for pesticides.

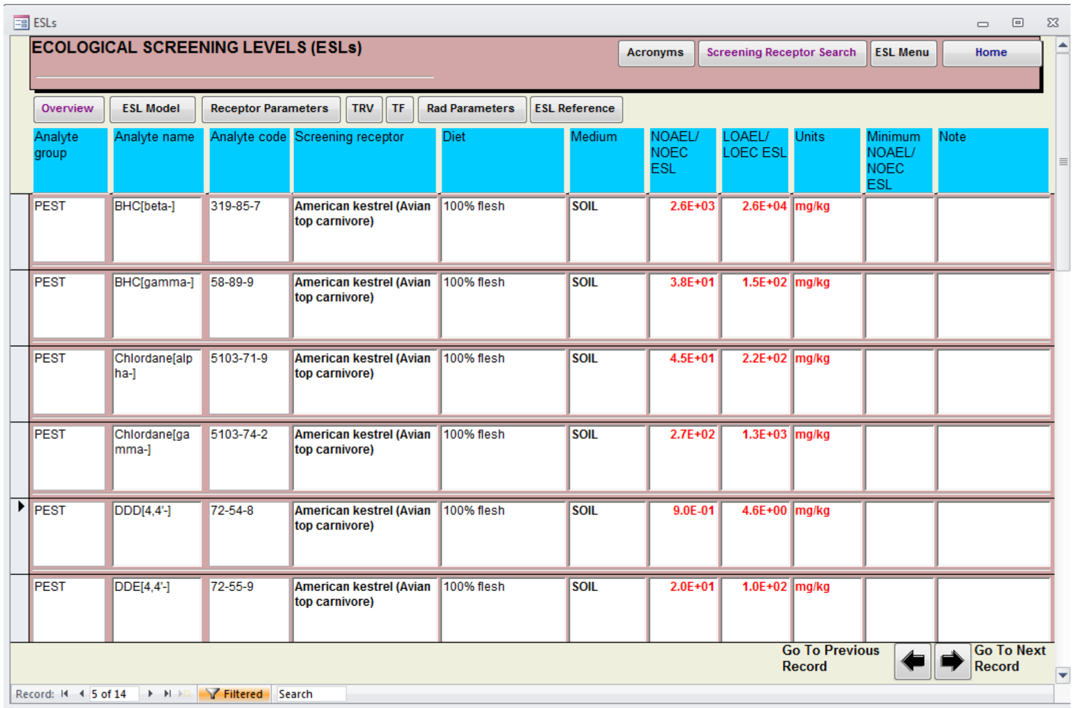


Figure 4.2-8 Screening receptor search menu screen – select analyte screen – analyte group – pesticides for American kestrel (avian top carnivore)

4.2.2.3 Specific Analyte Option

Selecting button C in Figure 4.2-5 (retrieves ESLs for a specific analyte) from the screening receptor search menu displays a pop-up box. Figure 4.2-9 shows the pop-up box with the pull-down menu used to select a specific analyte for which an ESL will be retrieved.

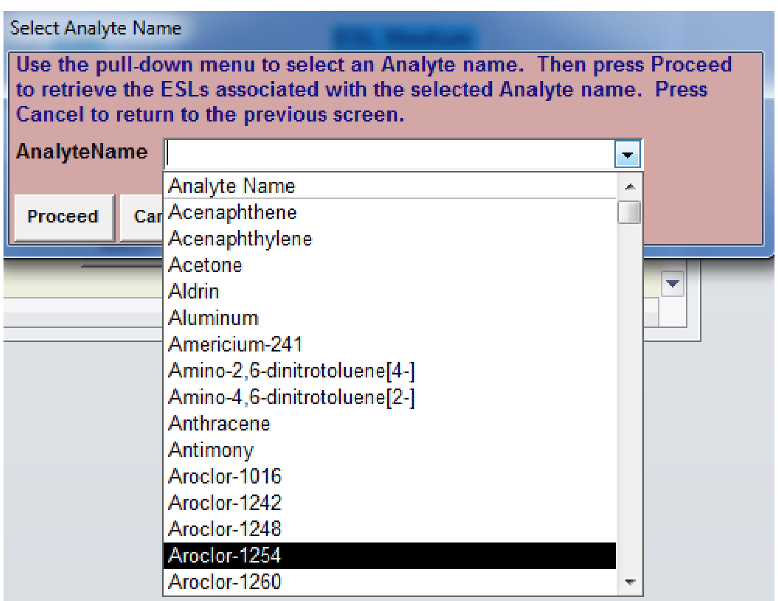


Figure 4.2-9 Screening receptor search menu screen – select analyte screen – select analyte name pop-up box

Figure 4.2-10 is the ESL screen showing results retrieved for Aroclor-1254.

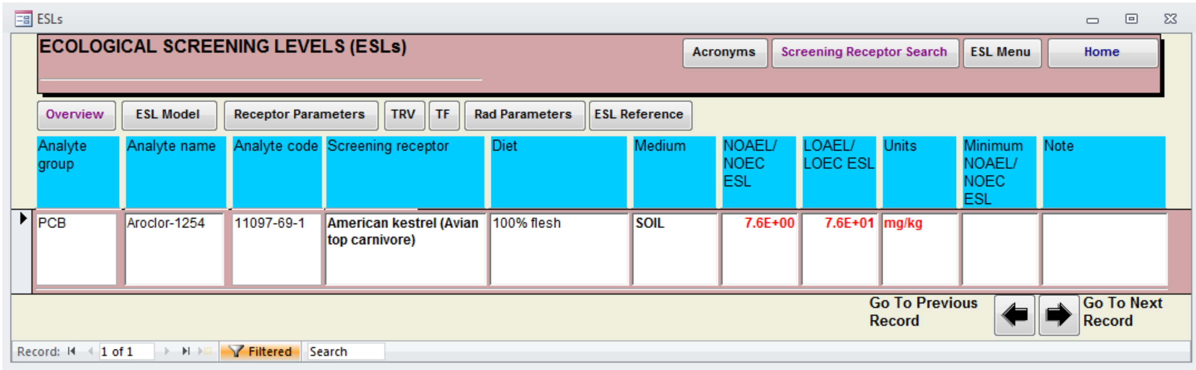


Figure 4.2-10 Screening receptor search menu screen – select analyte screen – select analyte name – Aroclor-1254 and American kestrel (avian top carnivore)

4.2.3 Step 3: Retrieve Supporting Documentation for ESL

See section 4.1.3 for detailed information on retrieving ESL documentation.

4.3 EcoPRG Analyte Search

The analyte search displays EcoPRGs for a single chemical and multiple ecological receptors. Supporting documentation is available for individual receptors.

4.3.1 Select Analyte

The analyte search is initiated by either typing an analyte name in box A or highlighting an analyte on the list in Step 1 as shown in Figure 4.3-1.

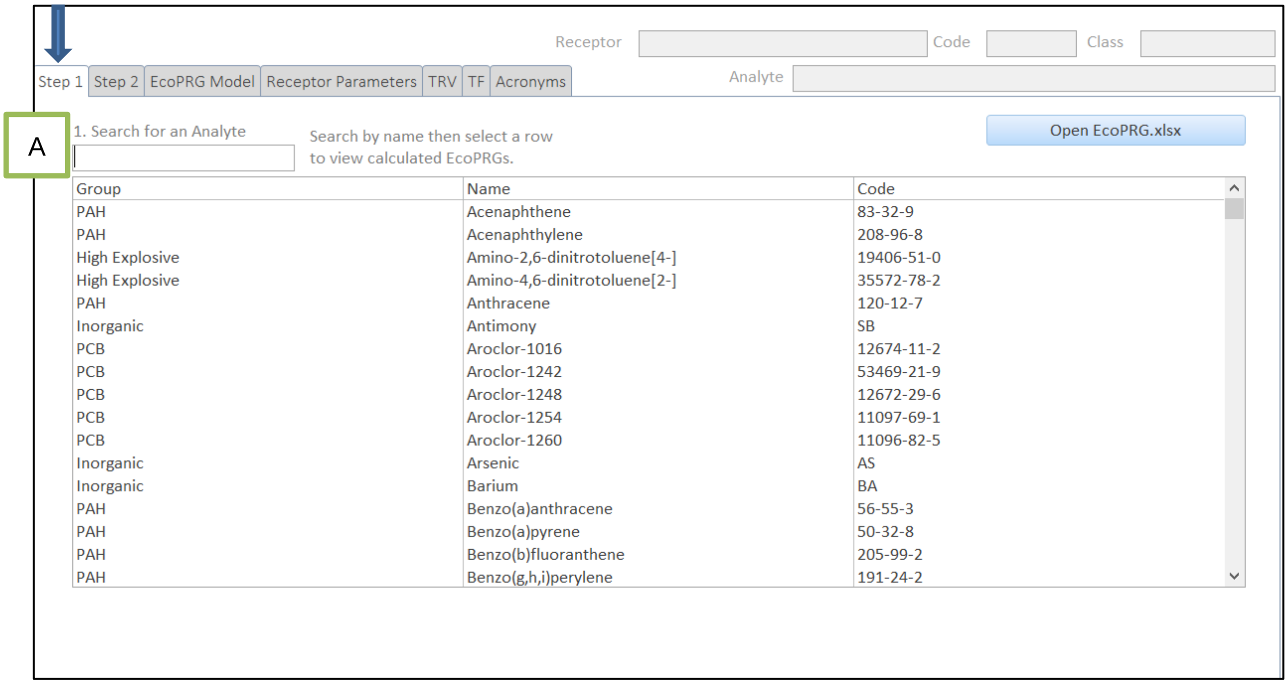


Figure 4.3-1 Analyte search on the EcoPRG Step 1 screen

Following the selection of an analyte of interest, the database will advance to the Step 2 tab where a list of EcoPRGs are reported by receptor. Figure 4.3-2 shows barium as the analyte of interest. The default Site Area for calculating the EcoPRGs for all of the receptors is 1 hectare (ha). An alternate Site Area may be entered in Box (A). The background value is provided for comparison purposes.

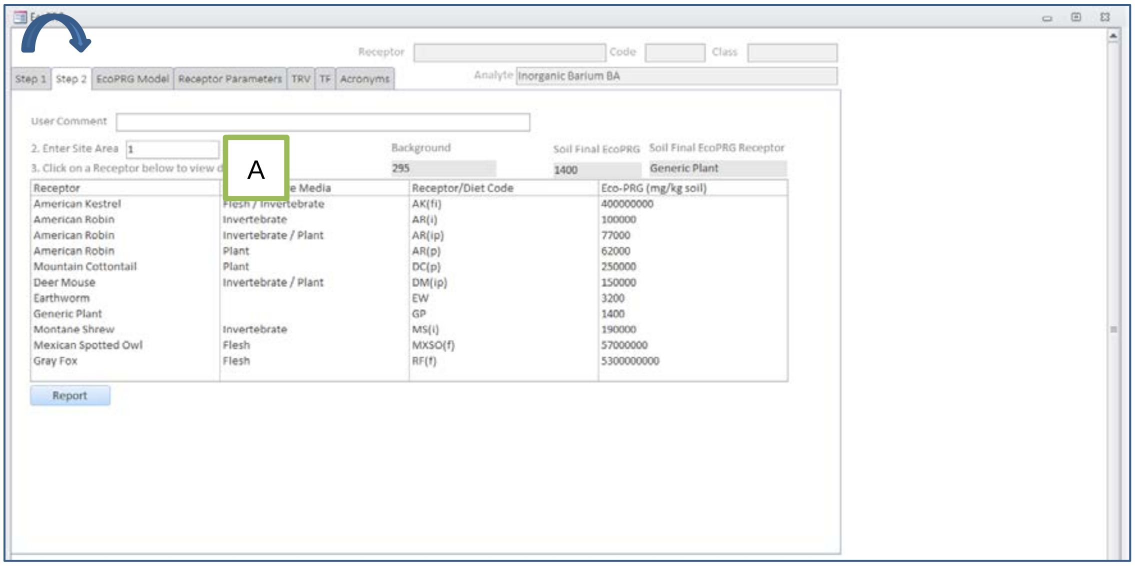


Figure 4.3-2 EcoPRG Step 2 screen, Select Receptor

If a new value is entered in the Site Area box, the revised EcoPRGs will be calculated and updated on the Step 2 tab immediately as shown in Figure 4.3-3.

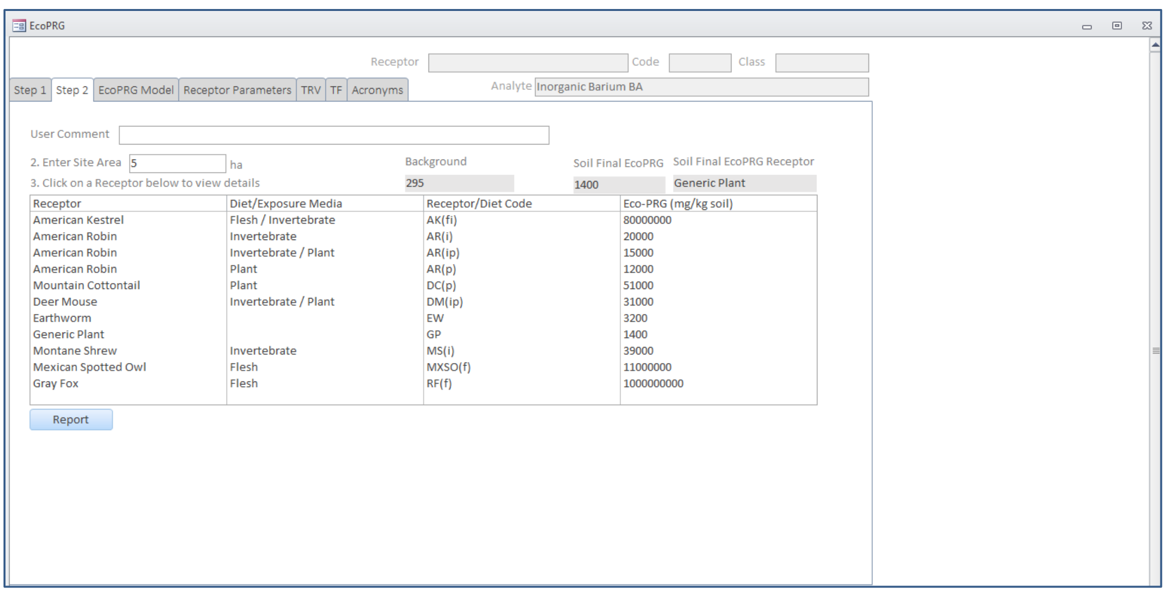


Figure 4.3-3 EcoPRG Step 2 screen, Enter Site Area

4.3.2 Select Receptor

Step 2 displays the EcoPRGs for all receptors that are applicable to the selected analyte. Figure 4.3-3 displays the EcoPRGs that were calculated for barium with a site area of 5 ha. Only one receptor can be chosen at a time to view supporting documentation for the EcoPRG. The receptor is chosen by highlighting the receptor of interest. The following sections detail each of the tabs containing the supporting documentation for the selected analyte and receptor.

4.3.2.1 EcoPRG Model

Figure 4.3-4 displays the EcoPRG Model screen that verifies the receptor and diet that was chosen in Step 2. If a model exists, it will also be displayed on this screen.

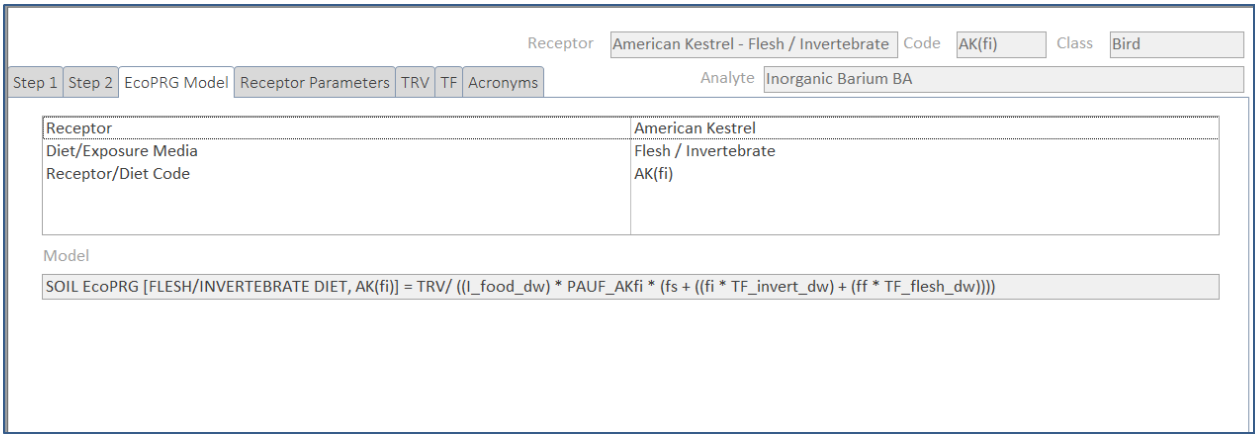


Figure 4.3-4 EcoPRG screen supporting documentation, EcoPRG Model screen

4.3.2.2 Receptor Parameters

Figure 4.3-5 displays the receptor parameters screen, which lists each parameter used to calculate an EcoPRG for a particular ecological receptor. Along with the parameter and parameter name, the screen displays the parameter value and units. A “Notes-Ref” button is available to the right of each parameter. By clicking this button next to the parameter of interest, the corresponding notes and reference will be displayed at the bottom of the screen. For lengthy notes or references, click in the box to scroll through the text.

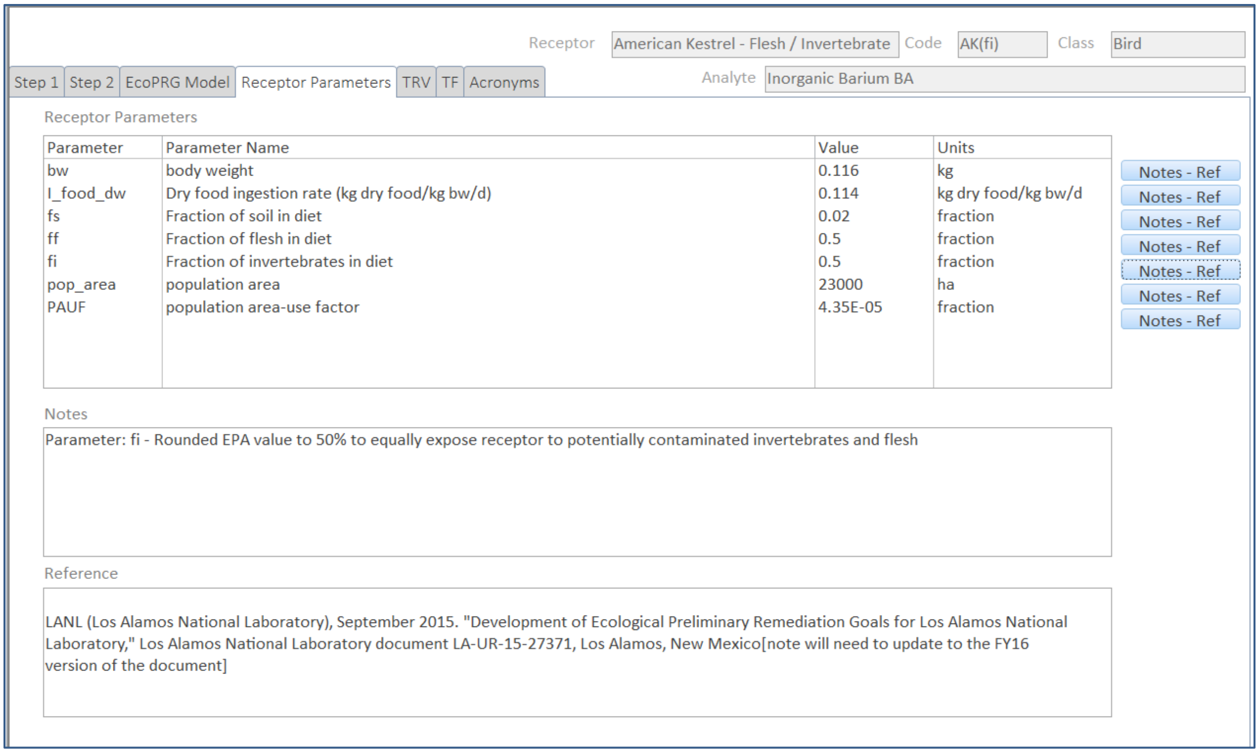


Figure 4.3-5 EcoPRG screen supporting documentation, receptor parameters screen

4.3.2.3 TRV

Figure 4.3-6 displays the TRV screen, which provides the TRV for the selected analyte and receptor, e.g., barium and American kestrel. The screen contains the COPEC group, receptor class, TRV value and units. Additional information for the TRV are provided in the details and reference boxes. For lengthy details or references, click in the box to scroll through the text.

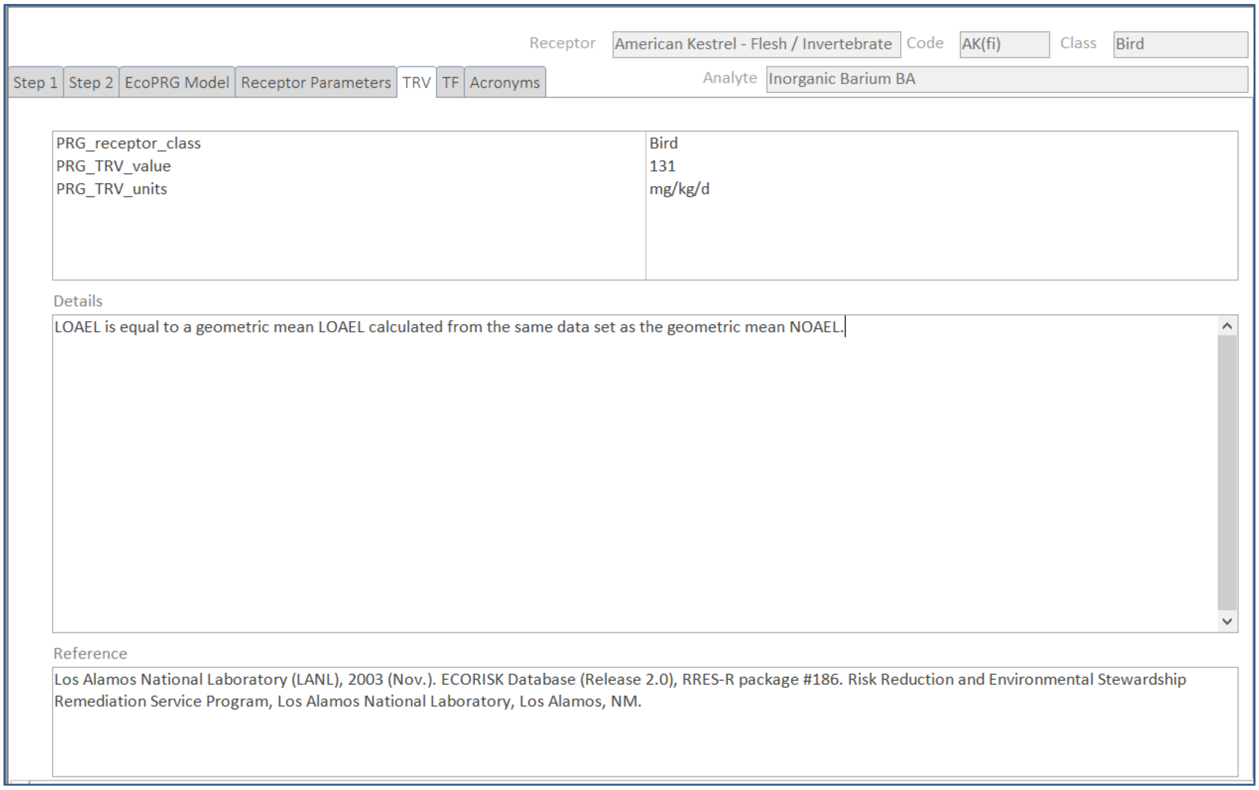


Figure 4.3-6 EcoPRG screen supporting documentation, TRV screen

4.3.2.4 TF

The TF tab is shown in Figure 4.3-7, which provides a list of all the TFs associated with the calculation of a particular EcoPRG. This screen also provides access to the log(Kow), Koc, calculation, references, and other notes related to the TF.

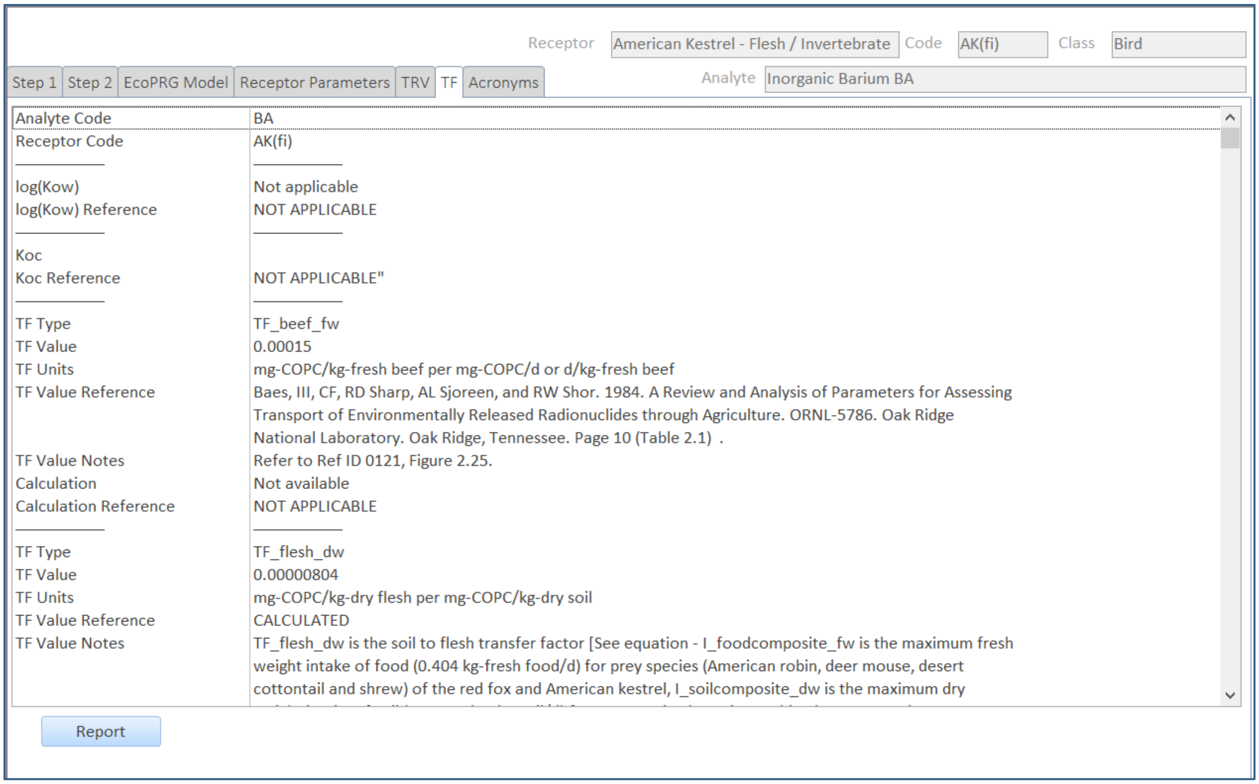


Figure 4.3-7 EcoPRG screen supporting documentation, TF screen

4.3.2.5 Acronyms

If any terms in the documentation of the EcoPRGs are not clearly defined, the acronym screen shown in Figure 4.3-8 can be accessed to look up any acronym associated with the ECORISK database. The acronym search can be performed by typing the acronym in the search box or by scrolling down the list of acronyms and highlighting the acronym of interest.

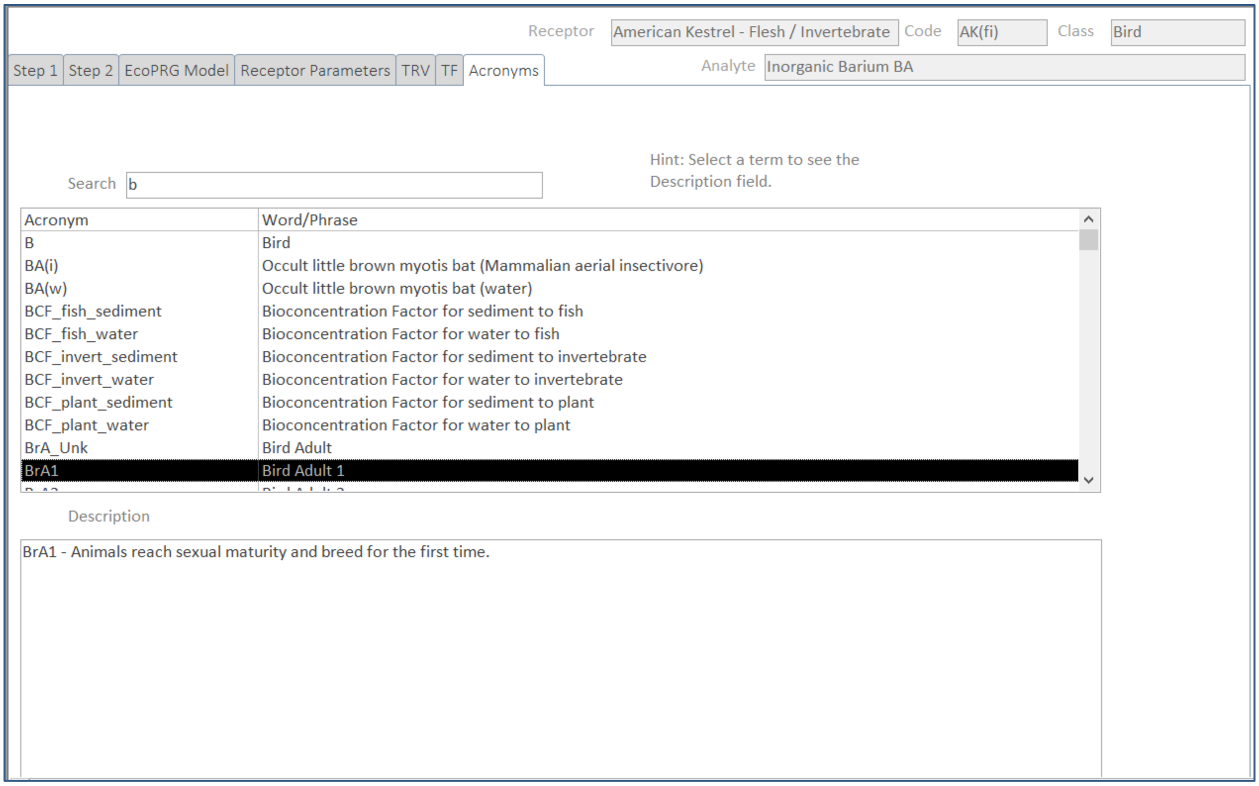


Figure 4.3-8 EcoPRG screen supporting documentation, acronyms screen

5.0 REPORTS

The following sections describe the three types of reports available in the database. For ESLs, sections 5.1, 5.2, and 5.3 contain information on summary reports, custom reports, and other reports, respectively, and section 5.4 contains documentation on ESL derivation descriptions. Section 5.5 describes the summary reports that are available for EcoPRGs.

Figure 5.1-1 is a screenshot of the main menu showing the report options and ESL derivation (model description) options (outlined in red). Figure 5.1-2 is a navigation guide for the screen shown in Figure 5.1-1.

Section Highlights

Section 5 has instructions to retrieve the following:

- Summary reports
- Custom reports
- Supplemental reports
- Example outputs
- ESL derivation descriptions

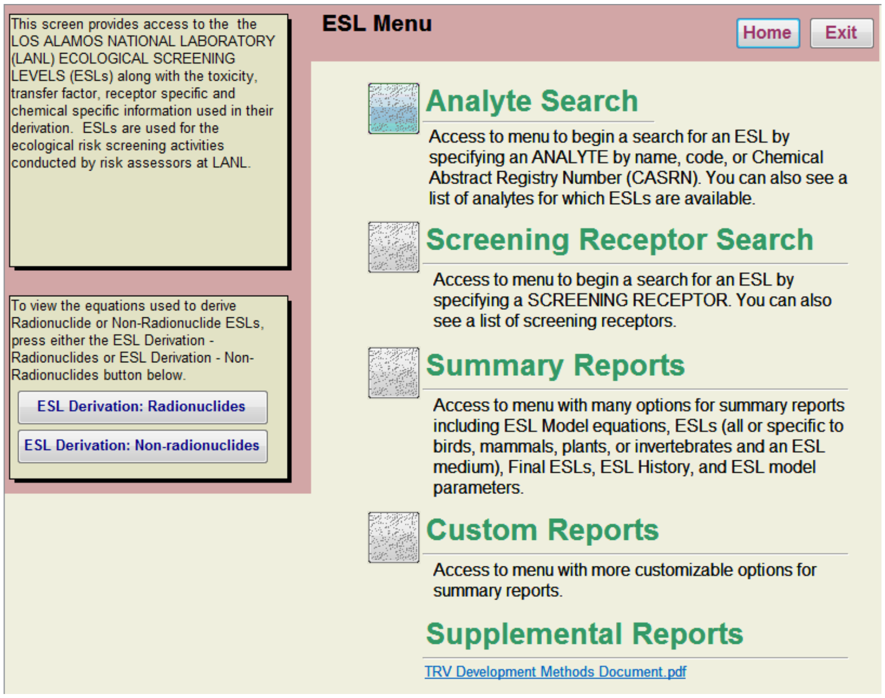


Figure 5.1-1 Main menu showing report and ESL derivation description retrieval

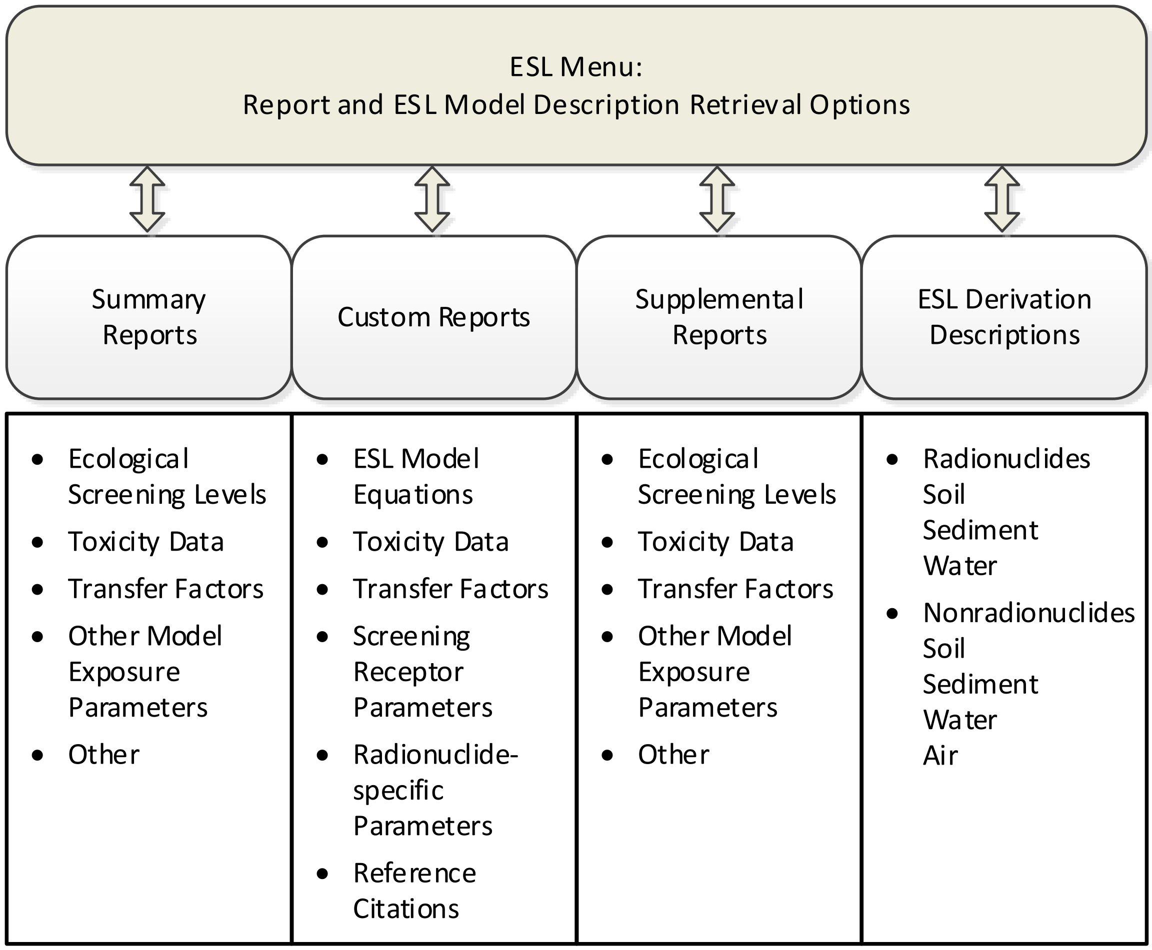


Figure 5.1-2 Visual navigation guide for reports and ESL derivation descriptions

5.1 Summary Reports

Summary reports include both spreadsheet and Word document reports. Reports are available for ESLs (section 5.1.1), toxicity data (section 5.1.2), TFs (section 5.1.3), other parameters (section 5.1.4), and other data (section 5.1.5). Figure 5.1-3 shows the summary report menu screen.

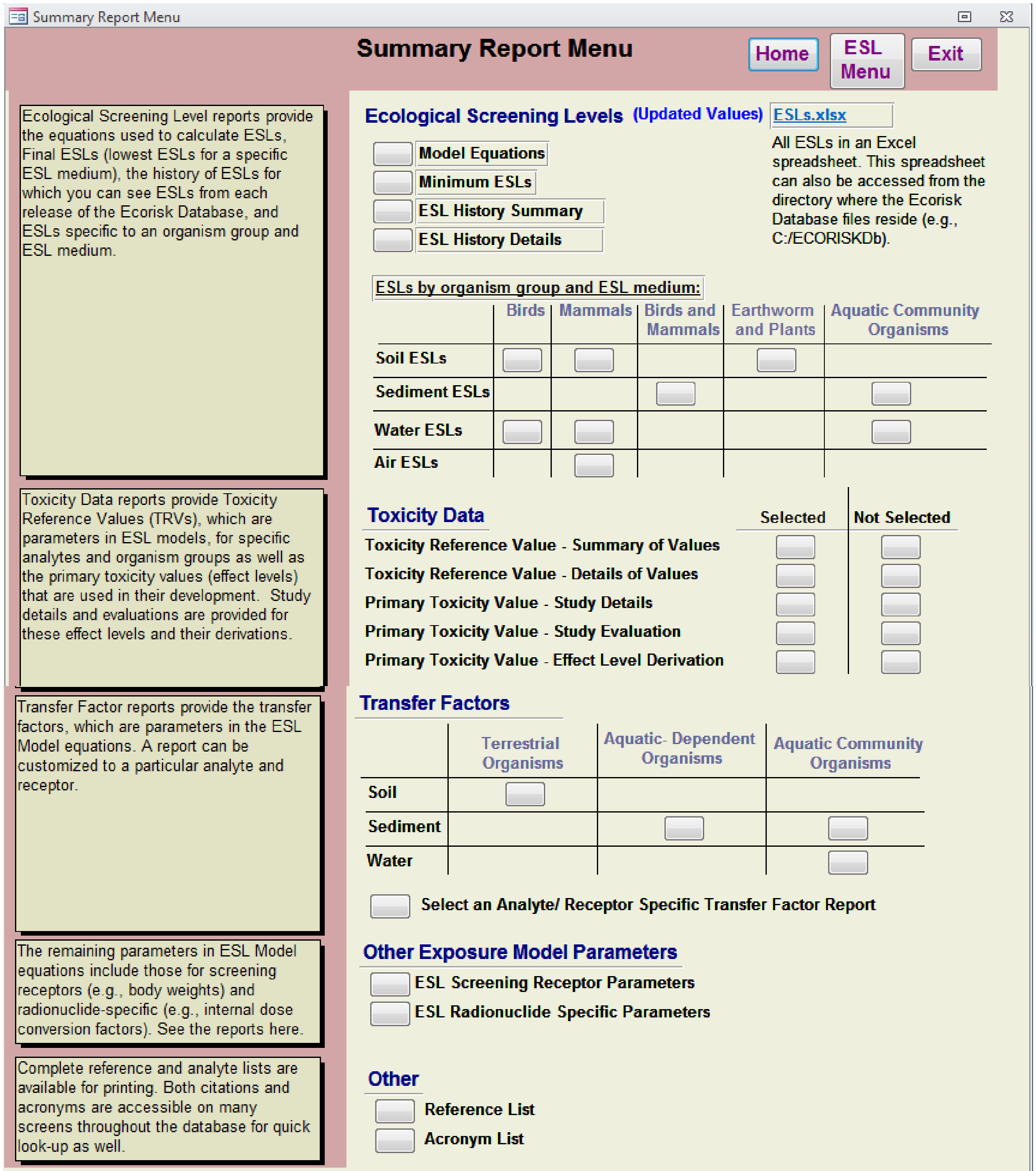

Summary Report Menu
Summary Report Menu
Home
ESL Menu
Exit
Ecological Screening Level reports provide the equations used to calculate ESLs, Final ESLs (lowest ESLs for a specific ESL medium), the history of ESLs for which you can see ESLs from each release of the Ecorisk Database, and ESLs specific to an organism group and ESL medium.
Ecological Screening Levels
(Updated Values)
ESLs.xlsx
All ESLs in an Excel spreadsheet. This spreadsheet can also be accessed from the directory where the Ecorisk Database files reside (e.g., C:/ECORISKDb).
Model Equations
Minimum ESLs
ESL History Summary
ESL History Details
ESLs by organism group and ESL medium:
Birds
Mammals
Birds and Mammals
Earthworm and Plants
Aquatic Community Organisms
Soil ESLs
Sediment ESLs
Water ESLs
Air ESLs
Toxicity Data reports provide Toxicity Reference Values (TRVs), which are parameters in ESL models, for specific analytes and organism groups as well as the primary toxicity values (effect levels) that are used in their development. Study details and evaluations are provided for these effect levels and their derivations.
Toxicity Data
Selected
Not Selected
Toxicity Reference Value - Summary of Values
Toxicity Reference Value - Details of Values
Primary Toxicity Value - Study Details
Primary Toxicity Value - Study Evaluation
Primary Toxicity Value - Effect Level Derivation
Transfer Factor reports provide the transfer factors, which are parameters in the ESL Model equations. A report can be customized to a particular analyte and receptor.
Transfer Factors
Terrestrial Organisms
Aquatic- Dependent Organisms
Aquatic Community Organisms
Soil
Sediment
Water
Select an Analyte/ Receptor Specific Transfer Factor Report
The remaining parameters in ESL Model equations include those for screening receptors (e.g., body weights) and radionuclide-specific (e.g., internal dose conversion factors). See the reports here.
Other Exposure Model Parameters
ESL Screening Receptor Parameters
ESL Radionuclide Specific Parameters
Complete reference and analyte lists are available for printing. Both citations and acronyms are accessible on many screens throughout the database for quick look-up as well.
Other
Reference List
Acronym List

Figure 5.1-3 Summary report menu

5.1.1 ESLs

Summary reports for ESLs include reports displaying current ESLs for all receptors (section 5.1.1.1), ESL model equations reports (section 5.1.1.2), minimum ESLs reports (section 5.1.1.3), ESL history summary reports (section 5.1.1.4) and detail reports (section 5.1.1.5) that compare the ESL values of the current version with previous versions, and ESL reports by organism group and environmental medium (section 5.1.1.6). Figure 5.1-4 displays the summary report menu with the section for ESL reports outlined in red.

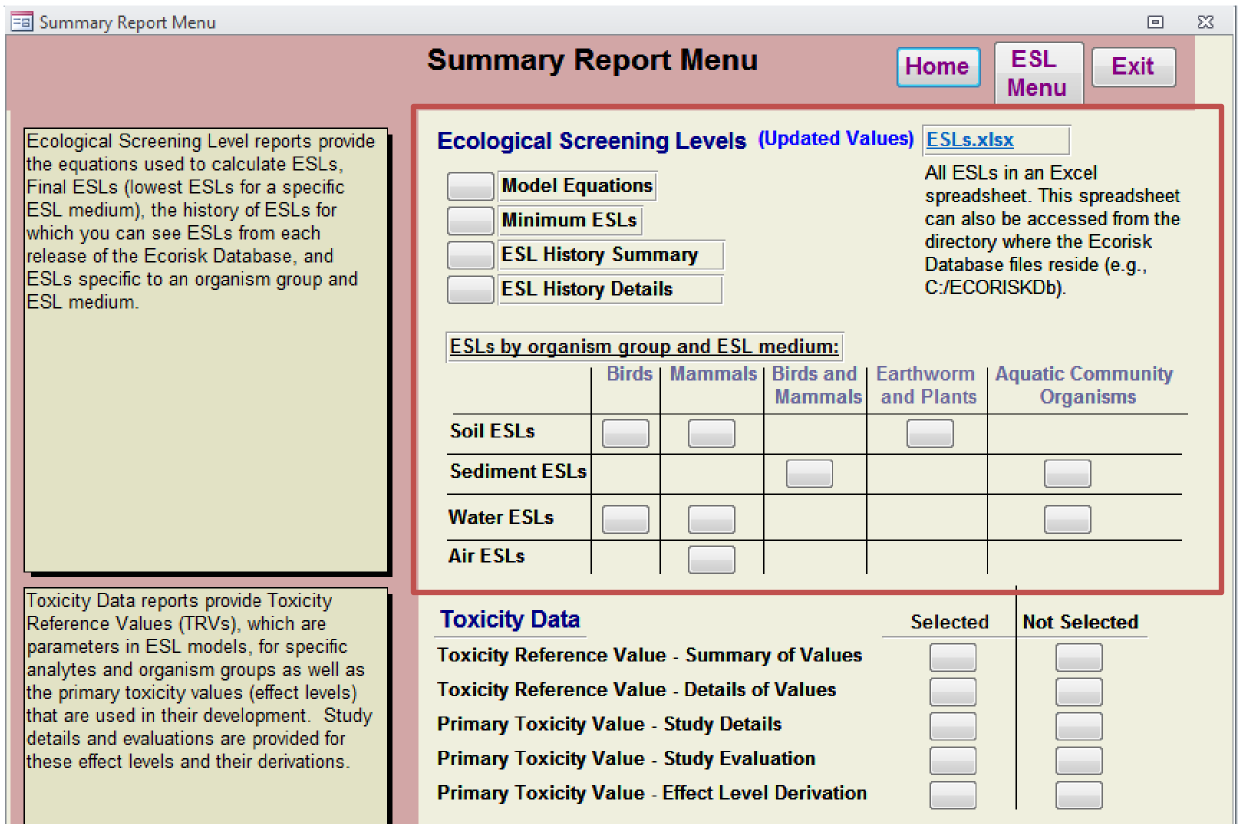


Figure 5.1-4 Summary report menu – ESLs

5.1.1.1 ESL Excel Report

The ESL Excel report is in Appendix A, Report 5.1-1. This report includes all the ESLs calculated for the current release of the database and can be used as a stand-alone report for ESLs when performing screening assessments.

5.1.1.2 ESL Model Equations Report

The ESL model equations report is in Appendix A, Report 5.1-2. This report displays the equations used to calculate ESLs for each receptor in the database as well as its diet composition.

5.1.1.3 Minimum ESLs Report

The minimum ESLs report is in Appendix A, Report 5.1-3. This report lists the minimum ESL for each analyte in each environmental medium in the database.

5.1.1.4 ESL History Summary – No Effect Only Report

The ESL history summary report for only the no-effect levels is in Appendix A, Report 5.1-4. This report summarizes the changes to a particular ESL across all releases of the database.

5.1.1.5 ESL History Details – No Effect Only Report

The ESL history details report for only the no-effect levels is in Appendix A, Report 5.1-5. This report details the changes to the ESLs across all releases of the database.

5.1.1.6 ESL Reports by Organism Group and Environmental Medium

Summary reports for soil (section 5.1.1.6.1), sediment (section 5.1.1.6.2), water (section 5.1.1.6.3), and air (section 5.1.1.6.4) are described, and sample reports are provided in Appendix A.

5.1.1.6.1 Soil ESLs

ESL reports are available for soil for the following receptors:

- Birds
- Mammals
- Earthworms
- Plants

The reports for all receptors have the same content and format, so a single example report is provided. The soil ESL report for birds is in Appendix A, Report 5.1-6. Note that ESLs are not available for all receptors for all analytes in soil.

5.1.1.6.2 Sediment ESLs

ESL reports are available for sediment for the following receptors:

- Birds and mammals
- Aquatic community organisms

The reports for all receptors have the same content and format, so a single example report is provided. The sediment ESL report for birds and mammals is in Appendix A, Report 5.1-7. Note that ESLs are not available for all receptors for all analytes in sediment.

5.1.1.6.3 Water ESLs

ESL reports are available for water for the following receptors:

- Birds
- Mammals
- Aquatic community organisms

The reports for all receptors have the same content and format, so a single example report is provided. The water ESL report for birds is in Appendix A, Report 5.1-8. Note that ESLs are not available for all receptors for all analytes in water.

5.1.1.6.4 Air ESLs

An ESL report is available for air for mammals. The air ESL report for mammals is in Appendix A, Report 5.1-9. Note that ESLs are not available for all receptors for all analytes in air.

5.1.2 Toxicity Data Reports

This section describes the toxicity data reports available in the ECORISK Database. Sections 5.1.2.1 to 5.1.2.4 describe the TRV summary of values report, TRV details of values report, PTV study details report, PTV study evaluation report, and PTV effect level derivation report, respectively.

Figure 5.1-5 is the summary report menu screen with the section for toxicity data reports outlined in red.

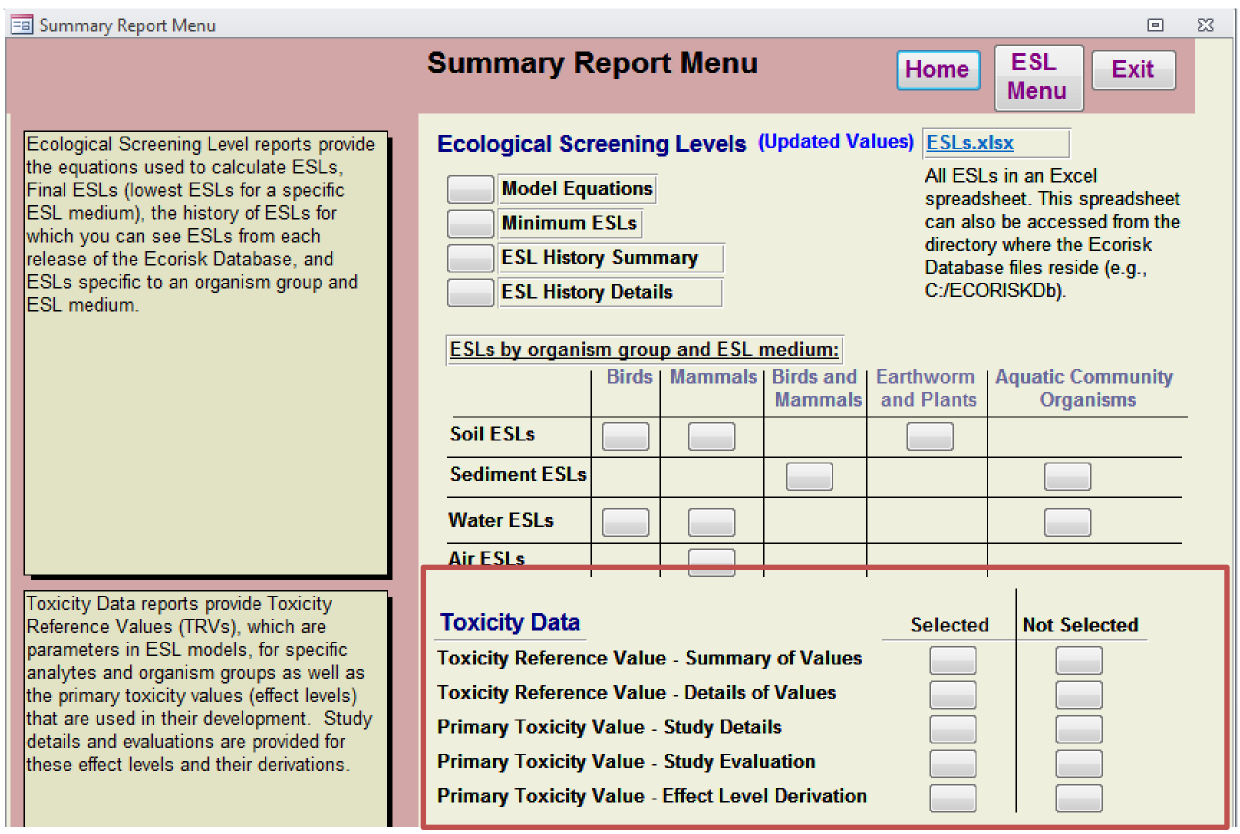


Figure 5.1-5 Summary report menu – toxicity data

5.1.2.1 TRV – Summary of Values Report

The two types of TRV summary of values reports are selected values and values not selected.

5.1.2.1.1 TRV – Summary of Values Report – Selected Values

The TRV summary of values report with selected values lists all TRVs that were selected/used to calculate one or more ESLs reported in the current version of the database. Data fields shown in this report include the following:

- TRV selected
- Analyte group
- Analyte name
- Analyte code
- ESL receptor class
- ESL model
- TRV type
- No effect TRV
- Low effect TRV
- TRV units
- Test organism common name
- TRV exposure route
- TRV exposure medium
- TRV tier
- TRV summary ID
- ESL model
- TRV selected
- TRV type
- Test organism common name
- TRV exposure route ID
- TRV exposure medium ID
- ESL receptor functional group

The TRV summary of values report with selected values is found in Appendix A, Report 5.1-10.

5.1.2.1.2 TRV – Summary of Values Report – Values Not Selected

The TRV summary of values report with values not selected lists all TRVs considered for use in calculating ESLs but not selected/used. This report has the same data fields as the TRV summary of values report with selected values.

5.1.2.2 TRV – Details of Values Report

There are two types of TRV details of values reports, selected values and values not selected.

5.1.2.2.1 TRV – Details of Values Report – Selected Values

The TRV details of values report with selected values lists the derivation details for all the TRVs that were selected/used to calculate one or more ESLs reported in the current version of the database.

Figure 5.1-6 shows the pop-up box for selected values, which is used to select TRVs for the report by analyte name and organism group. The example shown below is for acetone and birds.

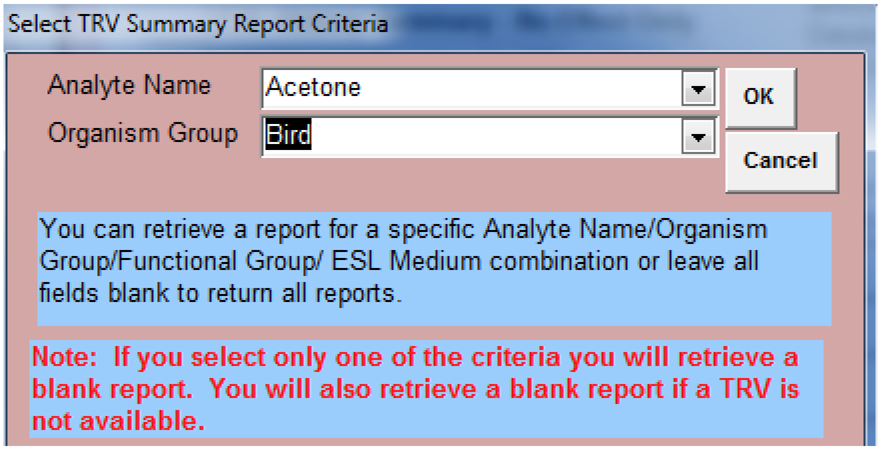


Figure 5.1-6 Summary report menu – toxicity data –TRV details of values pop-up box – acetone and bird

An example of a TRV details of values report with selected values for acetone and birds is in Appendix A, Report 5.1-11. This report shows the NOAEL/NOEC and LOAEL/LOEC along with basic study design characteristics (e.g., test organism, test exposure route, and medium), derivation notes, uncertainty, and calculations/parameters required to calculate the TRV. This report also provides a comparison with other published TRVs if the TRV was derived by the Laboratory (Tier 2 or 3 TRV). A reference list is included with this report for references cited in the summary for toxicity or other relevant data.

5.1.2.2.2 TRV – Details of Values Report – Values Not Selected

The TRV details of values report with values not selected lists the derivation details for all TRVs considered for use in calculating ESLs but not selected/used. This report has the same data fields as the TRV details of values report with selected values.

5.1.2.3 PTV – Study Details Report

The two types of PTV study details reports are selected values and values not selected. A PTV is a value taken or derived from data in the primary toxicological literature that is then considered for use in deriving a TRV that is used to calculate an ESL. The PTV study details report contains the details of the toxicological study and any calculations and parameters required to arrive at a PTV.

5.1.2.3.1 PTV – Study Details Report – Selected Values

The PTV study details report with selected values lists the derivation details for all the PTVs that were selected/used to derive the TRV used to calculate ESLs in the current version of the database. Figure 5.1-7 shows the pop-up box for selected values, which is used to select the analyte and test organism class of interest for the report. The example shown below is for acetone and terrestrial birds.

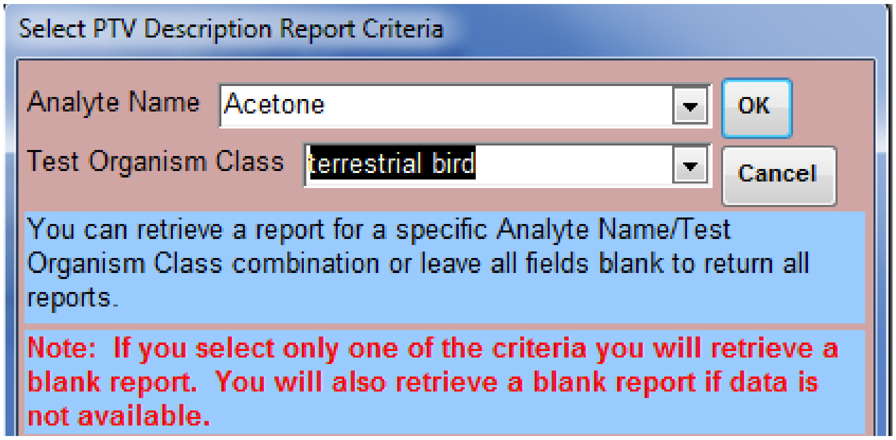


Figure 5.1-7 Summary report menu – toxicity data – PTV study details report pop-up box – acetone and terrestrial bird

The example PTV study details report with selected values for acetone and terrestrial birds is in Appendix A, Report 5.1-12.

5.1.2.3.2 PTV – Study Details Report – Values Not Selected

The specific PTV details report with values not selected lists the derivation details for all PTVs considered for use but not selected/used to derive the TRVs used to calculate ESLs in the current version of the database. This report has the same data fields as the specific PTV details report with selected values.

5.1.2.4 PTV – Study Evaluation Report

The two types of PTV study evaluation reports are selected values and values not selected. The PTV study evaluation report contains the evaluation scores and notes on study design and documentation, exposure conditions, test organism, and measurements and results, as well as any calculations and other parameters required to calculate the PTV per LANL's PTSE methods, an independent toxicological review process developed and implemented at the Laboratory (LANL 2010, 110623, Appendix A).

5.1.2.4.1 PTV – Study Evaluation Report – Selected Values

The PTV study evaluation report with selected values lists the evaluation details for all the PTVs that were selected/used to derive the TRVs used to calculate ESLs in the current version of the database. Figure 5.1-8 shows the pop-up box for selected values, which is used to select the analyte and test organism class of interest for the report. The example shown below is for tetrachloroethene and terrestrial mammals.

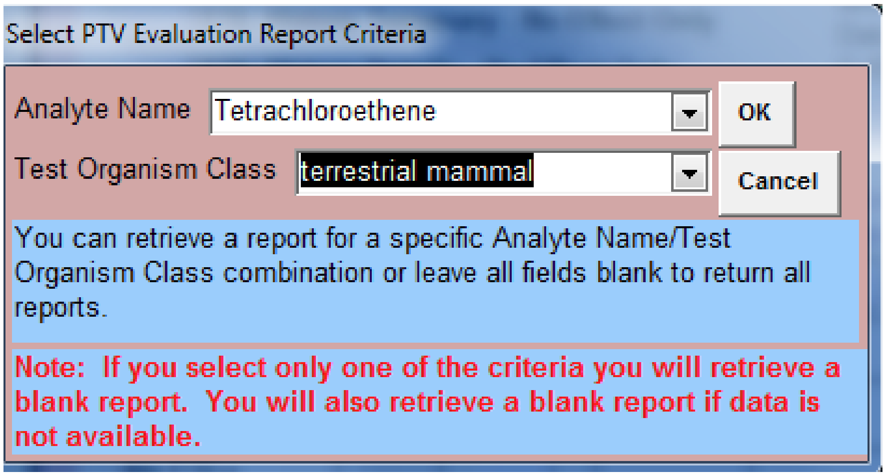


Figure 5.1-8 Summary report menu – toxicity data – PTV study evaluation report pop-up box – tetrachloroethene and terrestrial mammal

The example PTV study evaluation report with selected values for tetrachloroethene and terrestrial mammals is in Appendix A, Report 5.1-13.

5.1.2.4.2 PTV – Study Evaluation Report – Values Not Selected

The PTV study evaluation report with values not selected lists the evaluation details for all PTVs considered for use but not selected/used to derive the TRVs used to calculate ESLs in the current version of the database. This report has the same data fields as the PTV study evaluation report with selected values.

5.1.2.5 PTV – Effect Level Derivation Report

The two types of PTV effect level derivation reports are selected values and values not selected.

5.1.2.5.1 PTV – Effect Level Derivation Report – Selected Values

The PTV effect level derivation report with selected values lists the effect level derivation details for all the PTVs that were selected/used to derive the TRVs used to calculate ESLs in the current version of the database. Figure 5.1-9 shows the pop-up box for selected values, which is used to select the analyte and test organism class of interest for the report. The example shown below is for arsenic and terrestrial plants.

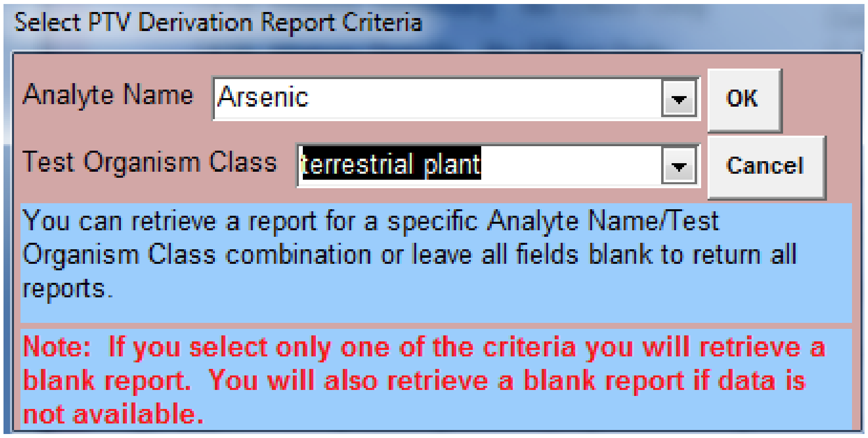


Figure 5.1-9 Summary report menu – toxicity data – PTV effect level derivation pop-up box – arsenic and terrestrial plant

The example PTV effect level derivation report with selected values for arsenic and terrestrial plants is in Appendix A, Report 5.1-14.

5.1.2.5.2 PTV – Effect Level Derivation Report – Values Not Selected

The PTV effect level derivation report with values not selected lists the effect level derivation details for all PTVs considered for use but not selected/used to derive the TRVs used to calculate ESLs in the current version of the database. This report has the same data fields as the PTV effect level derivation report with selected values.

5.1.3 TF Reports

This section describes the TF data reports available in the ECORISK Database. Sections 5.1.3.1 to 5.1.3.4 describe the TF reports for soil, sediment, water, and specific analytes/receptors, respectively.

Figure 5.1-10 shows the summary report menu screen with the section for TF reports outlined in red.

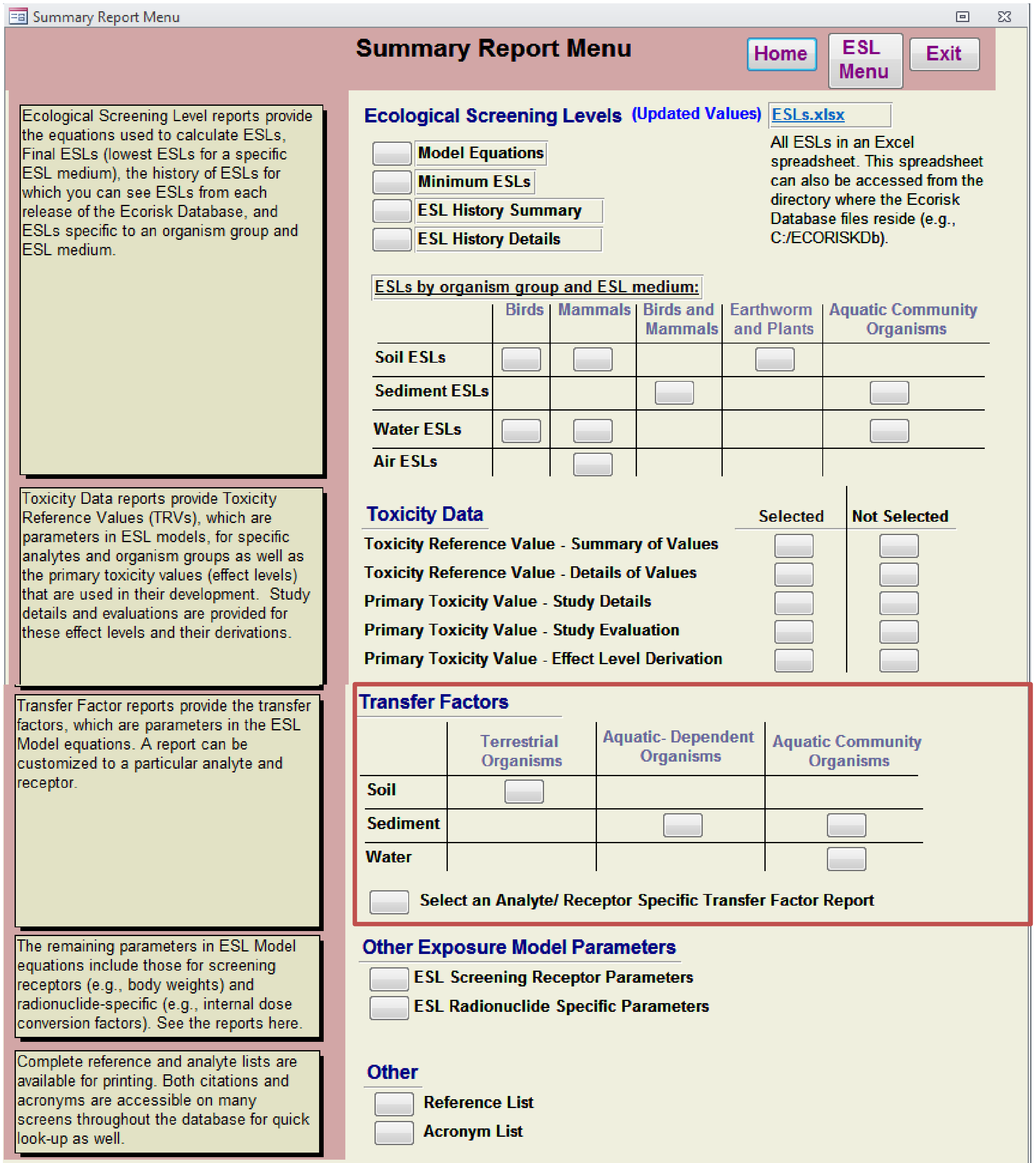


Figure 5.1-10 Summary report menu – TFs

5.1.3.1 TF Reports – Soil

This section describes the TF data reports available in the ECORISK Database for soil.

5.1.3.1.1 Terrestrial Organisms

The TF report for soil for terrestrial organisms is presented in Appendix A, Report 5.1-15. A TF value is shown under the table column heading for each applicable TF for a specific receptor. For example, the applicable TFs are TF_beef_fw, TF_flesh_dw, TF_invert_dw, and TF_plant_dw, where TF is transfer factor, dw is dry weight, and fw is fresh weight. These are the TFs used in the ESL calculations and are specific to screening receptors. The report also indicates the units and the database reference ID for the TF. There will be an entry in this report for every analyte and screening receptor found in the database.

5.1.3.2 TF Reports – Sediment

This section describes the TF reports available in the ECORISK Database for sediment for aquatic-dependent and aquatic community organisms.

5.1.3.2.1 Aquatic-Dependent Organisms

The TF report for sediment for aquatic-dependent organisms has the same format and type of information as the report shown in section 5.1.1.3.1 for soil and terrestrial organisms (Appendix A, Report 5.1-15).

5.1.3.2.2 Aquatic Community Organisms

The TF report for sediment for aquatic community organisms has the same format and type of information as the report shown in section 5.1.1.3.1 for soil and terrestrial organisms (Appendix A, Report 5.1-15).

5.1.3.3 TF Reports – Water

This section describes the TF data report available in the ECORISK Database for water for aquatic community organisms.

5.1.3.3.1 Aquatic Community Organisms

The TF report for water for aquatic community organisms has the same format and type of information as the report shown in section 5.1.1.3.1 for soil and terrestrial organisms (Appendix A, Report 5.1-15).

5.1.3.4 TF Reports – Specific Analyte/Receptor

The TF report for a specific analyte/receptor lists the TF details for a specific analyte and receptor that are used to calculate ESLs in the current version of the database. Figure 5.1-11 shows the pop-up box to select an analyte-/receptor-specific TF report, which is used to select the analyte and receptor of interest for the report. The example shown below is for cobalt and American kestrel (Avian intermediate carnivore).

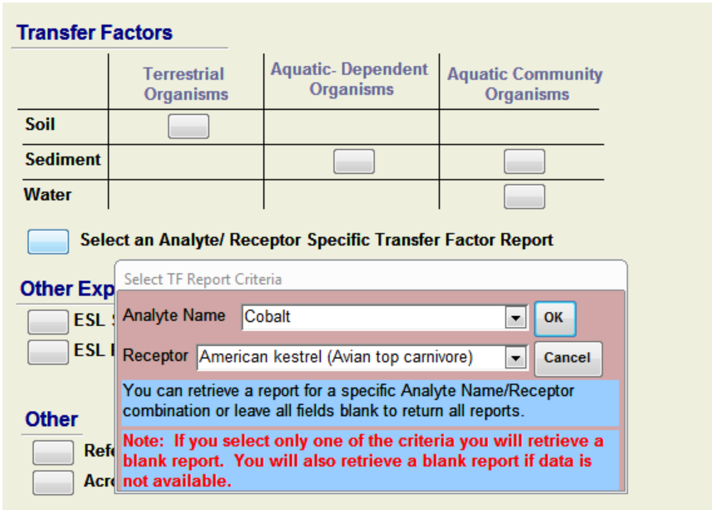


Figure 5.1-11 Summary report menu – TFs – specific analyte/receptor pop-up box – cobalt and American kestrel (avian intermediate carnivore)

The TF report for a specific analyte/receptor for cobalt and American kestrel (Avian intermediate carnivore) is presented in Appendix A, Report 5.1-16.

5.1.4 Other Exposure Model Parameter Reports

This section describes the other exposure model parameter data reports available in the ECORISK Database. Sections 5.1.4.1 and 5.1.4.2 describe the ESL screening receptor parameters report and ESL radionuclide-specific parameters report, respectively.

Figure 5.1-12 is the summary report menu screen with the section for other exposure model parameter reports outlined in red.

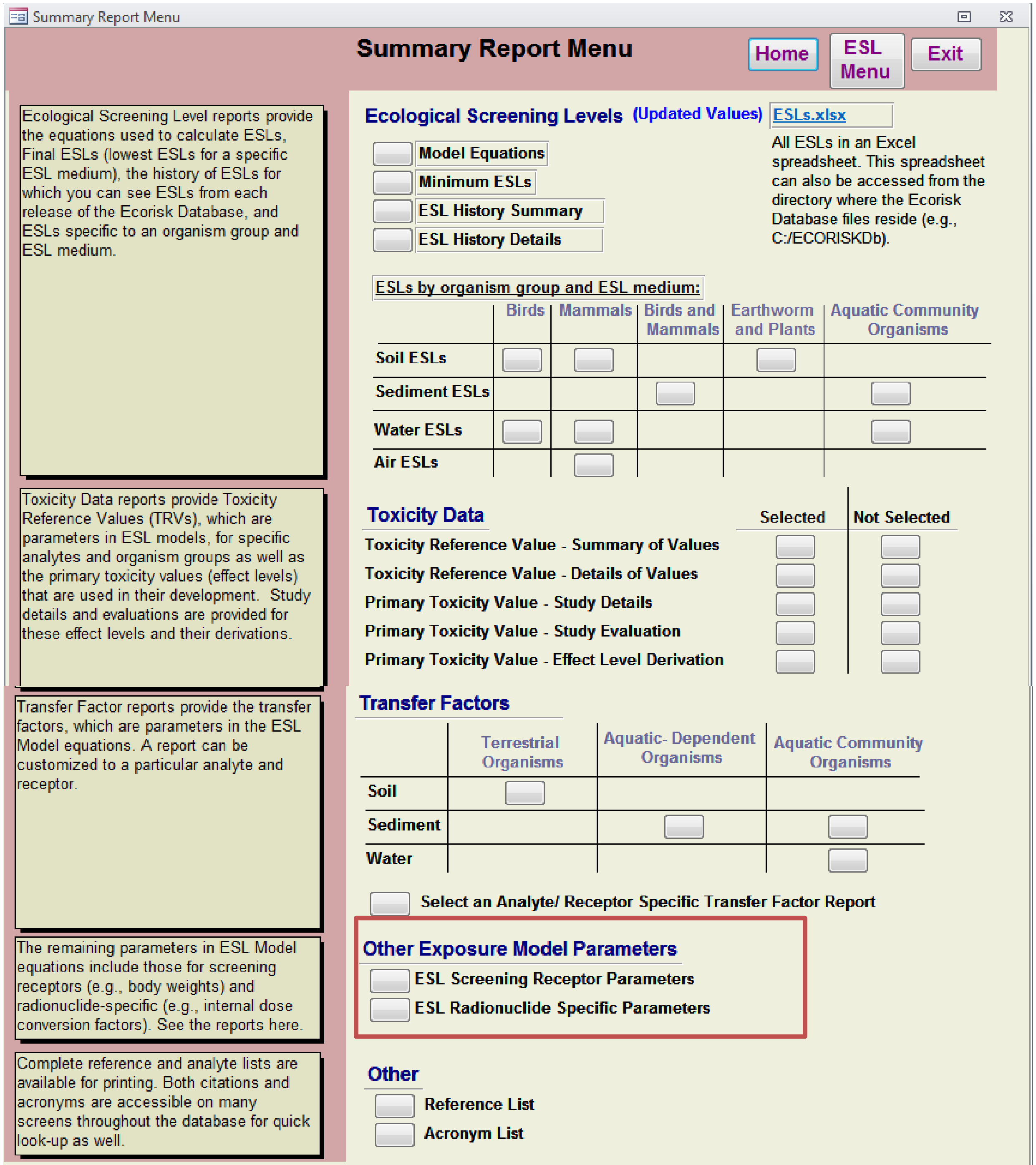


Figure 5.1-12 Summary report menu – other exposure model parameters

5.1.4.1 ESL Screening Receptor Parameters Report

The ESL screening receptor parameters report is available in Appendix A, Report 5.1-17. This report lists all the parameters (e.g., body weight, food ingestion rate, and water ingestion rate) required to calculate ESLs for each receptor in the database.

5.1.4.2 ESL Radionuclide-Specific Parameters Report

The ESL radionuclide-specific parameters report is available in Appendix A, Report 5.1-18. This report lists all the parameters required to calculate ESLs for a specific receptor and radionuclide.

5.1.5 Other Reports

This section describes other data reports available in the ECORISK Database. Sections 5.1.5.1 and 5.1.5.2 describe the reference list report and acronym list report, respectively.

Figure 5.1-13 is the summary report menu screen with the section for other reports outlined in red.

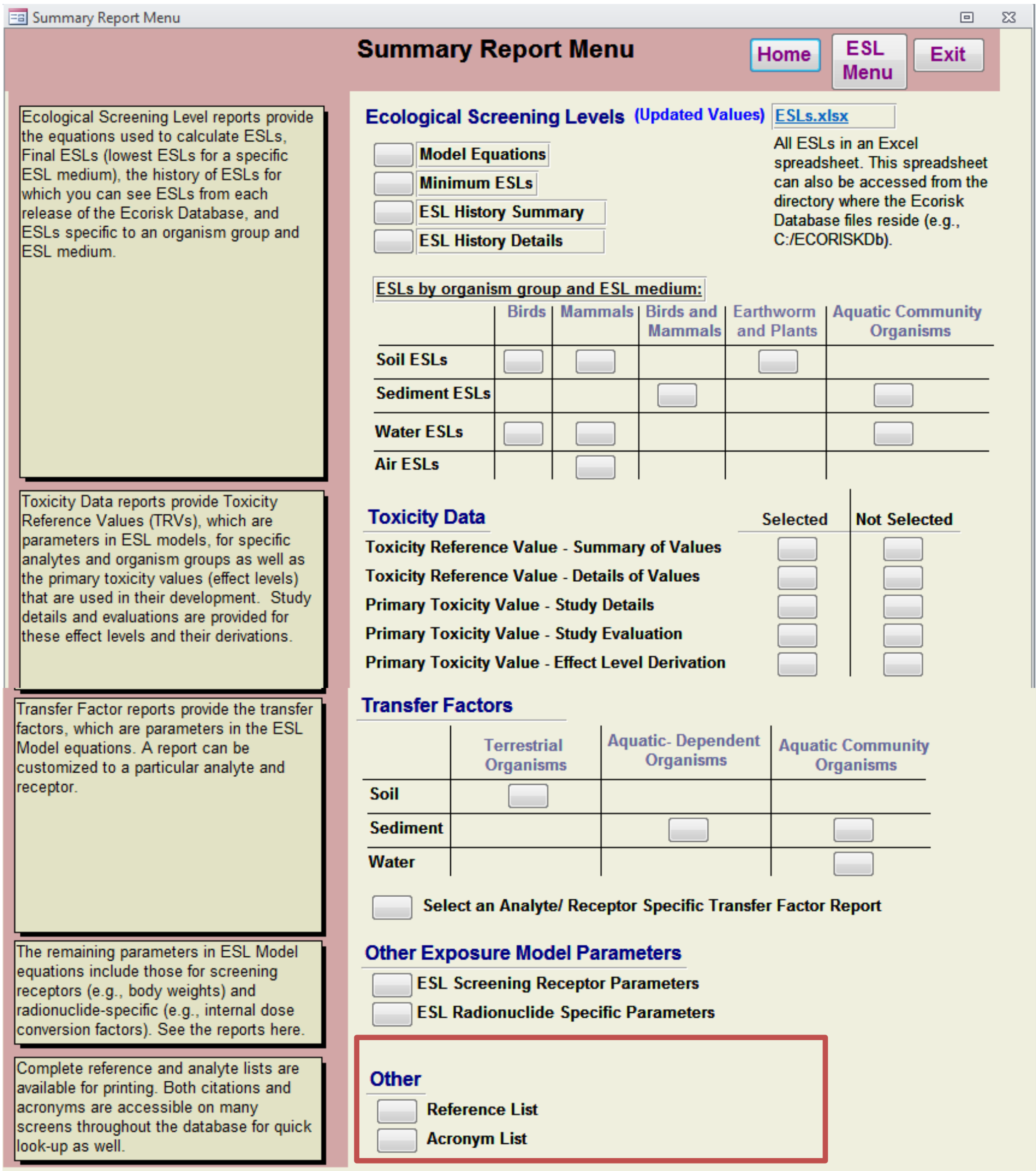


Figure 5.1-13 Summary report menu – other reports

5.1.5.1 Reference List Report

The reference list report is available in Appendix A, Report 5.1-19. This report displays every reference cited in the database.

5.1.5.2 Acronym List Report

The acronym list report is available in Appendix A, Report 4.1-1. This report lists every acronym used in the database.

5.2 Custom Reports

Figure 5.2-1 is the custom report menu accessed from the main menu. Sections 5.2.1 through 5.2.6 provide documentation for each of the six types of custom reports: ESL model equations (by receptor/ESL model), toxicity data (by analyte/receptor group), TFs (by analyte/receptor group/receptor diet composition/ESL model), screening receptor parameters (by receptor), radionuclide-specific parameters (by receptor/radionuclide analyte), and reference citation (by reference ID).

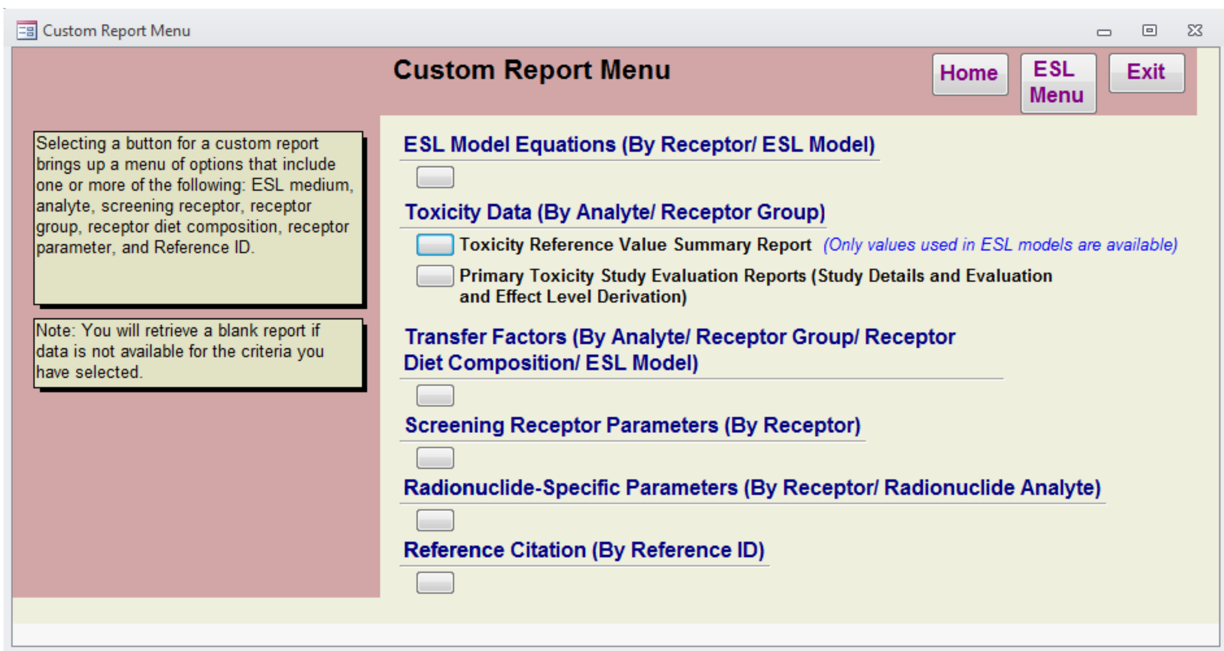


Figure 5.2-1 Custom report menu

5.2.1 ESL Model Equations Report by Receptor/ESL Model

Figure 5.2-2 is the pop-up box for ESL model equations, which is used to select the ESL model, analyte class (radionuclide or nonradionuclide analyte), and receptor. In the example below, soil, rad, and deer mouse (mammalian omnivore) are selected as report criteria.

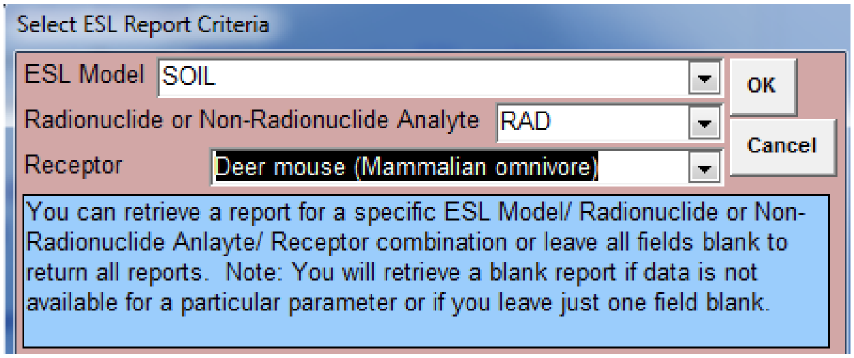


Figure 5.2-2 Custom report menu – select ESL model report criteria pop-up box – soil, rad, and deer mouse (mammalian omnivore)

The ESL model equation report for soil, rad, and deer mouse (mammalian omnivore) is available in Appendix A, Report 5.2-1. This report shows the following fields:

- ESL model
- Receptor group
- Receptor
- Diet composition
- ESL equation

5.2.2 Toxicity Data Report by Analyte/Receptor Group

There are two types of toxicity data reports available: the TRV summary report (section 5.2.2.1) and the PTSE reports (section 5.2.2.2).

5.2.2.1 TRV Summary Report (Selected Values Only)

Figure 5.2-3 is the pop-up box for the TRV summary report, which is used to select the ESL model, receptor group, and analyte name for the TRV summary report (selected values only). In the example below, soil, mammal, and antimony are selected as the report criteria.

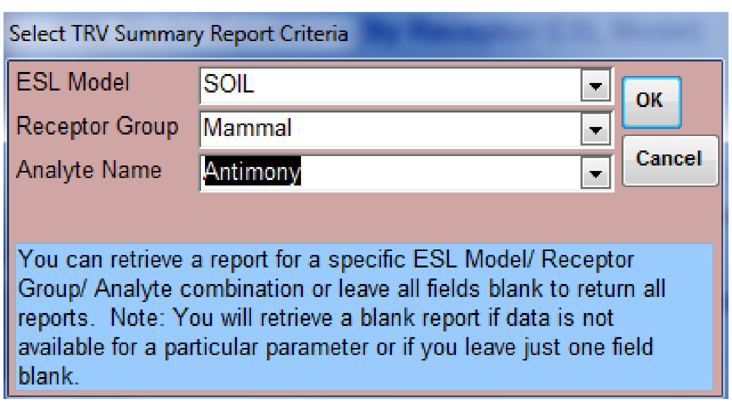


Figure 5.2-3 Custom report menu – select TRV summary report criteria pop-up box – soil, mammal, and antimony

The TRV summary report for soil, mammal, and antimony is available in Appendix A, Report 5.2-2. This report shows the NOAEL/NOEC and LOAEL/LOEC along with their basic study design characteristics (e.g., test organism, test exposure route, and medium), derivation notes, uncertainty, and calculations/parameters required to calculate the TRV. This report also provides a comparison with other published TRVs if the reported TRV was derived by the Laboratory (Tier 2 or 3 TRV). A reference list is included with this report for references cited in the summary for toxicity or other relevant data.

5.2.2.2 PTSE Reports

There are three PTSE reports retrieved from the custom report menu: study details, effect level derivation, and evaluation reports. Figure 5.2-4 is an information screen that displays when you select this report option that explains the types of reports returned and how to access them. PTSE reports are available for toxicological literature reviewed by the Laboratory in a multi-step process to derive TRVs suitable for use in Laboratory SLERAs.

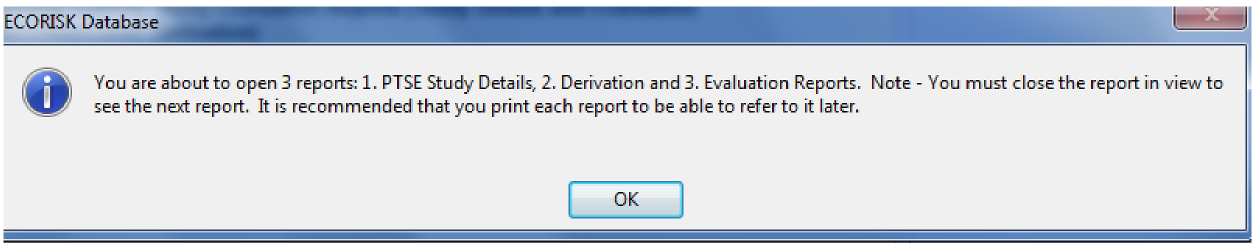


Figure 5.2-4 Custom report menu – PTSE reports – information pop-up box

Figure 5.2-5 is the pop-up box for PTSE reports, which is used to select the analyte name and receptor group (PTV report criteria). The example below is for DDT[4,4'-] and terrestrial bird.

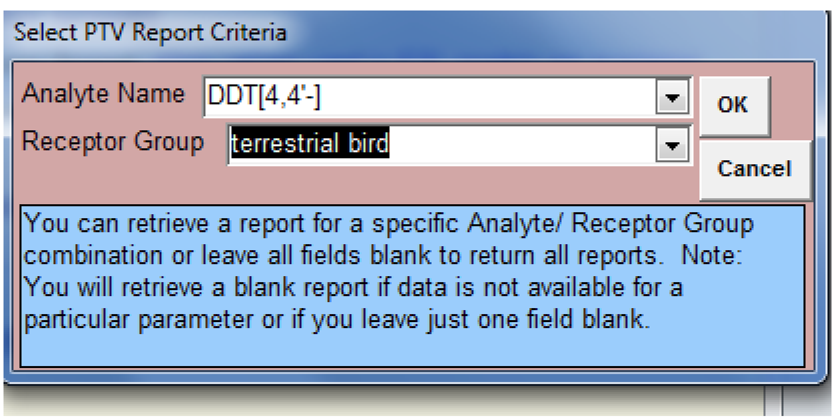


Figure 5.2-5 Custom report menu – select PTV report criteria pop-up box – DDT[4,4'-] and terrestrial bird

5.2.2.2.1 PTSE Reports – Study Details

The study details report for DDT[4,4'-] and terrestrial bird is available in Appendix A, Report 5.2-3. This report includes details on test organism, exposure conditions, measurements and results, and general comments for each unique focus measurement of each unique experiment presented in a toxicity paper that was deemed usable by the Laboratory for the purposes of deriving a TRV for SLERAs.

5.2.2.2.2 PTSE Reports – Study Effect Level Derivation

The effect level derivation report for DDT[4,4'-] and terrestrial bird is available in Appendix A, Report 5.2-4. This report shows the NOAEL/NOEC, LOAEL/LOEC, or other effect level derived from each unique focus measurement from each unique experiment reported in a toxicity paper. Calculations and parameters used to calculate the PTV are also provided.

5.2.2.2.3 PTSE Reports – Study Evaluation

The study evaluation report for DDT[4,4'-] and terrestrial bird is in Appendix A, Report 5.2-5. This report details the scores for study design and documentation, test organism, exposure conditions, and measurements and results assigned to each unique focus measurement from each unique experiment reported in a toxicity paper reviewed by the Laboratory using the PTSE process. The scores are used to calculate a usability confidence rating of high, medium, low, or unacceptable.

5.2.3 TF Report by Analyte/Receptor Group/Receptor Diet Composition/ESL Model

Figure 5.2-6 is the pop-up box for TFs, which is used to select the analyte name, receptor group, receptor diet composition, and ESL model for the TF summary custom report. The example below is for arsenic, mammal, 100% plant, and soil.

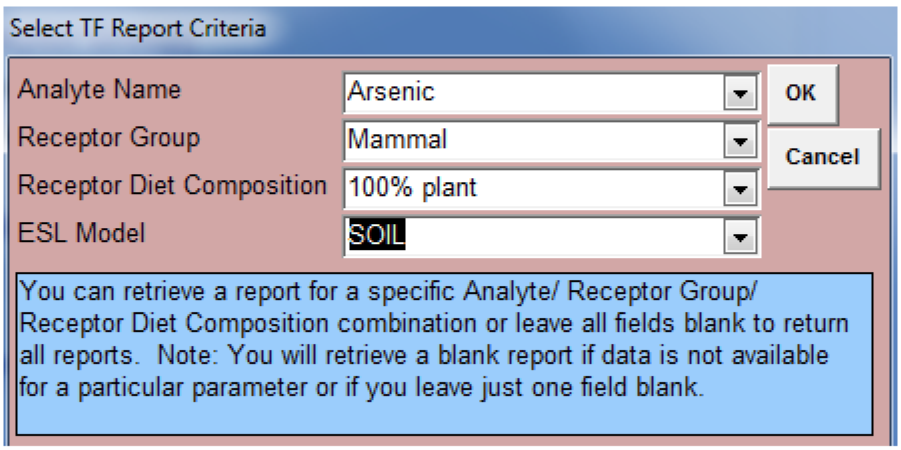


Figure 5.2-6 Custom report menu – select TF report criteria pop-up box – arsenic, mammal, 100% plant, and soil

The TF summary report for arsenic, mammal, 100% plant, and soil is available in Appendix A, Report 5.2-6. This report shows each TF that is used for a particular receptor group and ESL medium to calculate an ESL for a particular chemical. This report includes the TF value, applicable equations and parameters, and a reference citation.

5.2.4 Screening Receptor Parameters by Receptor

Figure 5.2-7 is the pop-up box for screening receptor parameters, which is used to select the receptor and the parameter for the screening receptor parameter custom report. The example below is for Botta's pocket gopher and body weight.

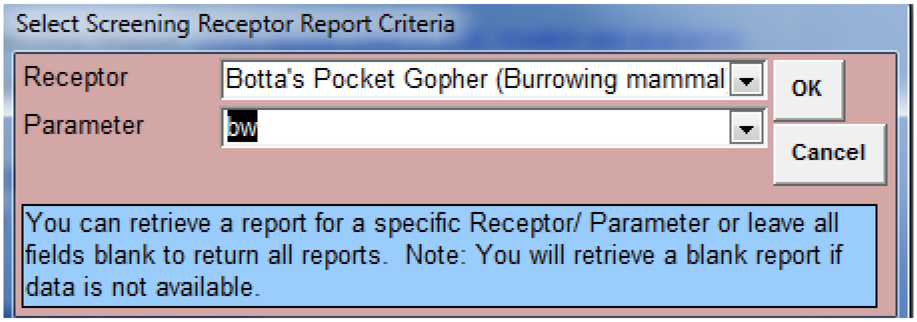


Figure 5.2-7 Custom report menu – select screening receptor report criteria pop-up box – Botta's pocket gopher (burrowing mammal) and body weight

The screening receptor parameter report for Botta's pocket gopher and body weight is available in Appendix A, Report 5.2-7. This report shows the parameter value, explanation notes, and database reference ID for the receptor and parameter of interest.

5.2.5 Radionuclide-Specific Parameters by Receptor/Radionuclide

Figure 5.2-8 is the pop-up box for radionuclide-specific parameters, which is used to select the radionuclide and receptor for the radionuclide parameter custom report. The example shown below is for americium-241 and montane shrew (mammalian insectivore).

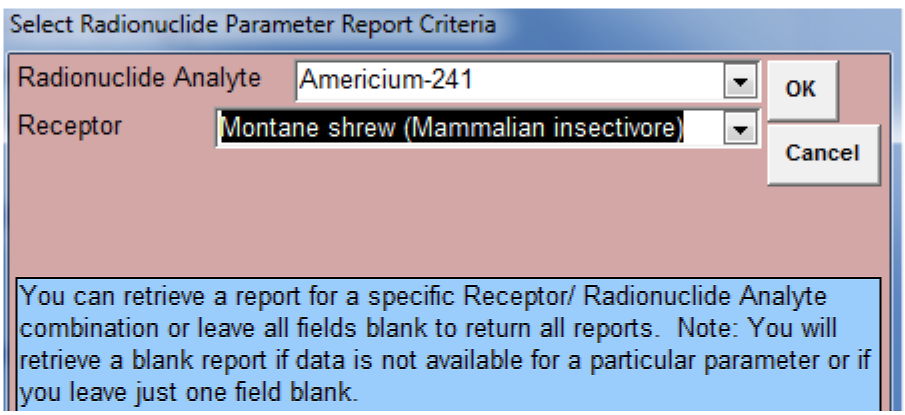


Figure 5.2-8 Custom report menu – select radionuclide parameter report criteria pop-up box – americium-241 and montane shrew (mammalian insectivore)

The radionuclide-specific parameters report for americium-241 and montane shrew (mammalian insectivore) is available in Appendix A, Report 5.2-8. This report lists all the radionuclide-specific parameters (e.g., dose conversion factor) required to calculate an ESL for a particular radionuclide.

5.2.6 Reference Citation by Reference ID

Figure 5.2-9 is the pop-up box for reference citation, which is used to select the reference ID for the reference custom report. The example shown below is for reference ID 0014.

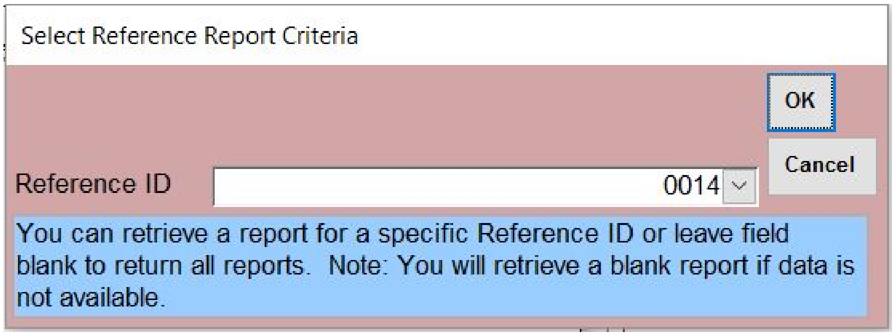


Figure 5.2-9 Custom report menu – select reference report criteria pop-up box – reference ID 0014

The reference report for reference ID 0014 is available in Appendix A, Report 5.2-9. This report shows the full reference citation and the Laboratory's ER ID, if available.

5.3 Supplemental Reports

Figure 5.3-1 is the main menu with the section for supplemental reports outlined in red. Currently, there are six supplemental reports. A supplemental report is a separate file that is linked to the database because it contains documentation that pertains to ESLs, including an ESL spreadsheet, ESL history, and TRV development methods.

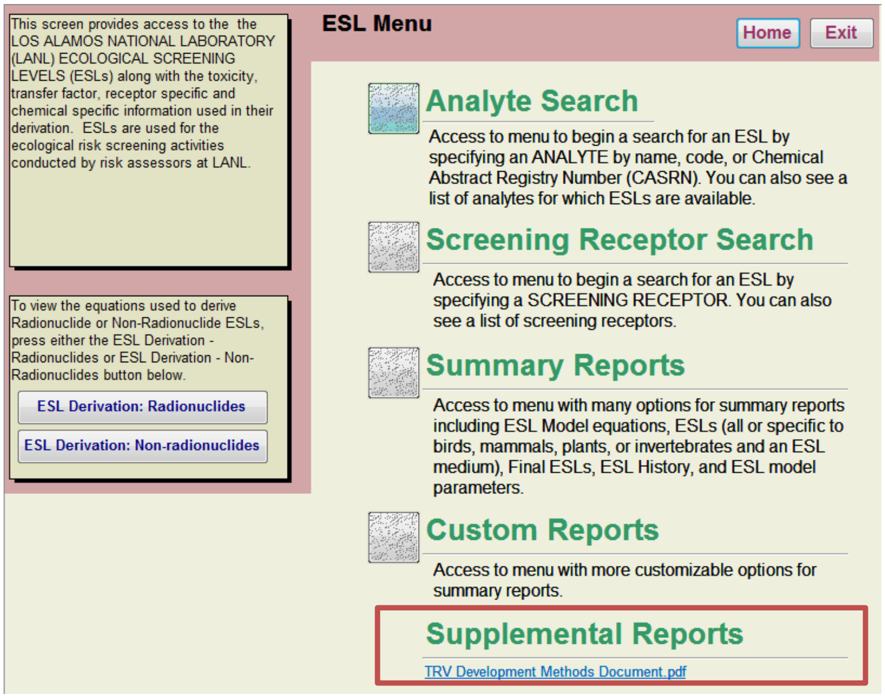


Figure 5.3-1 Supplemental report list

5.3.1 ESL History Summary

The supplemental report, ESL History Summary by ECORISK Database Release, is available in Appendix A, Report 5.3-1. This report documents all significant changes/additions to each release of the database.

5.3.2 ESL Spreadsheet

The supplemental report, ESL spreadsheet, is available in Appendix A, Report 5.3-2. This report is a data export of the ESLs that includes the analyte group, analyte name, analyte code, ESL medium, ESL receptor, NOAEL/NOEC, LOAEL/LOEC, units, minimum ESL designation, and ESL ID.

5.3.3 TRV Development Methods for the Los Alamos National Laboratory

The supplemental report, TRV Development Methods for Los Alamos National Laboratory (LANL), details the process used to develop toxicity reference values (TRVs) for various chemical exposure pathways for selected wildlife at LANL. These TRVs are used in ecological screening level (ESL) models representing the following exposure media for various chemicals to receptors.

- *Air.* Inhalation exposure pathway for burrowing mammals (volatile organic compounds only)
- *Soil and sediment.* Direct and food chain exposure pathways to birds and mammals
- *Water.* Drinking water ingestion to birds and mammals
- *Soil.* Direct exposure pathways to invertebrates (e.g., earthworms) and plants
- *Water and sediment.* Direct exposure pathways to aquatic community organisms

5.4 ESL Model Descriptions

Figure 5.4-1 is the main menu screen with the ESL model descriptions section highlighted. The ESL model descriptions are for the derivation of radionuclide and nonradionuclide ESLs.

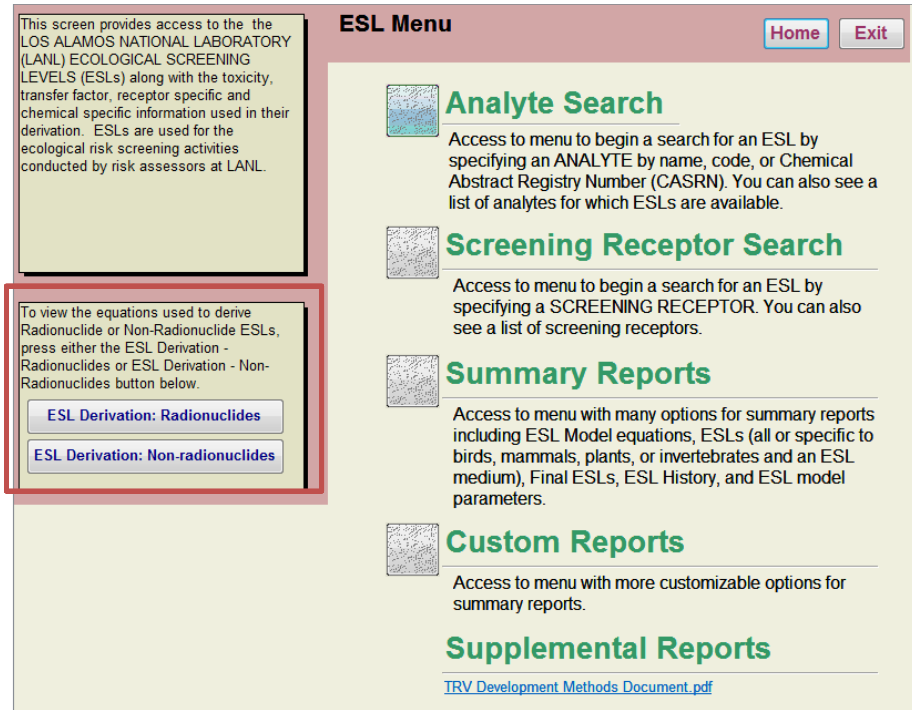


Figure 5.4-1 ESL model description menu

5.4.1 Radionuclide ESL Model Descriptions

Figure 5.4-2 is the ESL derivation for radionuclides screen and contains navigation buttons to access the soil, sediment, and water ESL models.

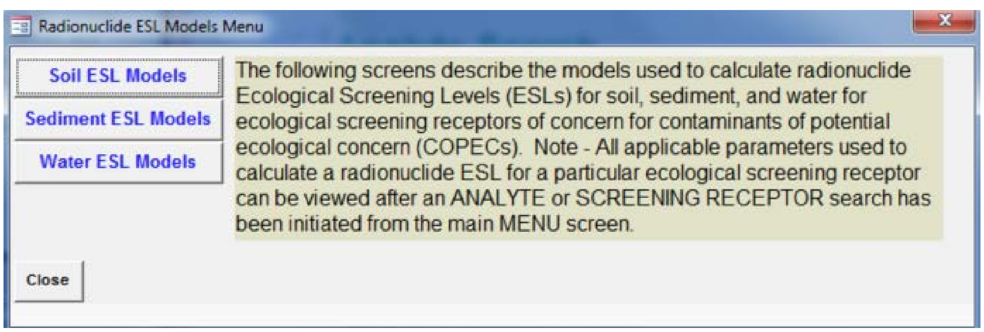
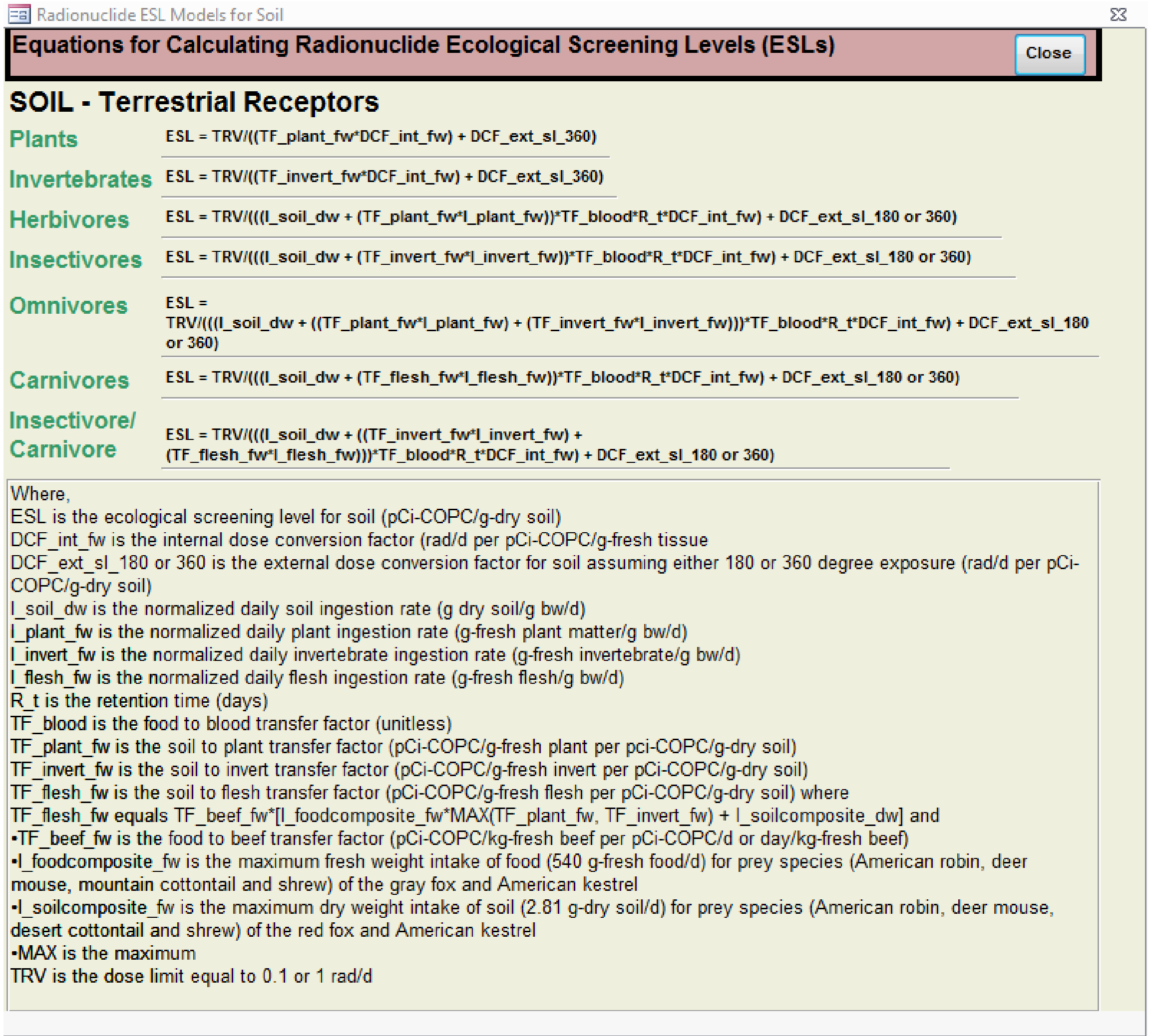


Figure 5.4-2 Radionuclide ESL models menu

5.4.1.1 Soil ESL Models

Figure 5.4-3 is the soil ESL model screen for radionuclides, which documents models for terrestrial receptors, including plants, invertebrates, herbivores, insectivores, omnivores, carnivores, and insectivore/carnivores.


Radionuclide ESL Models for Soil

Equations for Calculating Radionuclide Ecological Screening Levels (ESLs)

Close

SOIL - Terrestrial Receptors

Plants	ESL = TRV/((TF_plant_fw*DCF_int_fw) + DCF_ext_sl_360)
Invertebrates	ESL = TRV/((TF_invert_fw*DCF_int_fw) + DCF_ext_sl_360)
Herbivores	ESL = TRV/(((I_soil_dw + (TF_plant_fw*I_plant_fw))*TF_blood*R_t*DCF_int_fw) + DCF_ext_sl_180 or 360)
Insectivores	ESL = TRV/(((I_soil_dw + (TF_invert_fw*I_invert_fw))*TF_blood*R_t*DCF_int_fw) + DCF_ext_sl_180 or 360)
Omnivores	ESL = TRV/(((I_soil_dw + ((TF_plant_fw*I_plant_fw) + (TF_invert_fw*I_invert_fw)))*TF_blood*R_t*DCF_int_fw) + DCF_ext_sl_180 or 360)
Carnivores	ESL = TRV/(((I_soil_dw + (TF_flesh_fw*I_flesh_fw))*TF_blood*R_t*DCF_int_fw) + DCF_ext_sl_180 or 360)
Insectivore/ Carnivore	ESL = TRV/(((I_soil_dw + ((TF_invert_fw*I_invert_fw) + (TF_flesh_fw*I_flesh_fw)))*TF_blood*R_t*DCF_int_fw) + DCF_ext_sl_180 or 360)

Where,
ESL is the ecological screening level for soil (pCi-COPC/g-dry soil)
DCF_int_fw is the internal dose conversion factor (rad/d per pCi-COPC/g-fresh tissue
DCF_ext_sl_180 or 360 is the external dose conversion factor for soil assuming either 180 or 360 degree exposure (rad/d per pCi-COPC/g-dry soil)
I_soil_dw is the normalized daily soil ingestion rate (g dry soil/g bw/d)
I_plant_fw is the normalized daily plant ingestion rate (g-fresh plant matter/g bw/d)
I_invert_fw is the normalized daily invertebrate ingestion rate (g-fresh invertebrate/g bw/d)
I_flesh_fw is the normalized daily flesh ingestion rate (g-fresh flesh/g bw/d)
R_t is the retention time (days)
TF_blood is the food to blood transfer factor (unitless)
TF_plant_fw is the soil to plant transfer factor (pCi-COPC/g-fresh plant per pci-COPC/g-dry soil)
TF_invert_fw is the soil to invert transfer factor (pCi-COPC/g-fresh invert per pCi-COPC/g-dry soil)
TF_flesh_fw is the soil to flesh transfer factor (pCi-COPC/g-fresh flesh per pCi-COPC/g-dry soil) where
TF_flesh_fw equals TF_beef_fw*[I_foodcomposite_fw*MAX(TF_plant_fw, TF_invert_fw) + I_soilcomposite_dw] and
•TF_beef_fw is the food to beef transfer factor (pCi-COPC/kg-fresh beef per pCi-COPC/d or day/kg-fresh beef)
•I_foodcomposite_fw is the maximum fresh weight intake of food (540 g-fresh food/d) for prey species (American robin, deer mouse, mountain cottontail and shrew) of the gray fox and American kestrel
•I_soilcomposite_fw is the maximum dry weight intake of soil (2.81 g-dry soil/d) for prey species (American robin, deer mouse, desert cottontail and shrew) of the red fox and American kestrel
•MAX is the maximum
TRV is the dose limit equal to 0.1 or 1 rad/d

Figure 5.4-3 Radionuclide ESL models – soil ESL models

5.4.1.2 Sediment ESL Models

Figure 5.4-4 is the sediment ESL model screen for radionuclides, which documents models for organisms that spend at least part of their lives in close association with sediment and for terrestrial receptors that feed primarily on emergent aquatic insects and have little contact with the sediment itself.

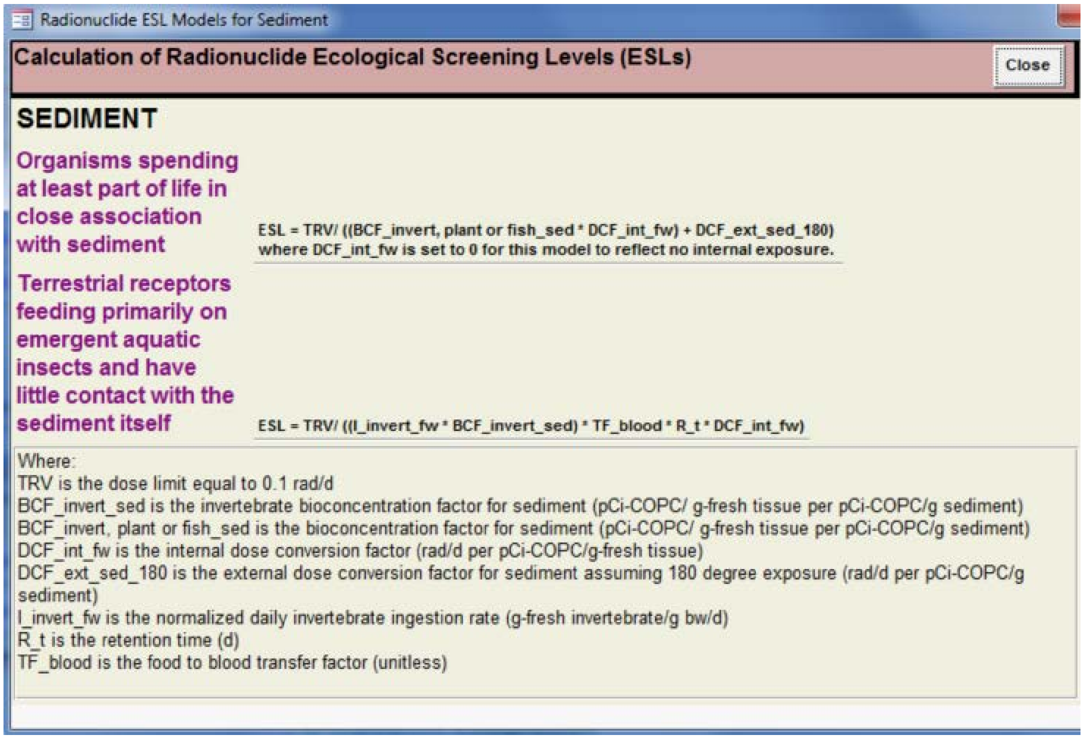


Figure 5.4-4 Radionuclide ESL models – sediment ESL models

5.4.1.3 Water ESL Models

Figure 5.4-5 is the water ESL model screen for radionuclides, which documents models for aquatic organisms that spend at least part of their lives immersed in water and terrestrial receptors that drink contaminated water.

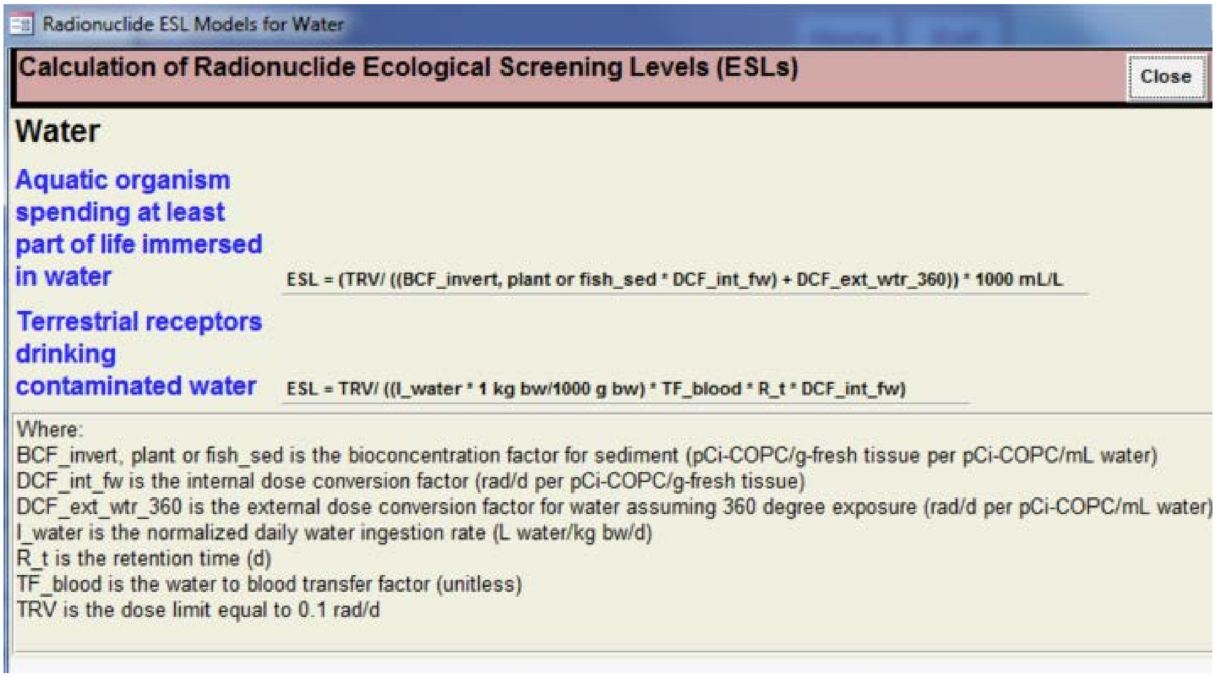


Figure 5.4-5 Radionuclide ESL models – water ESL models

5.4.2 Nonradionuclide ESL Model Descriptions

Figure 5.4-6 is the ESL derivation screen for nonradionuclides and contains navigation buttons to access the soil, sediment, water, and air ESL models

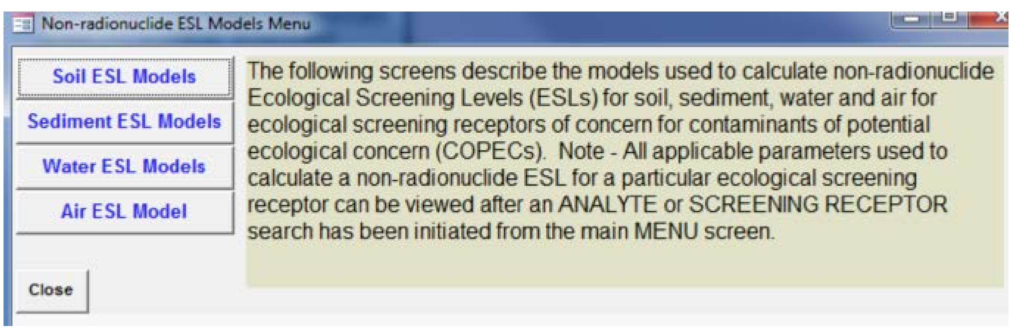


Figure 5.4-6 Nonradionuclide ESL models menu

5.4.2.1 Soil ESL Models

Figure 5.4-7 is the soil ESL model screen for nonradionuclides, which documents models for terrestrial receptors, including plants, invertebrates, herbivores, insectivores, omnivores, carnivores, and insectivore/carnivores.

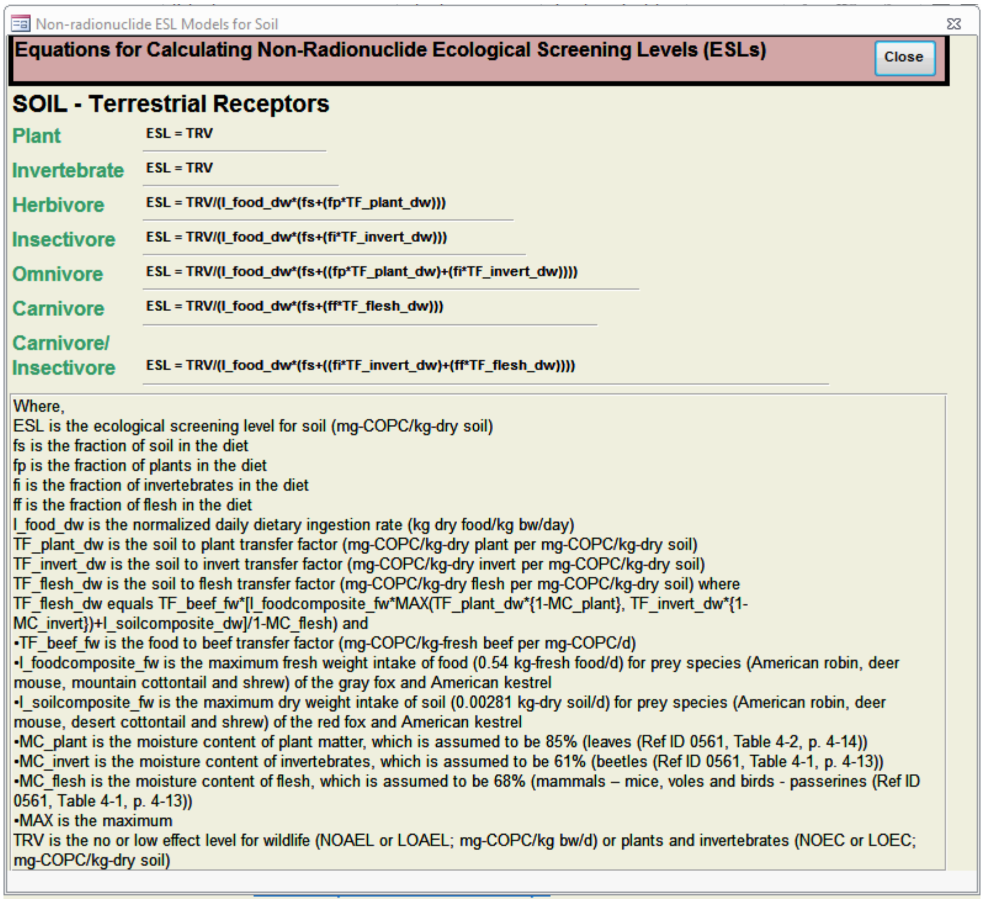


Figure 5.4-7 Nonradionuclide ESL models – soil ESL models

5.4.2.2 Sediment ESL Models

Figure 5.4-8 is the sediment ESL model screen for nonradionuclides, which documents models for organisms that spend at least part of their lives in close association with sediment and for terrestrial receptors that feed primarily on emergent aquatic insects and have little contact with the sediment itself.

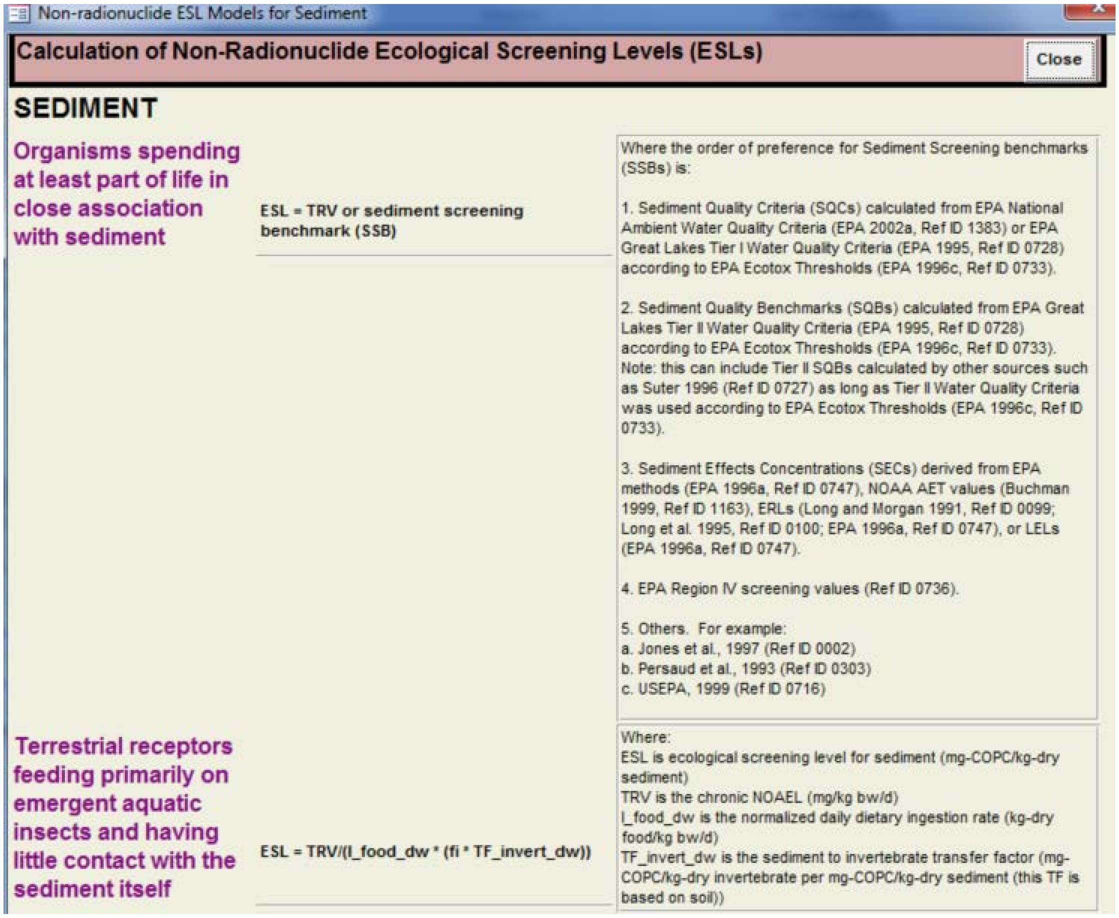


Figure 5.4-8 Nonradionuclide ESL models – sediment ESL models

5.4.2.3 Water ESL Models

Figure 5.4-9 is the water ESL model screen for nonradionuclides, which documents models for aquatic organisms that spend at least part of their lives immersed in water and for terrestrial receptors that drink contaminated water.

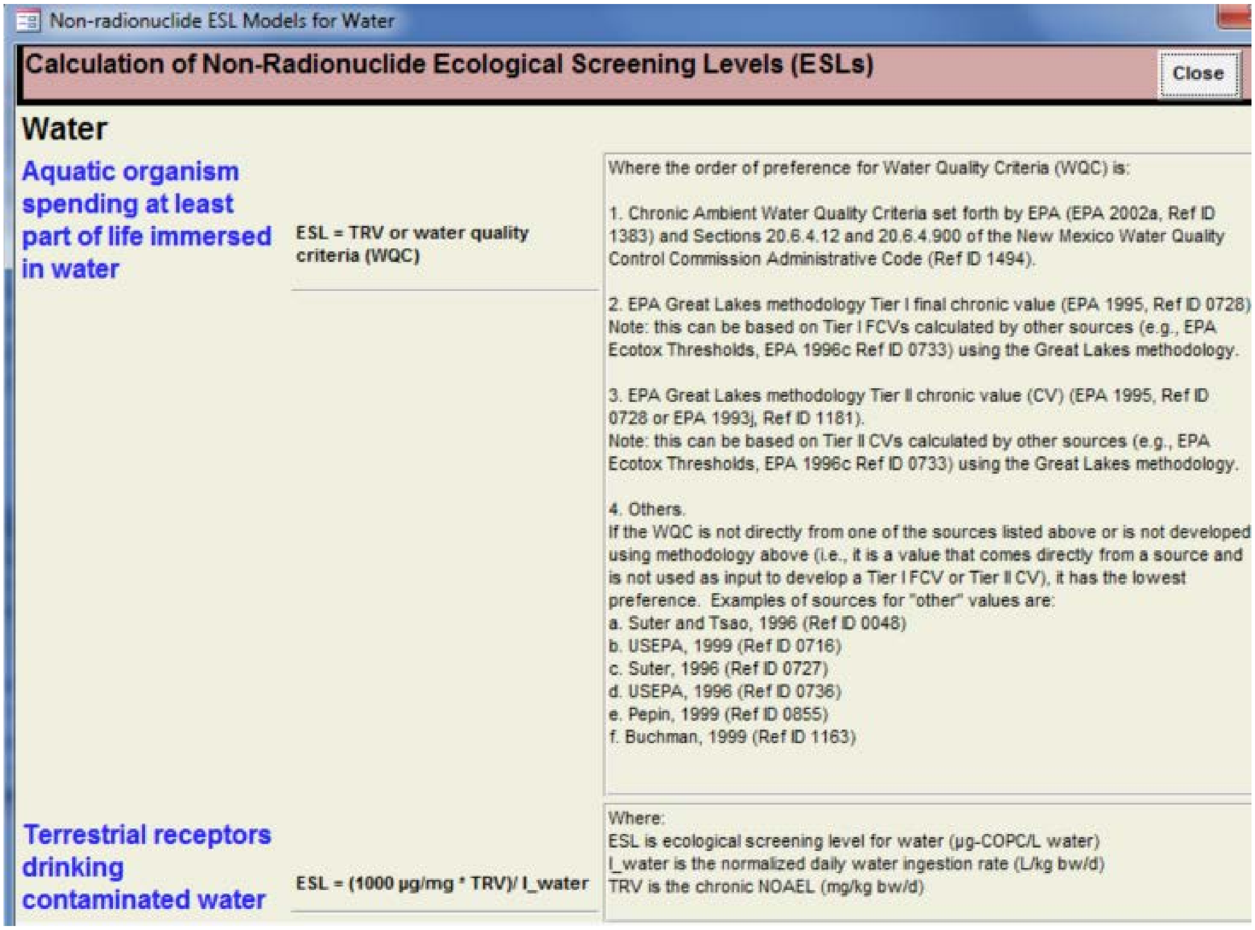


Figure 5.4-9 Nonradionuclide ESL models – water ESL models

5.4.2.4 Air ESL Model

Figure 5.4-10 is the air ESL model screen for nonradionuclides, which documents the model for a burrowing mammal spending at least part of its life underground.

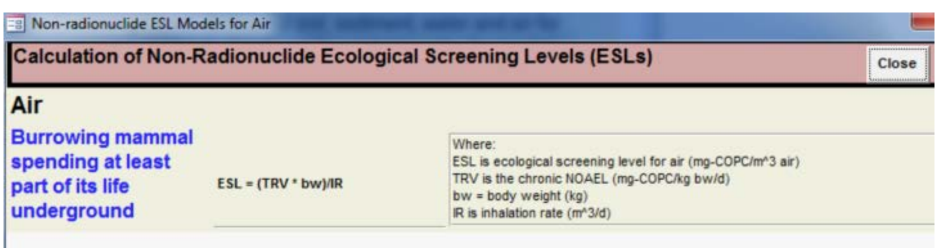


Figure 5.4-10 Nonradionuclide ESL models – air ESL model

5.5 EcoPRG Summary Reports

5.5.1 EcoPRG Report

The Step 2 tab has a "Report" button below the table of EcoPRGs as shown by box A in Figure 5.5-1. Before generating the report of all EcoPRGs for the selected analyte, a user comment (e.g., project, site description, or other notes) may be entered in box B. The analyte, Soil Final EcoPRG, Soil Final receptor, background, site area, and user comment are also included on the report. A sample report is shown in Figure 5.5-2.

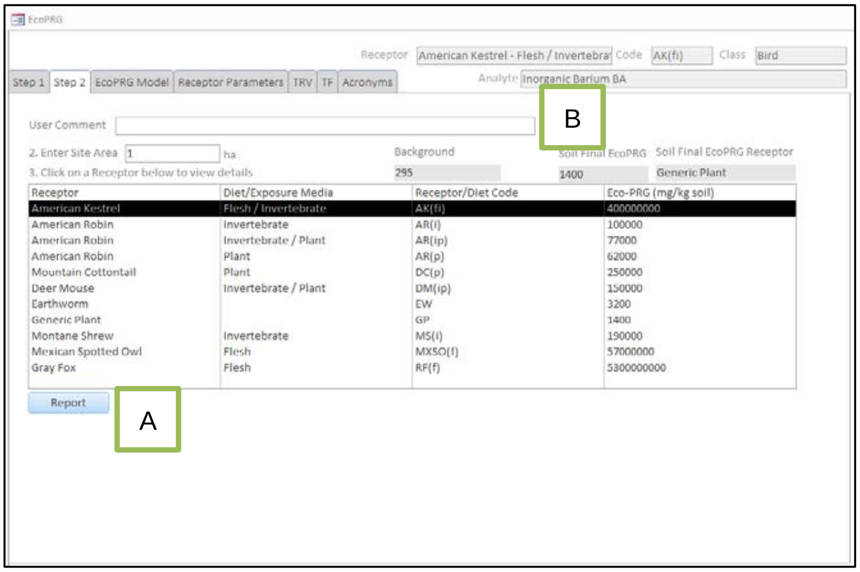
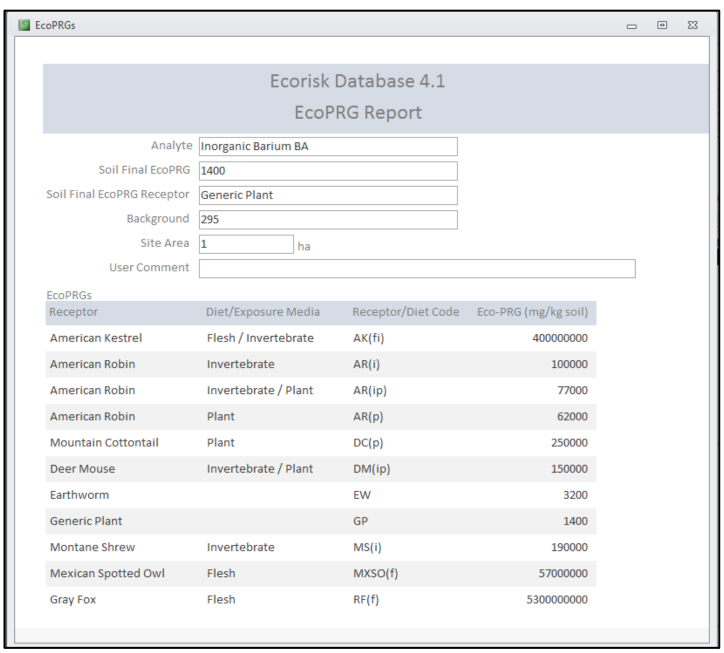


Figure 5.5-1 EcoPRG screen for generating an EcoPRG Summary Report


EcoPRGs

Ecorisk Database 4.1

EcoPRG Report

Analyte: Inorganic Barium BA
Soil Final EcoPRG: 1400
Soil Final EcoPRG Receptor: Generic Plant
Background: 295
Site Area: 1 ha
User Comment:

EcoPRGs

Receptor	Diet/Exposure Media	Receptor/Diet Code	Eco-PRG (mg/kg soil)
American Kestrel	Flesh / Invertebrate	AK(fi)	400000000
American Robin	Invertebrate	AR(i)	100000
American Robin	Invertebrate / Plant	AR(ip)	77000
American Robin	Plant	AR(p)	62000
Mountain Cottontail	Plant	DC(p)	250000
Deer Mouse	Invertebrate / Plant	DM(ip)	150000
Earthworm		EW	3200
Generic Plant		GP	1400
Montane Shrew	Invertebrate	MS(i)	190000
Mexican Spotted Owl	Flesh	MXSO(f)	57000000
Gray Fox	Flesh	RF(f)	5300000000

Figure 5.5-2 EcoPRG Summary Report

5.5.2 TF Report

The TF tab has a “Report” button below the table of TF information as shown by box A in Figure 5.5-3. This button generates a report that includes the log (Kow), Koc, all TF types with associated values, units, references, calculations, and notes. A sample report is shown in Figure 5.5-4.

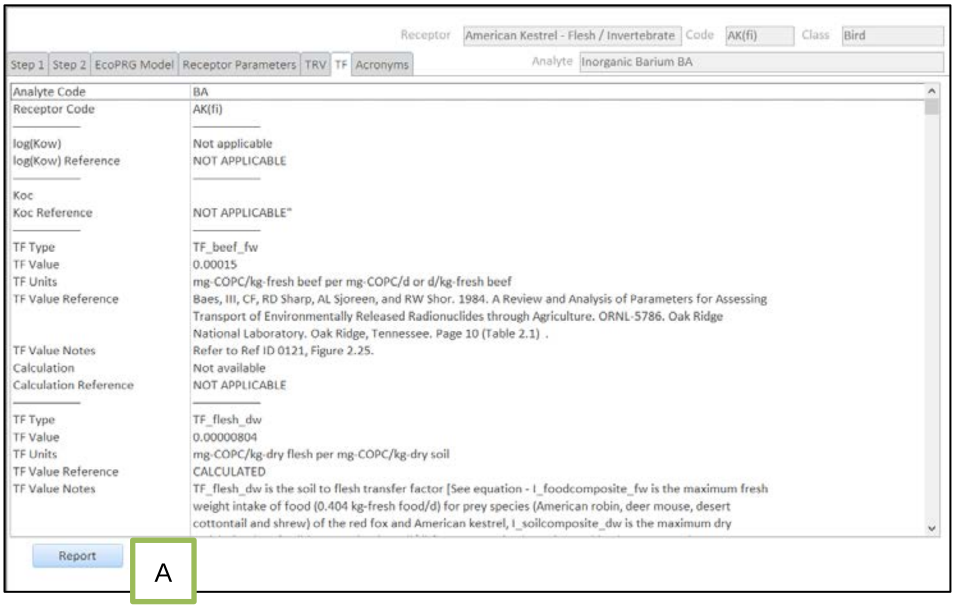


Figure 5.5-3 EcoPRG screen for generating a TF report

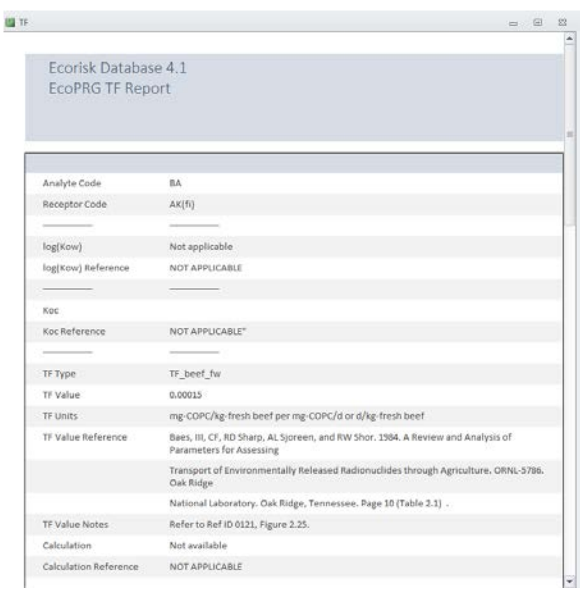


Figure 5.5-4 TF Summary Report

6.0 WHAT'S NEW IN THIS RELEASE

Figure 6.0-1 is the home screen with a section for what's new in this release outlined in red.

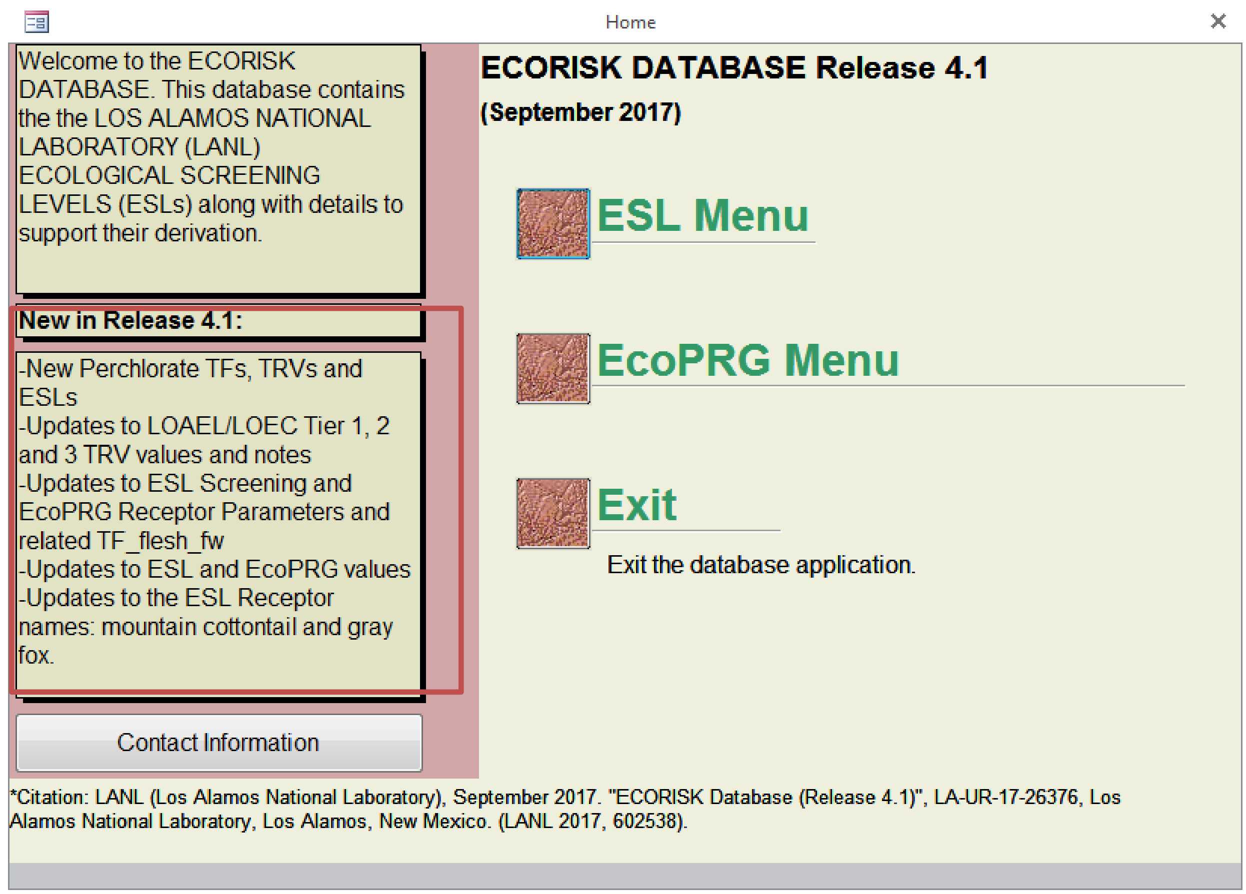


Figure 6.0-1 Home screen – what's new in this release summary

7.0 CONTACT INFORMATION

Figure 7.0-1 is the home screen with the section for contact information outlined in red. The contact information screen shows the contact information for the current release of the database.

Section Highlights

Contact information is provided for the

- database manager and
- LANL project manager.

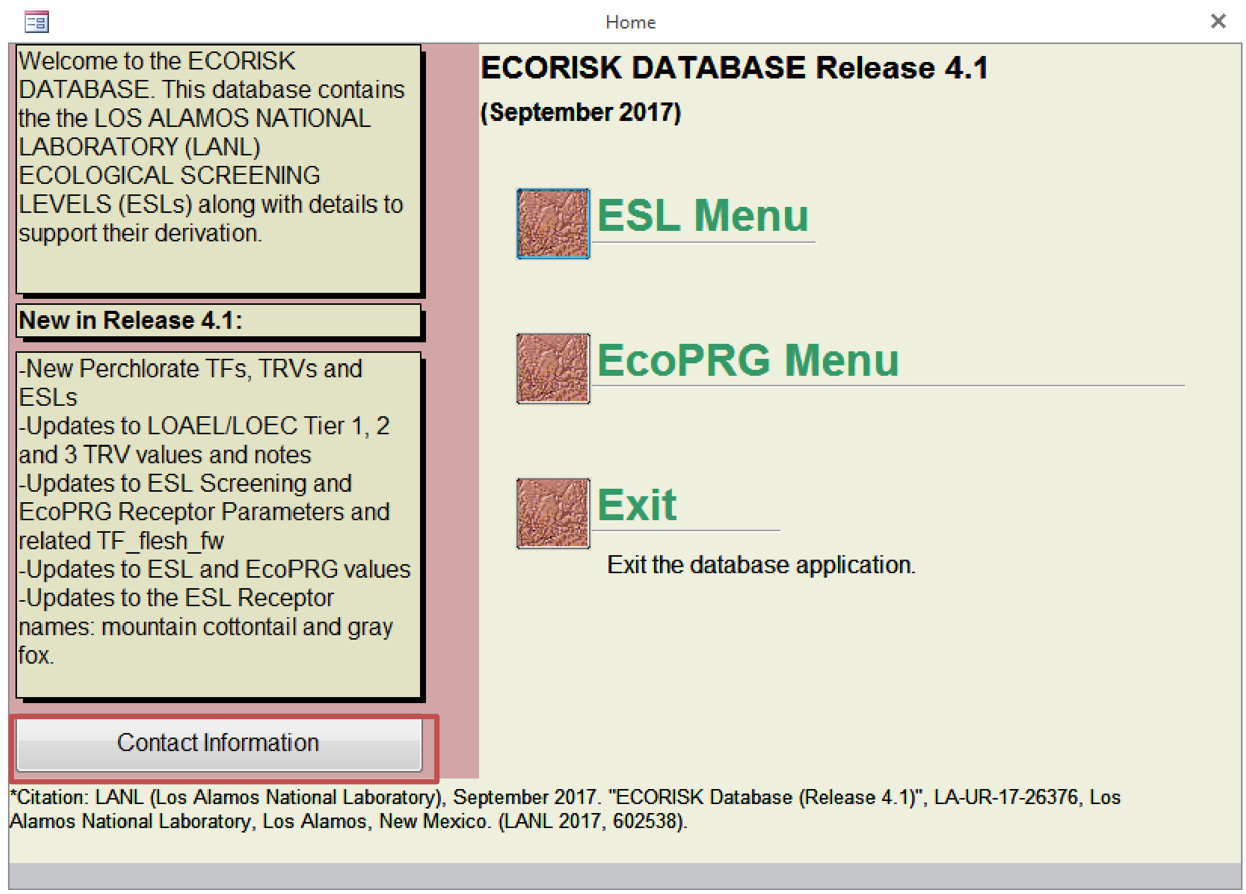


Figure 7.0-1 Home screen – contact information button

8.0 REFERENCES

The following list includes all documents cited in this guide. Parenthetical information following each reference provides the author(s), publication date, and ER ID or EP ID. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

LANL (Los Alamos National Laboratory), February 2014. "Toxicity Reference Value Development Methods for the Los Alamos National Laboratory, Revision 1" Los Alamos National Laboratory document LA-UR-14-20694, Los Alamos, New Mexico. (LANL 2014, EP2014-0054)

LANL (Los Alamos National Laboratory), September 2017. “Screening-Level Ecological Risk Assessment Methods, Revision 5,” Los Alamos National Laboratory document LA-UR-17-28553, Los Alamos, New Mexico. (LANL 2017, EP2017-0132)

LANL (Los Alamos National Laboratory), September 2017. "Development of Ecological Preliminary Remediation Goals for Los Alamos National Laboratory," Los Alamos National Laboratory document LA-UR-17-28554, Los Alamos, New Mexico. (LANL 2017, EP2017-0040)

LANL (Los Alamos National Laboratory), September 2017. “ECORISK Database (Release 4.1),” LA-UR-17-26376, Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2017, 602538)

Date	Author	Action
4/13/2015	R. Ryti	Made a copy of the L-ESL FY15 workbook as starting point for the EcoPRG calculations.
4/16/2015	R. Ryti	Completed draft of the EcoPRG calculation workbook, major changes are listed below
4/16/2015	R. Ryti	added sheets from FY14 deliverables with TRVs and ste-specific NOECs for plants and invertebrates
4/16/2015	R. Ryti	modified the intake sheet to reflect EcoPRG parameters and named parameters to facilitate QA
4/16/2015	R. Ryti	removed sheets not related to soil
4/16/2015	R. Ryti	removed the lookup for the inorganic TFs - now hard coded in the TFs sheet, removed old TF sheets
4/16/2015	R. Ryti	added a sheet for the Mexican Spotted Owl MXSO, which is an EcoPRG receptor
4/16/2015	R. Ryti	updated the calculations for all wildlife receptors
4/16/2015	R. Ryti	plant and eathworm use the site-specific NOECs if they are available
4/16/2015	R. Ryti	trimmed the list to COPECs in the EcoPRG report
4/16/2015	R. Ryti	adjusted analyte names so they match the Ecorisk DB convention
4/16/2015	R. Ryti	the wildlife EcoPRGs include an AUF or PAUF so they applicable to a site size of site
4/16/2015	R. Ryti	site area can be changed on the 'Soil EcoPRGs' sheet
4/29/2015	R. Ryti	checked the TRVs versus r3.2; updates notes in supporting file "EcoPRG TRVs.xls"; changes made to Ba-plant and V-plant
9/3/2015	R. Ryti	Updated middle trophic level population area to 17 ha; added background value sheet and comparison to two times the max.
9/4/2015	R. Ryti	Revised the EcoPRG calculation for inorganics to check if the final value is greater than 2 times the background maximum
9/10/2015	R. Ryti	Removed fluoride
1/5/2016	R. Ryti	Changed Cu MXSO TRV to be the same as the ESL TRV [instead of lower]
1/8/2016	R. Ryti	Revised exposure parameters based on SME review recommendations and LANL studies. Also removed the kestrel flesh diet receptor, not needed as directly modeling the MXSO.
3/8/2016	R. Ryti	Added site-specific mercury TF and soil invertebrate NOEC. Revised the TF table and added a note column. The TF-invert for mercury is 0.47. The site-specific soil invertebrate NOEC is 395 ppm.
7/20/2016	R. Ryti	Background is now only a comparison for use during risk management; removed TATB because there are no ecotoxicity data
12/22/2016	R. Ryti	Revised exposure parameters for robin, cottontail, and shrew; TF-flesh changed to reflect ESL parameter
7/12/2017	PWH	Updated TRVs

COPEC_group	COPEC_name	COPEC_code	G_receptor_cl	RG_TRV_valu
Inorganic	Arsenic	AS	Mammal	9.7
Inorganic	Arsenic	AS	Mammal-carn	9.7
Inorganic	Barium	BA	Mammal	246
Inorganic	Barium	BA	Mammal-carn	246
Inorganic	Cadmium	CD	Bird	8.15
Inorganic	Cadmium	CD	Mammal	10.3
Inorganic	Cadmium	CD	Mammal-carn	10.3

Date **Author** **Action**

Inorganic	Cobalt	CO	Bird	17.1
Inorganic	Cobalt	CO	Mammal	19.3
Inorganic	Cobalt	CO	Mammal-carn	19.3
Inorganic	Chromium (total)	CR	Bird	8.35
Inorganic	Chromium (total)	CR	Mammal	240
Inorganic	Chromium (total)	CR	Mammal-carn	240
Inorganic	Chromium(+6)	CR(+6)	Mammal	59.3
Inorganic	Chromium(+6)	CR(+6)	Mammal-carn	59.3
Inorganic	Copper	CU	Bird	36.8
Inorganic	Copper	CU	Mammal	155.5
Inorganic	Copper	CU	Mammal-carn	155.5
Inorganic	Manganese	MN	Bird	377
Inorganic	Manganese	MN	Mammal	192
Inorganic	Manganese	MN	Mammal-carn	192
Inorganic	Nickel	NI	Bird	26.8
Inorganic	Nickel	NI	Mammal	37.8
Inorganic	Nickel	NI	Mammal-carn	37.8
Inorganic	Lead	PB	Bird	53.8
Inorganic	Lead	PB	Mammal	137.8
Inorganic	Lead	PB	Mammal-carn	137.8
Inorganic	Antimony	SB	Mammal	55.7
Inorganic	Antimony	SB	Mammal-carn	55.7
Inorganic	Selenium	SE	Bird	2.07
Inorganic	Selenium	SE	Mammal	0.996
Inorganic	Selenium	SE	Mammal-carn	0.996
Inorganic	Vanadium	V	Bird	3.19
Inorganic	Vanadium	V	Mammal	8.76
Inorganic	Vanadium	V	Mammal-	8.76
Inorganic	Zinc	ZN	Bird	174
Inorganic	Zinc	ZN	Mammal	741
Inorganic	Zinc	ZN	Mammal-	741

7/12/2017 PWH Updated the TF_flesh_dw soil_composite from 0.00192 to 0.0193.

Item No.	Item description	Details	Status
1	TRV sheet COPEC list	Check that the COPECs from the EcoPRG document are all included, see Table 2.2-1	finished 4/17/15
2	Soil EcoPRGs	Check the lookup from the receptor sheets are picking up the correct COPEC and that the min EcoPRG equation is working correctly	finished 4/20/15
3	soil EcoPRG tox values	Check content versus the original FY14 deliverable, in the same folder in the repos	finished 4/20/15
4	TRVs	Check lookup is placing TRVs into the correct calls	finished 4/21/15
5	TFs	The TFs should match what is in the r3.2 database. Note any planned FY15 changes that are not included.	4/23/2015
6	Intake	Verify that the intake parameters match the EcoPRG document, see Tables 2.4-1 and 2.4-3	finished 4/21/15
7	Plant site-specific NOECs	Verify that these NOECs match the EcoPRG document, see Table 5.3-1	finished 4/21/15
8	Generic Plant EcoPRGs	Verify the lookups and logic match what is described in the EcoPRG document	finished 4/21/15
9	Earthworm site-specific NOECs	Verify that these NOECs match the EcoPRG document, see Table 5.3-2	finished 4/21/15
10	Earthworm EcoPRGs	Verify the lookups and logic match what is described in the EcoPRG document	finished 4/21/15
11	Wildlife EcoPRG sheets	Check the equations versus the EcoPRG document (Eqs 2 and 3), check that the proper parameters are used, and that the COPEC-specific inputs are being properly looked up; can use the Word doc "EcoPRG wildlife equations.doc" to assist	finished 4/23/15
12	soil EcoPRG tox values	Update the values for HE and inorganics from R3.2	finished 4/23/15
13	Intake	Verify that the intake parameters match the revised EcoPRG document, see the table in file "Receptor Parameter Table.doc"	finished 1/8/16
14	Background	Check the background maxima in the tab 'background'. Check that the equation for the minimum inorganic COPEC EcoPRG uses 2 times the max correctly. Note that the non-inorganic minimum EcoPRG equation does not use background	finished 1/11/16
15	Soil EcoPRGs	Spot check the lookup from the receptor sheets and the equations on those sheets. No changes were made to the receptors except to remove the kestrel-flesh diet. For the table that goes into the Word document the minimum EcoPRG receptor should include all species if there is a tie for the lowest value.	finished 1/12/16

Group	COPC	Analyte Code	Gray Fox	MXSO	A. Kestrel (flesh/invert diet)	A. Robin (plant diet)	A. Robin (invert/plant diet)	A. Robin (invert diet)	Mountain Cottontail	Montane Shrew	Deer Mouse	Earthworm	Generic Plant	Background value	Soil Final EcoPRG (mg/kg)	Soil Final EcoPRG Receptor	Soil Wildlife EcoPRG (mg/kg)	Soil Wildlife EcoPRG Receptor
D/F	Tetrachlorodibenzodioxin[2	1746-01-6	18						0.0049	0.000032	0.00007	10			**0.000032**	**Montane Shrew**	**0.000032**	**Montane Shrew**
HE	Amino-2,6-dinitrotoluene[4	19406-51-0	1800000000						59000	2000	4200	180	330		**180**	**Earthworm**	**2000**	**Montane Shrew**
HE	Amino-4,6-dinitrotoluene[2	35572-78-2	2600000000						20000	2600	4300	430	140		**140**	**Generic Plant**	**2600**	**Montane Shrew**
HE	Dinitrotoluene[2,4-]	121-14-2	560000000						13000	2400	3700	180	60		**60**	**Generic Plant**	**2400**	**Montane Shrew**
HE	Dinitrotoluene[2,6-]	606-20-2	360000000	43000000	200000000	18000	29000	61000	1200	1200	740	44			**44**	**Earthworm**	**740**	**Deer Mouse**
HE	HMX	2691-41-0	4300000000						20000	50000	14000	160	3500		**160**	**Earthworm**	**14000**	**Deer Mouse**
HE	PETN	78-11-5	1.2E+10						23000	180000	18000				**18000**	**Deer Mouse**	**18000**	**Deer Mouse**
HE	RDX	121-82-4	600000000	1800000	670000	150	170	200	2200	870	940	15	360		**15**	**Earthworm**	**150**	**A. Robin (plant diet)**
HE	Tetryl	479-45-8	120000000						160	5700	130				**130**	**Deer Mouse**	**130**	**Deer Mouse**
HE	Trinitrobenzene[1,3,5-]	99-35-4	2800000000						27000	150000	21000	28			**28**	**Earthworm**	**21000**	**Deer Mouse**
HE	Trinitrotoluene[2,4,6-]	118-96-7	3300000000	7200000	72000000	490	1000	17000	9900	190000	8000	58	120		**58**	**Earthworm**	**490**	**A. Robin (plant diet)**
INORG	Antimony	SB	1200000000						47000	270000	40000	780	58	0.83	**58**	**Generic Plant**	**40000**	**Deer Mouse**
INORG	Arsenic	AS	200000000	1700000	32000000	20000	11000	9100	19000	3200	5400	68	91	8.17	**68**	**Earthworm**	**3200**	**Montane Shrew**
INORG	Barium	BA	5300000000	57000000	400000000	62000	77000	100000	250000	190000	150000	3200	1400	295	**1400**	**Generic Plant**	**62000**	**A. Robin (plant diet)**
INORG	Beryllium	BE	110000000						16000	8000	10000	400	25	1.83	**25**	**Generic Plant**	**8000**	**Montane Shrew**
INORG	Boron	B	5900000000	2200000	5600000	350	610	1600	15000	22000	10000		86	4.1	**86**	**Generic Plant**	**350**	**A. Robin (plant diet)**
INORG	Cadmium	CD	200000000	990000	220000	910	110	70	2500	58	120	760	160	0.4	**58**	**Montane Shrew**	**58**	**Montane Shrew**
INORG	Chromium(+6)	CR(+6)	1200000000	8300000	440000000	160000	120000	100000	180000	69000	100000	4.7	4.7		**4.7**	**Earthworm**	**69000**	**Montane Shrew**
INORG	Chromium (total)	CR	5000000000	2000000	16000000	12000	6100	4500	750000	110000	200000			19.3	**4500**	**A. Robin (invert diet**	**4500**	**A. Robin (invert diet)**
INORG	Cobalt	CO	390000000	5300000	42000000	21000	13000	11000	51000	11000	19000		130	8.64	**130**	**Generic Plant**	**11000**	**A. Robin (invert diet)**
INORG	Copper	CU	3000000000	2700000	21000000	14000	8200	6400	130000	19000	32000	530	490	14.7	**490**	**Generic Plant**	**6400**	**A. Robin (invert diet)**
INORG	Cyanide (total)	CN(-1)	900000000	1300	100000	37	40	46	140000	55000	61000			0.82	**37**	**A. Robin (plant diet)**	**37**	**A. Robin (plant diet)**
INORG	Lead	PB	2900000000	8400000	16000000	6100	5000	4600	170000	47000	65000	8400	570	22.3	**570**	**Generic Plant**	**4600**	**A. Robin (invert diet)**
INORG	Manganese	MN	4100000000	130000000	1500000000	120000	180000	370000	130000	220000	99000	4500	1500	671	**1500**	**Generic Plant**	**99000**	**Deer Mouse**
INORG	Mercury (inorganic)	HGI	98000000	58000	210000	41	51	68	4300	2300	2100	390	64	0.1	**41**	**A. Robin (plant diet)**	**41**	**A. Robin (plant diet)**
INORG	Mercury (methyl)	HGM	20000	20	460	32	0.26	0.15	170	0.25	0.56	12			**0.15**	**A. Robin (invert diet**	**0.15**	**A. Robin (invert diet)**
INORG	Nickel	NI	760000000	4700000	13000000	35000	6300	3900	110000	3900	8200	1300	270	15.4	**270**	**Generic Plant**	**3900**	**A. Robin (invert diet)**
INORG	Selenium	SE	17000000	170000	800000	270	240	240	290	80	100	41	15	1.52	**15**	**Generic Plant**	**80**	**Montane Shrew**
INORG	Silver	AG	1200000000	1400000	3900000	4300	1600	1100	29000	2300	4400		2800	1	**1100**	**A. Robin (invert diet**	**1100**	**A. Robin (invert diet)**
INORG	Thallium	TL	1300000	230000	14000000	5300	4100	3600	230	91	130		3.2	0.73	**3.2**	**Generic Plant**	**91**	**Montane Shrew**
INORG	Uranium	U	320000000	60000000	4300000000	1100000	1000000	980000	46000	29000	33000		250	1.82	**250**	**Generic Plant**	**29000**	**Montane Shrew**
INORG	Vanadium	V	180000000	260000	15000000	4700	3900	3700	28000	13000	18000		80	39.6	**80**	**Generic Plant**	**3700**	**A. Robin (invert diet)**
INORG	Zinc	ZN	2500000000	6100000	17000000	35000	8600	5500	330000	15000	31000	930	810	48.8	**810**	**Generic Plant**	**5500**	**A. Robin (invert diet)**
PAH	Acenaphthene	83-32-9	7900000000						96000	21000	30000		2.5		**2.5**	**Generic Plant**	**21000**	**Montane Shrew**
PAH	Acenaphthylene	208-96-8	7700000000						98000	20000	29000				**20000**	**Montane Shrew**	**20000**	**Montane Shrew**
PAH	Anthracene	120-12-7	1E+10						220000	35000	55000		8.9		**8.9**	**Generic Plant**	**35000**	**Montane Shrew**
PAH	Benzo(a)anthracene	56-55-3	31000000	66000	1900000	310	390	530	1100	730	620		180		**180**	**Generic Plant**	**310**	**A. Robin (plant diet)**
PAH	Benzo(a)pyrene	50-32-8	300000000						15000	3300	4800				**3300**	**Montane Shrew**	**3300**	**Montane Shrew**
PAH	Benzo(b)fluoranthene	205-99-2	660000000						23000	7500	9400		180		**180**	**Generic Plant**	**7500**	**Montane Shrew**
PAH	Benzo(g,h,i)perylene	191-24-2	980000000						86000	4200	8500				**4200**	**Montane Shrew**	**4200**	**Montane Shrew**
PAH	Benzo(k)fluoranthene	207-08-9	1100000000						60000	11000	18000				**11000**	**Montane Shrew**	**11000**	**Montane Shrew**
PAH	Chrysene	218-01-9	30000000						1100	550	560				**550**	**Montane Shrew**	**550**	**Montane Shrew**
PAH	Dibenzo(a,h)anthracene	53-70-3	230000000						15000	2500	4000				**2500**	**Montane Shrew**	**2500**	**Montane Shrew**
PAH	Fluoranthene	206-44-0	1000000000						49000	3700	6900	23			**23**	**Earthworm**	**3700**	**Montane Shrew**
PAH	Fluorene	86-73-7	2700000000						43000	8300	12000	19			**19**	**Earthworm**	**8300**	**Montane Shrew**
PAH	Indeno(1,2,3-cd)pyrene	193-39-5	1200000000						92000	11000	20000				**11000**	**Montane Shrew**	**11000**	**Montane Shrew**
PAH	Methylnaphthalene[2-]	91-57-6	1300000000						20000	2600	4400				**2600**	**Montane Shrew**	**2600**	**Montane Shrew**
PAH	Naphthalene	91-20-3	440000000	53000000	24000000	1300	2300	7600	730	1200	490		10		**10**	**Generic Plant**	**490**	**Deer Mouse**
PAH	Phenanthrene	85-01-8	530000000						11000	1800	2800	12			**12**	**Earthworm**	**1800**	**Montane Shrew**
PAH	Pyrene	129-00-0	850000000	7000000	49000000	26000	18000	15000	21000	3700	5700	20			**20**	**Earthworm**	**3700**	**Montane Shrew**
PCB	Aroclor-1016	12674-11-2	19000000						2500	50	100				**50**	**Montane Shrew**	**50**	**Montane Shrew**
PCB	Aroclor-1242	53469-21-9	11000000	14000	58000	430	30	17	2000	25	54				**17**	**A. Robin (invert diet**	**17**	**A. Robin (invert diet)**
PCB	Aroclor-1248	12672-29-6	520000	420000	170000	1300	89	52	98	1.1	2.5				**1.1**	**Montane Shrew**	**1.1**	**Montane Shrew**
PCB	Aroclor-1254	11097-69-1	1900000	250000	84000	860	44	25	4400	40	88		620		**25**	**A. Robin (invert diet**	**25**	**A. Robin (invert diet)**
PCB	Aroclor-1260	11096-82-5	4200000	920000	170000	3400	94	54	82000	390	880				**54**	**A. Robin (invert diet**	**54**	**A. Robin (invert diet)**
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	130000000	21000	28000	9900	15	8.7	360000	96	210				**8.7**	**A. Robin (invert diet**	**8.7**	**A. Robin (invert diet)**
SVOC	Butyl benzyl phthalate	85-68-7	6400000000						440000	14000	30000				**14000**	**Montane Shrew**	**14000**	**Montane Shrew**
SVOC	Di-n-Butyl Phthalate	84-74-2	4000000000	4600	15000	140	8.2	4.8	730000	7200	15000		600		**4.8**	**A. Robin (invert diet**	**4.8**	**A. Robin (invert diet)**
SVOC	Di-n-octylphthalate	117-84-0	370000000						1500000	140	330				**140**	**Montane Shrew**	**140**	**Montane Shrew**
SVOC	Diethyl phthalate	84-66-2	6.8E+11						1600000	590000	660000		1000		**1000**	**Generic Plant**	**590000**	**Montane Shrew**
SVOC	Dimethyl Phthalate	131-11-3	1.3E+10						11000	13000	6900	100			**100**	**Earthworm**	**6900**	**Deer Mouse**

site area (ha)
1

COPC	BV	maximum	units	notes
Antimony	0.83	1	mg/kg	
Arsenic	8.17	9.3	mg/kg	
Barium	295	410	mg/kg	
Beryllium	1.83	3.95	mg/kg	
Boron	4.1	4.1	mg/kg	sediment
Cadmium	0.4	2.6	mg/kg	
Chromium (total)	19.3	36.5	mg/kg	
Chromium(+6)			mg/kg	
Cobalt	8.64	9.5	mg/kg	
Copper	14.7	16	mg/kg	
Cyanide (total)	0.82	0.63	mg/kg	sediment
Lead	22.3	28	mg/kg	
Manganese	671	1100	mg/kg	
Mercury (inorganic)	0.1	0.1	mg/kg	
Mercury (methyl)			mg/kg	
Nickel	15.4	29	mg/kg	
Selenium	1.52	1.7	mg/kg	
Silver	1	1	mg/kg	detection limit
Thallium	0.73	1	mg/kg	
Uranium	1.82	3.6	mg/kg	
Vanadium	39.6	56.5	mg/kg	
Zinc	48.8	75.5	mg/kg	

Analyte Group	Analyte Name	Plant GMM LOEC	notes	Soil invert GMM LOEC	notes	Bird GMM LOAEL	notes	MXSO value selected	MXSO GMM NOAEL	notes	MXSO NOAEL	notes	Mammal GMM LOAEL	notes	Mammal-carn GMM LOAEL	notes	Plant ESL	Soil invert ESL	Plant L-ESL	Soil invert L-ESL	Bird TRV	Mammal TRV	TRV mammal-carn TRV	Bird L-TRV	Mammal L-TRV	L-TRV mammal carn	Background value (BV)	notes
Dioxin/ Furan	Tetrachlorodibenzodioxin[2,3,7,8-	-1		10	LOEC	-1		-1	No data		No data		0.00000376		0.00000376		No data	5	No data	10	No data	0.000000562		No data	0.00000376			
High Explosive	Amino-2,6-dinitrotoluene[4-]	330	LOEC	180	LOEC	-1		-1	No data		No data		95.9		95.9		80	No data	800	No data	No data	9.59		No data	95.9			
High Explosive	Amino-4,6-dinitrotoluene[2-]	140	LOEC	430	LOEC	-1		-1	No data		No data		139	LOAEL	139		80	No data	800	No data	No data	13.9		No data	139			
High Explosive	Dinitrotoluene[2,4-]	60	LOEC	180	LOEC	-1		-1	No data		No data		26.8	LOAEL	26.8		No data	No data	No data	No data	No data	2.68		No data	26.8			
High Explosive	Dinitrotoluene[2,6-]	-1		44.5	LOEC	600		60	60		60		17.7	LOAEL	17.7		No data	No data	No data	No data	No data	1.77		No data	17.7			
High Explosive	HMX	3560		160	LOEC	-1		-1	No data		No data		200	LOAEL	200		2700	140	3500	290	No data	75		No data	200			
High Explosive	PETN	-1		-1		-1		-1	No data		No data		700	LOAEL	700		No data	No data	No data	No data	No data	70		No data	700			
High Explosive	RDX	360	LOEC	15.7	LOEC	4.49		2.36	2.36		No data		28.3		28.3		No data	7.5	No data	8.6	2.36	8.94		4.49	28.3			
High Explosive	Tetryl	-1		-1		-1		-1	No data		No data		6.2	LOAEL	6.2		No data	No data	No data	No data	No data	1.3		No data	6.2			
High Explosive	Trinitrobenzene[1,3,5-]	-1		28.4	LOEC	-1		-1	No data		No data		134	LOAEL	134		No data	No data	No data	No data	No data	13.4		No data	134			
High Explosive	Trinitrotoluene[2,4,6-]	126		58.8	LOEC	17.8	LOAEL	9.75	No data		9.75		160	LOAEL	160		62	32	120	58	9.75	34.7		17.8	160			
Inorganic	Antimony	58	GMM	780		-1		-1	No data		No data		13.3	EPA GMM NOAEL	13.3		0.05	78	0.5	780	No data	0.059		No data	0.59		0.83	
Inorganic	Arsenic	91		68	LOEC	22.4	LOAEL	2.24	No data		2.24		2.47	EPA GMM NOAEL	2.47		18	6.8	91	68	2.24	1.04		22.4	1.66		8.17	
Inorganic	Barium	1414	OSWER Directive 9285.7- 63, Table 3.1	3290		131		73.5	73.5		92	Tier 3 TRV	518		518		110	330	1100	3200	73.5	51.8		131	518		295	
Inorganic	Beryllium	25	LOEC	403		-1		-1	No data		No data		5.32	LOAEL	5.32		2.5	40	25	400	No data	0.532		No data	5.32		1.83	
Inorganic	Boron	86.6		-1		14.5		2.92	2.92		53.8	Tier 3 TRV	280	LOAEL	280		36	No data	86	No data	2.92	28		14.5	280		4.1	sediment
Inorganic	Cadmium	160		760		14.7		1.47	1.47		1.45	Tier 3 TRV	7.7	LOAEL	7.7		32	140	160	760	1.47	0.77		14.7	7.7		0.4	
Inorganic	Chromium (total)	-1		-1		26.6		2.66	2.66		77	Tier 3 TRV	24		24		No data	No data	No data	No data	2.66	2.4		26.6	24		19.3	
Inorganic	Chromium(+6)	3.5	LOEC	3.4		110	LOAEL	11	No data		11		92.4		92.4		0.35	0.34	3.5	3.4	11	9.24		110	92.4			
Inorganic	Cobalt	134		-1		76.1		7.61	7.61		0.02	Tier 4 TRV	73.3		73.3		13	No data	130	No data	7.61	7.33		76.1	73.3		8.64	
Inorganic	Copper	497		530		18.5	EPA GMM NOAEL	4.05	4.05	EPA GMM NOAEL	4.05		25	EPA GMM NOAEL	25		70	80	490	530	4.05	5.6		12.1	9.34		14.7	
Inorganic	Cyanide (total)	-1		-1		0.4	LOAEL	0.04	No data		0.04		687	LOAEL	687		No data	No data	No data	No data	0.04	68.7		0.4	687		0.82	sediment
Inorganic	Lead	576		8410		10.9	EPA GMM NOAEL	10.9	10.9	EPA GMM NOAEL	1.63	Tier 1 TRV	40.7	EPA GMM NOAEL	40.7		120	1700	570	8400	1.63	4.7		3.26	8.9		22.3	
Inorganic	Manganese	1100		4500		1790		179	179		581	Tier 3 TRV	515		515		220	450	1100	4500	179	51.5		1790	515		671	
Inorganic	Mercury (inorganic)	64	LOEC	0.5	LOEC	0.297	LANL GMM NOAEL	0.297	0.297		0.019		14.1	LOAEL	14.1		34	0.05	64	0.5	0.019	1.41		0.19	14.1		0.1	
Inorganic	Mercury (methyl)	-1		12.5	LOEC	0.064	LOAEL	0.0064	No data		0.0064		0.16	LOAEL	0.16		No data	2.5	No data	12	0.0064	0.032		0.064	0.16			
Inorganic	Nickel	276		1390	LOEC	67.1		6.71	6.71		28	Tier 3 TRV	7.7	EPA GMM NOAEL	7.7		38	280	270	1300	6.71	1.7		67.1	3.4		15.4	
Inorganic	Selenium	3.4		41		0.606	EPA GMM NOAEL	0.29	No data		0.29		0.437	EPA GMM NOAEL	0.437		0.52	4.1	3.4	41	0.29	0.143		0.579	0.215		1.52	
Inorganic	Silver	2810		-1		20.2	LOAEL	2.02	No data		2.02		60.2	LOAEL	60.2		560	No data	2800	No data	2.02	6.02		20.2	60.2		1	
Inorganic	Thallium	0.5	LOEC	-1		3.5	LOAEL	0.35	No data		0.35		0.071	LOAEL	0.071		0.1	No data	0.5	No data	0.35	0.0071		3.5	0.071		0.73	
Inorganic	Uranium	256	LOEC	-1		780	LOAEL	78	No data		78		15	LOAEL	15		25	No data	250	No data	78	6.1		780	15		1.82	
Inorganic	Vanadium	80	correct r3.2 value	-1		1.19	EPA GMM NOAEL	0.344	No data		0.344		8.31	LOAEL	8.31		10	No data	100	No data	0.344	4.16		0.688	8.31		39.6	
Inorganic	Zinc	812		939		661		66.1	66.1		120	Tier 3 TRV	754		754		160	120	810	930	66.1	75.4		661	754		48.8	
PAH	Acenaphthene	2.5	LOEC	-1		-1		-1	No data		No data		700	LOAEL	700		0.25	No data	2.5	No data	No data	70		No data	700			
PAH	Acenaphthylene	-1		-1		-1		-1	No data		No data		700	LOAEL	700		No data	No data	No data	No data	No data	70		No data	700			
PAH	Anthracene	8.95	LOEC	-1		-1		-1	No data		No data		1000	LOAEL	1000		6.8	No data	8.9	No data	No data	100		No data	1000			
PAH	Benzo(a)anthracene	180	LOEC	-1		1.07	LOAEL	0.107	No data		0.107		1.7	LOAEL	1.7		18	No data	180	No data	0.107	0.17		1.07	1.7			
PAH	Benzo(a)pyrene	-1		-1		-1		-1	No data		No data		17.7		17.7		No data	No data	No data	No data	No data	5.58		No data	17.7			
PAH	Benzo(b)fluoranthene	180	LOEC	-1		-1		-1	No data		No data		40	LOAEL	40		18	No data	180	No data	No data	4		No data	40			
PAH	Benzo(g,h,i)perylene	-1		-1		-1		-1	No data		No data		72	LOAEL	72		No data	No data	No data	No data	No data	7.2		No data	72			
PAH	Benzo(k)fluoranthene	-1		-1		-1		-1	No data		No data		72	LOAEL	72		No data	No data	No data	No data	No data	7.2		No data	72			
PAH	Chrysene	-1		-1		-1		-1	No data		No data		1.7	LOAEL	1.7		No data	No data	No data	No data	No data	0.17		No data	1.7			
PAH	Dibenzo(a,h)anthracene	-1		-1		-1		-1	No data		No data		13.3	LOAEL	13.3		No data	No data	No data	No data	No data	1.33		No data	13.3			
PAH	Fluoranthene	-1		23.5		-1		-1	No data		No data		125	LOAEL	125		No data	10	No data	23	No data	12.5		No data	125			
PAH	Fluorene	-1		19.5		-1		-1	No data		No data		250	LOAEL	250		No data	3.7	No data	19	No data	125		No data	250			
PAH	Indeno(1,2,3-cd)pyrene	-1		-1		-1		-1	No data		No data		72	LOAEL	72		No data	No data	No data	No data	No data	7.2		No data	72			
PAH	Methylnaphthalene[2-]	-1		-1		-1		-1	No data		No data		160	LOAEL	160		No data	No data	No data	No data	No data	16		No data	160			
PAH	Naphthalene	10	LOEC	-1		160	LANL GMM NOAEL	160	160		15		40.2		40.2		1	No data	10	No data	15	14.3		150	40.2			
PAH	Phenanthrene	-1		12.7		-1		-1	No data		No data		51.4	LOAEL	51.4		No data	5.5	No data	12	No data	5.14		No data	51.4			
PAH	Pyrene	-1		20.2		205	LOAEL	20.5	No data		20.5		75	LOAEL	75		No data	10	No data	20	20.5	7.5		205	75			
PCB	Aroclor-1016	-1		-1		-1		-1	No data		No data		4.26		4.26		No data	No data	No data	No data	No data	1.49		No data	4.26			
PCB	Aroclor-1242	-1		-1		1	LOAEL	0.1	No data		0.1		2.12		2.12		No data	No data	No data	No data	0.1	0.532		1	2.12			
PCB	Aroclor-1248	-1		-1		2.93	LANL GMM NOAEL	2.93	2.93	Tier 2 TRV	0.1		0.099	LOAEL	0.099	LOAEL	No data	No data	No data	No data	0.1	0.0099		1	0.099			
PCB	Aroclor-1254	620		-1		1.44	LANL GMM NOAEL	1.44	1.44	Tier 2 TRV	0.1		3.37		0.31	LOAEL	160	No data	620	No data	0.1	0.611	0.031	1	3.37	0.31		
PCB	Aroclor-1260	-1		-1		3.04		2.15	2.15		1.07	Tier 3 TRV	33.3	LOAEL	0.31	LOAEL	No data	No data	No data	No data	2.15	13.8	0.031	3.04	33.3	0.31		
SVOC	Bis(2-ethylhexyl)phthalate	-1		-1		11	LOAEL	1.1	No data		1.1		183	LOAEL	183		No data	No data	No data	No data	1.1	18.3		11	183			
SVOC	Butyl Benzyl Phthalate	-1		-1		-1		-1	No data		No data		1590	LOAEL	1590		No data	No data	No data	No data	No data	159		No data	1590			
SVOC	Di-n-Butyl Phthalate	601		-1		1.4	LOAEL	0.14	No data		0.14		3175		3175		160	No data	600	No data	0.14	1340		1.4	3175			
SVOC	Di-n-octylphthalate	-1		-1		-1		-1	No data		No data		651	LOAEL	651		No data	No data	No data	No data	No data	65.1		No data	651			
SVOC	Diethyl Phthalate	1000	LOEC	-1		-1		-1	No data		No data		46000	LOAEL	46000		100	No data	1000	No data	No data	4600		No data	46000			
SVOC	Dimethyl Phthalate	-1		101	LOEC	-1		-1	No data		No data		680	LOAEL	680		No data	10	No data	100	No data	68		No data	680			

Toxicity Reference Values For All Receptors

Chronic NOAEL (mg/kg bw/d) for birds and mammals, and chronic NOEC (mg/kg) fo plants and invertebrates. A "-1" indicates the absence of a TRV for an analyte/receptor pair.

			Bird Oral TRVs						Mammal Oral TRVs				Plant Soil TRVs	ıvertebrate Soil TRV
			MXSO	American Kestrel		American Robin			Deer Mouse	‍/ountain Cottonta	Gray Fox	Montane Shrew	Generic Plant	Earthworm
Group	Analyte Name	Analyte Code	Flesh Diet	Flesh Die	Flesh/ Invertebrate D	Invertebrate Di	ıvertebrate/ Plant Di	Plant Diet	Invertebrate/ Plant Diet	Plant Diet	Flesh Diet	Invertebrate Diet	Uptake	Oral/ Dermal
D/F	Tetrachlorodibenzodioxin[2,3,7,8	1746-01-6	-1	-1	-1	-1	-1	-1	0.00000376	0.00000376	0.00000376	0.00000376	-1	10
HE	Amino-2,6-dinitrotoluene[4-]	19406-51-0	-1	-1	-1	-1	-1	-1	95.9	95.9	95.9	95.9	330	180
HE	Amino-4,6-dinitrotoluene[2-]	35572-78-2	-1	-1	-1	-1	-1	-1	139	139	139	139	140	430
HE	Dinitrotoluene[2,4-]	121-14-2	-1	-1	-1	-1	-1	-1	26.8	26.8	26.8	26.8	60	180
HE	Dinitrotoluene[2,6-]	606-20-2	60	600	600	600	600	600	17.7	17.7	17.7	17.7	-1	44.5
HE	HMX	2691-41-0	-1	-1	-1	-1	-1	-1	200	200	200	200	3560	160
HE	PETN	78-11-5	-1	-1	-1	-1	-1	-1	700	700	700	700	-1	-1
HE	RDX	121-82-4	2.36	4.49	4.49	4.49	4.49	4.49	28.3	28.3	28.3	28.3	360	15.7
HE	Tetryl	479-45-8	-1	-1	-1	-1	-1	-1	6.2	6.2	6.2	6.2	-1	-1
HE	Trinitrobenzene[1,3,5-]	99-35-4	-1	-1	-1	-1	-1	-1	134	134	134	134	-1	28.4
HE	Trinitrotoluene[2,4,6-]	118-96-7	9.75	17.8	17.8	17.8	17.8	17.8	160	160	160	160	126	58.8
INORG	Antimony	SB	-1	-1	-1	-1	-1	-1	55.7	55.7	55.7	55.7	58	780
INORG	Arsenic	AS	2.24	22.4	22.4	22.4	22.4	22.4	9.7	9.7	9.7	9.7	91	68
INORG	Barium	BA	73.5	131	131	131	131	131	246	246	246	246	1414	3290
INORG	Beryllium	BE	-1	-1	-1	-1	-1	-1	5.32	5.32	5.32	5.32	25	403
INORG	Boron	B	2.92	14.5	14.5	14.5	14.5	14.5	280	280	280	280	86.6	-1
INORG	Cadmium	CD	1.47	8.15	8.15	8.15	8.15	8.15	10.3	10.3	10.3	10.3	160	760
INORG	Chromium(+6)	CR(+6)	11	110	110	110	110	110	59.3	59.3	59.3	59.3	3.5	3.4
INORG	Chromium (total)	CR	2.66	8.35	8.35	8.35	8.35	8.35	240	240	240	240	-1	-1
INORG	Cobalt	CO	7.61	17.1	17.1	17.1	17.1	17.1	19.3	19.3	19.3	19.3	134	-1
INORG	Copper	CU	4.05	36.8	36.8	36.8	36.8	36.8	155.5	155.5	155.5	155.5	497	530
INORG	Cyanide (total)	CN(-1)	0.04	0.4	0.4	0.4	0.4	0.4	687	687	687	687	-1	-1
INORG	Lead	PB	10.9	10.9	10.9	10.9	10.9	10.9	137.8	137.8	137.8	137.8	576	8410
INORG	Manganese	MN	179	377	377	377	377	377	192	192	192	192	1100	4500
INORG	Mercury (inorganic)	HGI	0.297	0.297	0.297	0.297	0.297	0.297	14.1	14.1	14.1	14.1	64	0.5
INORG	Mercury (methyl)	HGM	0.0064	0.064	0.064	0.064	0.064	0.064	0.16	0.16	0.16	0.16	-1	12.5
INORG	Nickel	NI	6.71	26.8	26.8	26.8	26.8	26.8	37.8	37.8	37.8	37.8	276	1390
INORG	Selenium	SE	0.29	2.07	2.07	2.07	2.07	2.07	0.996	0.996	0.996	0.996	3.4	41
INORG	Silver	AG	2.02	20.2	20.2	20.2	20.2	20.2	60.2	60.2	60.2	60.2	2810	-1
INORG	Thallium	TL	0.35	3.5	3.5	3.5	3.5	3.5	0.071	0.071	0.071	0.071	0.5	-1
INORG	Uranium	U	78	780	780	780	780	780	15	15	15	15	256	-1
INORG	Vanadium	V	0.344	3.19	3.19	3.19	3.19	3.19	8.76	8.76	8.76	8.76	80	-1
INORG	Zinc	ZN	66.1	174	174	174	174	174	741	741	741	741	812	939
PAH	Acenaphthene	83-32-9	-1	-1	-1	-1	-1	-1	700	700	700	700	2.5	-1
PAH	Acenaphthylene	208-96-8	-1	-1	-1	-1	-1	-1	700	700	700	700	-1	-1
PAH	Anthracene	120-12-7	-1	-1	-1	-1	-1	-1	1000	1000	1000	1000	8.95	-1
PAH	Benzo(a)anthracene	56-55-3	0.107	1.07	1.07	1.07	1.07	1.07	1.7	1.7	1.7	1.7	180	-1
PAH	Benzo(a)pyrene	50-32-8	-1	-1	-1	-1	-1	-1	17.7	17.7	17.7	17.7	-1	-1
PAH	Benzo(b)fluoranthene	205-99-2	-1	-1	-1	-1	-1	-1	40	40	40	40	180	-1
PAH	Benzo(g,h,i)perylene	191-24-2	-1	-1	-1	-1	-1	-1	72	72	72	72	-1	-1
PAH	Benzo(k)fluoranthene	207-08-9	-1	-1	-1	-1	-1	-1	72	72	72	72	-1	-1
PAH	Chrysene	218-01-9	-1	-1	-1	-1	-1	-1	1.7	1.7	1.7	1.7	-1	-1
PAH	Dibenzo(a,h)anthracene	53-70-3	-1	-1	-1	-1	-1	-1	13.3	13.3	13.3	13.3	-1	-1
PAH	Fluoranthene	206-44-0	-1	-1	-1	-1	-1	-1	125	125	125	125	-1	23.5
PAH	Fluorene	86-73-7	-1	-1	-1	-1	-1	-1	250	250	250	250	-1	19.5
PAH	Indeno(1,2,3-cd)pyrene	193-39-5	-1	-1	-1	-1	-1	-1	72	72	72	72	-1	-1
PAH	Methylnaphthalene[2-]	91-57-6	-1	-1	-1	-1	-1	-1	160	160	160	160	-1	-1
PAH	Naphthalene	91-20-3	160	160	160	160	160	160	40.2	40.2	40.2	40.2	10	-1
PAH	Phenanthrene	85-01-8	-1	-1	-1	-1	-1	-1	51.4	51.4	51.4	51.4	-1	12.7
PAH	Pyrene	129-00-0	20.5	205	205	205	205	205	75	75	75	75	-1	20.2
PCB	Aroclor-1016	12674-11-2	-1	-1	-1	-1	-1	-1	4.26	4.26	4.26	4.26	-1	-1
PCB	Aroclor-1242	53469-21-9	0.1	1	1	1	1	1	2.12	2.12	2.12	2.12	-1	-1
PCB	Aroclor-1248	12672-29-6	2.93	2.93	2.93	2.93	2.93	2.93	0.099	0.099	0.099	0.099	-1	-1
PCB	Aroclor-1254	11097-69-1	1.44	1.44	1.44	1.44	1.44	1.44	3.37	3.37	0.31	3.37	620	-1
PCB	Aroclor-1260	11096-82-5	2.15	3.04	3.04	3.04	3.04	3.04	33.3	33.3	0.31	33.3	-1	-1
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	1.1	11	11	11	11	11	183	183	183	183	-1	-1
SVOC	Butyl benzyl phthalate	85-68-7	-1	-1	-1	-1	-1	-1	1590	1590	1590	1590	-1	-1
SVOC	Di-n-Butyl Phthalate	84-74-2	0.14	1.4	1.4	1.4	1.4	1.4	3175	3175	3175	3175	601	-1
SVOC	Di-n-octylphthalate	117-84-0	-1	-1	-1	-1	-1	-1	651	651	651	651	-1	-1

Toxicity Reference Values For All Receptors
Chronic NOAEL (mg/kg bw/d) for birds and mammals, and chronic NOEC (mg/kg) fo plants and invertebrates. A "-1" indicates the absence of a TRV for an analyte/receptor pair.

			Bird Oral TRVs						Mammal Oral TRVs				Plant Soil TRVs	nvertebrate Soil TRV
			MXSO	American Kestrel		American Robin			Deer Mouse	Mountain Cottonta	Gray Fox	Montane Shrew	Generic Plant	Earthworm
Group	Analyte Name	Analyte Code	Flesh Diet	Flesh Die	Flesh/ Invertebrate D	Invertebrate Di	nvertebrate/ Plant Di	Plant Diet	Invertebrate/ Plant Diet	Plant Diet	Flesh Diet	Invertebrate Diet	Uptake	Oral/ Dermal
SVOC	Diethyl phthalate	84-66-2	-1	-1	-1	-1	-1	-1	46000	46000	46000	46000	1000	-1
SVOC	Dimethyl Phthalate	131-11-3	-1	-1	-1	-1	-1	-1	680	680	680	680	-1	101

Group	Analyte Name	Analyte Code	TF_plant_dw	TF_invert_dw	TF_flesh_dw	TF_beef_fw	TF_beef_fw calculated	TF beef calc or lookup	suite	note	Log Kow	Koc	logKww	Kd	TF_plant_dw calculated	TF_invert_dw calculated	TF_flesh_dw	I_foodcomposite_fw	Mcplant	Mcinvert	Mcflesh	i_soilcomposite
D/F	Tetrachlorodibenzodioxin[2,3,7,8	1746-01-6	0.105	9.5	0.0937	0.0261	0.026121229	calc	organic		6.8	146000	3.916	1460	0.10525434	35.2798851	0.09374182	0.305	0.85	0.61	0.68	0.0193
HE	Amino-2,6-dinitrotoluene[4-]	19406-51-0	0.296	3.78	0.00387	0.00264	0.002642148	calc	organic		1.94	10	-0.3122	0.1	9.86147777	30.4565017	0.00386868	0.305	0.85	0.61	0.68	0.0193
HE	Amino-4,6-dinitrotoluene[2-]	35572-78-2	1.46	4.33	0.00376	0.00225	0.002251019	calc	organic		1.84	100.5	-0.3992	1.005	10.8270963	2.48035564	0.00375717	0.305	0.85	0.61	0.68	0.0193
HE	Dinitrotoluene[2,4-]	121-14-2	0.376	0.893	0.0011	0.00281	0.002813416	calc	organic		1.98	363.8	-0.2774	3.638	9.49978989	0.90702096	0.00110224	0.305	0.85	0.61	0.68	0.0193
HE	Dinitrotoluene[2,6-]	606-20-2	3.14	1.14	0.00172	0.00338	0.003381922	calc	organic		2.1	371.4	-0.173	3.714	8.49239136	1.12989508	0.00172121	0.305	0.85	0.61	0.68	0.0193
HE	HMX	2691-41-0	2.15	0.313	0.000125	0.000339	0.000338521	calc	organic		0.82	1853	-1.2866	18.53	28.0754031	0.0174343	0.00012465	0.305	0.85	0.61	0.68	0.0193
HE	PETN	78-11-5	6.54	0.298	0.00504	0.00506	0.005064983	calc	organic		2.38	2455	0.0706	24.55	6.53783567	0.29952186	0.00503636	0.305	0.85	0.61	0.68	0.0193
HE	RDX	121-82-4	2.78	2.63	0.00039	0.000376	0.000375596	calc	organic		0.87	195.4	-1.2431	1.954	26.7942127	0.18274919	0.00039026	0.305	0.85	0.61	0.68	0.0193
HE	Tetryl	479-45-8	8.43	0.079	0.00204	0.00161	0.001611696	calc	organic		1.64	2141	-0.5732	21.41	13.0512467	0.07799439	0.00203752	0.305	0.85	0.61	0.68	0.0193
HE	Trinitrobenzene[1,3,5-]	99-35-4	1.02	0.063	0.000144	0.000697	0.000697439	calc	organic		1.18	1087	-0.9734	10.87	20.0573706	0.06112945	0.00014368	0.305	0.85	0.61	0.68	0.0193
HE	Trinitrotoluene[2,4,6-]	118-96-7	3.53	0.0581	0.000847	0.0015	0.001504228	calc	organic		1.6	1834	-0.608	18.34	13.5481501	0.08403896	0.00084749	0.305	0.85	0.61	0.68	0.0193
INORG	Antimony	SB	0.2	0.0073	0.0000889	0.001		lookup	inorg						0.2	1	8.8906E-05	0.305	0.85	0.61	0.68	0.0193
INORG	Arsenic	AS	0.0472	0.2361	0.000296	0.002		lookup	inorg						0.0472	0.2361	0.00029615	0.305	0.85	0.61	0.68	0.0193
INORG	Barium	BA	0.15	0.091	0.0000141	0.00015		lookup	inorg						0.15	0.091	1.4121E-05	0.305	0.85	0.61	0.68	0.0193
INORG	Beryllium	BE	0.01	0.045	0.000077	0.001		lookup	inorg						0.01	0.045	7.704E-05	0.305	0.85	0.61	0.68	0.0193
INORG	Boron	B	4	1	0.000506	0.0008		lookup	inorg						4	1	0.00050575	0.305	0.85	0.61	0.68	0.0193
INORG	Cadmium	CD	0.833	14.2603	0.00295	0.00055		lookup	inorg						0.833	14.2603	0.00294862	0.305	0.85	0.61	0.68	0.0193
INORG	Chromium(+6)	CR(+6)	0.0075	0.06	0.000454	0.0055		lookup	inorg						0.0075	0.06	0.00045439	0.305	0.85	0.61	0.68	0.0193
INORG	Chromium (total)	CR	0.0075	0.1607	0.00066	0.0055		lookup	inorg						0.0075	0.1607	0.00066026	0.305	0.85	0.61	0.68	0.0193
INORG	Cobalt	CO	0.02	0.122	0.00211	0.02		lookup	inorg						0.02	0.122	0.00211324	0.305	0.85	0.61	0.68	0.0193
INORG	Copper	CU	0.2	0.6364	0.00297	0.01		lookup	inorg						0.2	0.6364	0.00296874	0.305	0.85	0.61	0.68	0.0193
INORG	Cyanide (total)	CN(-1)	1	1	0.432	1		lookup	inorg						1	1	0.43203125	0.305	0.85	0.61	0.68	0.0193
INORG	Lead	PB	0.117	0.225	0.0000432	0.0003		lookup	inorg						0.117	0.225	4.3185E-05	0.305	0.85	0.61	0.68	0.0193
INORG	Manganese	MN	0.25	0.0605	0.0000384	0.0004		lookup	inorg						0.25	0.0605	3.8422E-05	0.305	0.85	0.61	0.68	0.0193
INORG	Mercury (inorganic)	HGI	0.663	0.470	0.0588	0.25		lookup	inorg	TF-invert is median BAF from LANL-specific studies					0.663	3.9334	0.05875508	0.305	0.85	0.61	0.68	0.0193
INORG	Mercury (methyl)	HGM	0.137	51	4.75	0.25		lookup	inorg						0.137	51	4.75449219	0.305	0.85	0.61	0.68	0.0193
INORG	Nickel	NI	0.0136	0.7778	0.0021	0.006		lookup	inorg						0.0136	0.7778	0.00209661	0.305	0.85	0.61	0.68	0.0193
INORG	Selenium	SE	0.7	0.99	0.00642	0.015		lookup	inorg						0.7	0.99	0.00642471	0.305	0.85	0.61	0.68	0.0193
INORG	Silver	AG	0.4	2.045	0.00246	0.003		lookup	inorg						0.4	2.045	0.00246143	0.305	0.85	0.61	0.68	0.0193
INORG	Thallium	TL	0.004	0.0541	0.00322	0.04		lookup	inorg						0.004	1	0.0032169	0.305	0.85	0.61	0.68	0.0193
INORG	Uranium	U	0.0085	0.033	0.0000145	0.0002		lookup	inorg						0.0085	0.033	1.4516E-05	0.305	0.85	0.61	0.68	0.0193
INORG	Vanadium	V	0.0055	0.042	0.00019	0.0025		lookup	inorg						0.0055	0.042	0.00018981	0.305	0.85	0.61	0.68	0.0193
INORG	Zinc	ZN	0.43	3.7816	0.147	0.1		lookup	inorg						0.43	3.7816	0.14660041	0.305	0.85	0.61	0.68	0.0193
PAH	Acenaphthene	83-32-9	1.55	2.62	0.0255	0.0247	0.02465358	calc	organic		3.92	6123	1.4104	61.23	1.55115787	2.6261272	0.02554513	0.305	0.85	0.61	0.68	0.0193
PAH	Acenaphthylene	208-96-8	1.52	2.75	0.0271	0.025	0.024987177	calc	organic		3.94	6123	1.4278	61.23	1.52244636	2.7334791	0.02706348	0.305	0.85	0.61	0.68	0.0193
PAH	Anthracene	120-12-7	0.945	2.27	0.0299	0.0331	0.033098331	calc	organic		4.45	20400	1.8715	204	0.94544224	2.27902899	0.02992618	0.305	0.85	0.61	0.68	0.0193
PAH	Benzo(a)anthracene	56-55-3	0.278	0.18	0.00504	0.0396	0.039570469	calc	organic		5.76	231000	3.0112	2310	0.27807888	2.77631051	0.00503799	0.305	0.85	0.61	0.68	0.0193
PAH	Benzo(a)pyrene	50-32-8	0.197	0.42	0.00781	0.0361	0.036119398	calc	organic		6.13	787000	3.3331	7870	0.19681537	1.71003612	0.00781328	0.305	0.85	0.61	0.68	0.0193
PAH	Benzo(b)fluoranthene	205-99-2	0.31	0.42	0.00853	0.0394	0.039438646	calc	organic		5.78	803000	3.0286	8030	0.27293171	0.83131281	0.00852751	0.305	0.85	0.61	0.68	0.0193
PAH	Benzo(g,h,i)perylene	191-24-2	0.123	1.37	0.0165	0.0289	0.028914821	calc	organic		6.63	2680000	3.7681	26800	0.12336984	1.36724147	0.01646049	0.305	0.85	0.61	0.68	0.0193
PAH	Benzo(k)fluoranthene	207-08-9	0.201	0.48	0.00869	0.0364	0.036355967	calc	organic		6.11	787000	3.3157	7870	0.20052707	1.64287789	0.00869005	0.305	0.85	0.61	0.68	0.0193
PAH	Chrysene	218-01-9	0.265	0.24	0.00586	0.0392	0.039228319	calc	organic		5.81	236000	3.0547	2360	0.26538905	3.00377926	0.00586138	0.305	0.85	0.61	0.68	0.0193
PAH	Dibenz(a,h)anthracene	53-70-3	0.13	0.42	0.00658	0.0304	0.030350455	calc	organic		6.54	2620000	3.6898	26200	0.13419057	1.16782758	0.00657961	0.305	0.85	0.61	0.68	0.0193
PAH	Fluoranthene	206-44-0	0.5	2.72	0.0431	0.0402	0.040180858	calc	organic		5.16	70900	2.4892	709	0.48706621	2.71915386	0.04306978	0.305	0.85	0.61	0.68	0.0193
PAH	Fluorene	86-73-7	1.22	2.41	0.0276	0.0289	0.02894583	calc	organic		4.18	11300	1.6366	113	1.21667336	2.39552978	0.02763287	0.305	0.85	0.61	0.68	0.0193
PAH	Indeno(1,2,3-cd)pyrene	193-39-5	0.11	0.48	0.00664	0.0278	0.027774331	calc	organic		6.7	2680000	3.829	26800	0.11556066	1.57305977	0.0066369	0.305	0.85	0.61	0.68	0.0193
PAH	Methylnaphthalene[2-]	91-57-6	1.64	4.81	0.0438	0.0237	0.02365338	calc	organic		3.86	2976	1.3582	29.76	1.64058222	4.79123078	0.04380423	0.305	0.85	0.61	0.68	0.0193
PAH	Naphthalene	91-20-3	12.2	2.52	0.0267	0.0148	0.014847167	calc	organic		3.3	1837	0.871	18.37	2.76815242	2.52796386	0.02670706	0.305	0.85	0.61	0.68	0.0193
PAH	Phenanthrene	85-01-8	0.937	2.28	0.0301	0.0332	0.033241851	calc	organic		4.46	20800	1.8802	208	0.93665143	2.28042967	0.03014	0.305	0.85	0.61	0.68	0.0193
PAH	Pyrene	129-00-0	0.72	1.6	0.0251	0.0383	0.038258505	calc	organic		4.88	69400	2.2456	694	0.63267985	1.58533317	0.02508889	0.305	0.85	0.61	0.68	0.0193
PCB	Aroclor-1016	12674-11-2	0.317	6.8	0.104	0.0403	0.040299346	calc	organic		5.62	27100	2.8894	271	0.31693193	17.8776622	0.1042964	0.305	0.85	0.61	0.68	0.0193
PCB	Aroclor-1242	53469-21-9	0.17	6.8	0.0883	0.0341	0.034057103	calc	organic		6.29	44800	3.4723	448	0.16949114	41.3906268	0.0882508	0.305	0.85	0.61	0.68	0.0193
PCB	Aroclor-1248	12672-29-6	0.162	6.8	0.0864	0.0334	0.03335717	calc	organic		6.34	43900	3.5158	439	0.1617566	46.6890994	0.0864392	0.305	0.85	0.61	0.68	0.0193
PCB	Aroclor-1254	11097-69-1	0.106	6.8	0.0681	0.0263	0.026287404	calc	organic		6.79	75600	3.9073	756	0.10624219	66.7818156	0.0680644	0.305	0.85	0.61	0.68	0.0193
PCB	Aroclor-1260	11096-82-5	0.027	6.8	0.0162	0.00626	0.006262626	calc	organic		8.27	207000	5.1949	2070	0.02666005	472.943947	0.01620088	0.305	0.85	0.61	0.68	0.0193
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	0.05	154	0.779	0.0136	0.01356793	calc	organic		7.6	165000	4.612	1650	0.0498517	155.022977	0.779348	0.305	0.85	0.61	0.68	0.0193
SVOC	Butyl benzyl phthalate	85-68-7	0.728	8.8	0.122	0.0367	0.03672286	calc	organic		4.73	9359	2.1151	93.59	0.72784516	8.7046351	0.12226376	0.305	0.85	0.61	0.68	0.0193
SVOC	Di-n-Butyl Phthalate	84-74-2	0.9	35.6	0.449	0.0338	0.033806764	calc	organic		4.5	1460	1.915	14.6	0.90229801	35.1987436	0.4493203	0.305	0.85	0.61	0.68	0.0193
SVOC	Di-n-octylphthalate	117-84-0	0.031	358	1.03	0.00777	0.007768973	calc	organic		8.1	196000	5.047	1960	0.03124856	355.323512	1.03446381	0.305	0.85	0.61	0.68	0.0193
SVOC	Diethyl phthalate	84-66-2	6.3	6.32	0.0129	0.00535	0.0053502	calc	organic		2.42	126	0.1054	1.26	6.29804849	6.3228004	0.01289123	0.305	0.85	0.61	0.68	0.0193
SVOC	Dimethyl Phthalate	131-11-3	13.6	4.21	0.00301	0.0015	0.001504228	calc	organic		1.6	37.09	-0.608	0.3709	13.5481501	4.15549902	0.00300703	0.305	0.85	0.61	0.68	0.0193

Receptor Group	Receptor	Diet/Exposure Media	Receptor/Diet Code	I_food_dw	fs	ff	fi	fp	home range (ha)	AUF	pop. Area (ha)	PAUF
Bird	Mexican Spotted Owl	Flesh	MXSO(f)	0.035	0.020	1.0	N/A	N/A	545	0.00183486		
Bird	American Kestrel	Flesh/ Invertebrate	AK(fi)	0.114	0.020	0.5	0.5	N/A			23000	4.34783E-05
Bird	American Robin	Invertebrate	AR(i)	0.13	0.064	N/A	1.0	N/A			16	0.0625
Bird	American Robin	Invertebrate/ Plant	AR(ip)	0.148	0.063	N/A	0.5	0.5			16	0.0625
Bird	American Robin	Plant	AR(p)	0.16	0.061	N/A	N/A	1.0			16	0.0625
Mammal	Mountain Cottontail	Plant	DC(p)	0.0717	0.063	N/A	N/A	1.0			16	0.0625
Mammal	Deer Mouse	Invertebrate/ Plant	DM(ip)	0.176	0.020	N/A	0.5	0.5			16	0.0625
Mammal	Gray Fox	Flesh	RF(f)	0.0378	0.028	1.0	N/A	N/A			23000	4.34783E-05
Mammal	Montane Shrew	Invertebrate	MS(i)	0.197	0.009	N/A	1.0	N/A			16	0.0625

COPC	Dose-Response Notes	Site-Specific NOEC (mg/	
Antimony	Insufficient detects for statistical evaluation	--a	
Arsenic	Negative slope for one of two laboratories, overall results are discordant and dose-response is not indicated	13.8	
Barium	No statistical relationship	500	
Beryllium	No statistical relationship	2.82	
Cadmium	No statistical relationship	6.18	
Chromium (total)	Negative slope for one of two laboratories, overall results are discordant and dose-response is not indicated	3360	
Chromium(+6)	No statistical relationship	4.71	
Cobalt	No statistical relationship	7.58	
Copper	Negative slope for one of two laboratories, overall results are discordant and dose-response is not indicated	199	
Cyanide (total)	Negative slope for one of two laboratories, overall results are discordant and dose-response is not indicated	6.74	
Lead	Negative slope for one of two laboratories, overall results are discordant and dose-response is not indicated	244	
Manganese	No statistical relationship	1560	
Mercury (inorganic)	Negative slope for one of two laboratories, overall results are discordant and dose-response is not indicated	1.71	
Nickel	No statistical relationship	23.1	
Selenium	No statistical relationship	15	
Silver	Negative slope for one of two laboratories, overall results are discordant and dose-response is not indicated	49.4	
Thallium	No statistical relationship	3.27	
Vanadium	Negative slope for one of two laboratories, overall results are discordant and dose-response is not indicated	48.5	
Zinc	Negative slope for one of two laboratories, overall results are discordant and dose-response is not indicated	332	
Acenaphthene	Insufficient detects for statistical evaluation	--	
Acenaphthylene	Insufficient detects for statistical evaluation	--	
Anthracene	No statistical relationship	0.104	
Aroclor-1016	Insufficient detects for statistical evaluation	--	
Aroclor-1242	Insufficient detects for statistical evaluation	--	
Aroclor-1248	Insufficient detects for statistical evaluation	--	
Aroclor-1254	Negative slope for one of two laboratories, overall results are discordant and dose-response is not indicated	1.61	
Aroclor-1260	Negative slope for one of two laboratories, overall results are discordant and dose-response is not indicated	1.86	
Benzo(a)anthracene	No statistical relationship	2.22	
Benzo(a)pyrene	No statistical relationship	2.99	
Benzo(b)fluoranthene	No statistical relationship	2.54	
Benzo(g,h,i)perylene	No statistical relationship	1.58	
Benzo(k)fluoranthene	Insufficient detects for statistical evaluation	--	
Bis(2-ethylhexyl)phthalat	Insufficient detects for statistical evaluation	--	
Butyl benzyl phthalate	Insufficient detects for statistical evaluation	--	
Chrysene	No statistical relationship	2.78	
Di-n-Butyl Phthalate	Insufficient detects for statistical evaluation	--	
Di-n-octylphthalate	Insufficient detects for statistical evaluation	--	
Dibenzo(a,h)anthracene	Insufficient detects for statistical evaluation	--	
Diethyl phthalate	Insufficient detects for statistical evaluation	--	
Dimethyl Phthalate	Insufficient detects for statistical evaluation	--	
Dinitrotoluene[2,4-]	Insufficient detects for statistical evaluation	--	
Dinitrotoluene[2,6-]	Insufficient detects for statistical evaluation	--	
Fluoranthene	No statistical relationship	7.12	
Fluorene	Insufficient detects for statistical evaluation	--	
Indeno(1,2,3-cd)pyrene	Insufficient detects for statistical evaluation	--	
Methylnaphthalene[2-]	No statistical relationship	0.0822	
Naphthalene	Insufficient detects for statistical evaluation	--	
Phenanthrene	No statistical relationship	6.03	
Pyrene	No statistical relationship	6.01	

kg)

GENERIC PLANT EcoPRGs						SOIL EcoPRG = low effect geomean TR	
Group	COPC	Analyte Code	Plant GMM LOEC	Plant Site-specific NOEC	BV	Raw Eco-PRG (mg/kg of soil)	Eco-PRG (mg/kg of soil)
D/F	Tetrachlorodibenzodioxin[2,3,7,8	1746-01-6	-1	-1	0		
HE	Amino-2,6-dinitrotoluene[4-]	19406-51-0	330	-1	0	330	**330**
HE	Amino-4,6-dinitrotoluene[2-]	35572-78-2	140	-1	0	140	**140**
HE	Dinitrotoluene[2,4-]	121-14-2	60	-1	0	60	**60**
HE	Dinitrotoluene[2,6-]	606-20-2	-1	-1	0		
HE	HMX	2691-41-0	3560	-1	0	3560	**3500**
HE	PETN	78-11-5	-1	-1	0		
HE	RDX	121-82-4	360	-1	0	360	**360**
HE	Tetryl	479-45-8	-1	-1	0		
HE	Trinitrobenzene[1,3,5-]	99-35-4	-1	-1	0		
HE	Trinitrotoluene[2,4,6-]	118-96-7	126	-1	0	126	**120**
INORG	Antimony	SB	58	-1	0.83	58	**58**
INORG	Arsenic	AS	91	13.8	8.17	91	**91**
INORG	Barium	BA	1414	500	295	1414	**1400**
INORG	Beryllium	BE	25	2.82	1.83	25	**25**
INORG	Boron	B	86.6	-1	4.1	86.6	**86**
INORG	Cadmium	CD	160	6.18	0.4	160	**160**
INORG	Chromium(+6)	CR(+6)	3.5	4.71	0	4.71	**4.7**
INORG	Chromium (total)	CR	-1	3360	19.3		
INORG	Cobalt	CO	134	7.58	8.64	134	**130**
INORG	Copper	CU	497	199	14.7	497	**490**
INORG	Cyanide (total)	CN(-1)	-1	6.74	0.82		
INORG	Lead	PB	576	244	22.3	576	**570**
INORG	Manganese	MN	1100	1560	671	1560	**1500**
INORG	Mercury (inorganic)	HGI	64	1.71	0.1	64	**64**
INORG	Mercury (methyl)	HGM	-1	-1	0		
INORG	Nickel	NI	276	23.1	15.4	276	**270**
INORG	Selenium	SE	3.4	15	1.52	15	**15**
INORG	Silver	AG	2810	49.4	1	2810	**2800**
INORG	Thallium	TL	0.5	3.27	0.73	3.27	**3.2**
INORG	Uranium	U	256	-1	1.82	256	**250**
INORG	Vanadium	V	80	48.5	39.6	80	**80**
INORG	Zinc	ZN	812	332	48.8	812	**810**
PAH	Acenaphthene	83-32-9	2.5	-1	0	2.5	**2.5**
PAH	Acenaphthylene	208-96-8	-1	-1	0		
PAH	Anthracene	120-12-7	8.95	0.104	0	8.95	**8.9**
PAH	Benzo(a)anthracene	56-55-3	180	2.22	0	180	**180**
PAH	Benzo(a)pyrene	50-32-8	-1	2.99	0		
PAH	Benzo(b)fluoranthene	205-99-2	180	2.54	0	180	**180**
PAH	Benzo(g,h,i)perylene	191-24-2	-1	1.58	0		
PAH	Benzo(k)fluoranthene	207-08-9	-1	-1	0		
PAH	Chrysene	218-01-9	-1	2.78	0		
PAH	Dibenzo(a,h)anthracene	53-70-3	-1	-1	0		
PAH	Fluoranthene	206-44-0	-1	7.12	0		
PAH	Fluorene	86-73-7	-1	-1	0		
PAH	Indeno(1,2,3-cd)pyrene	193-39-5	-1	-1	0		
PAH	Methylnaphthalene[2-]	91-57-6	-1	0.0822	0		
PAH	Naphthalene	91-20-3	10	-1	0	10	**10**
PAH	Phenanthrene	85-01-8	-1	6.03	0		
PAH	Pyrene	129-00-0	-1	6.01	0		
PCB	Aroclor-1016	12674-11-2	-1	-1	0		
PCB	Aroclor-1242	53469-21-9	-1	-1	0		
PCB	Aroclor-1248	12672-29-6	-1	-1	0		
PCB	Aroclor-1254	11097-69-1	620	1.61	0	620	**620**
PCB	Aroclor-1260	11096-82-5	-1	1.86	0		
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	-1	-1	0		
SVOC	Butyl benzyl phthalate	85-68-7	-1	-1	0		
SVOC	Di-n-Butyl Phthalate	84-74-2	601	-1	0	601	**600**
SVOC	Di-n-octylphthalate	117-84-0	-1	-1	0		
SVOC	Diethyl phthalate	84-66-2	1000	-1	0	1000	**1000**
SVOC	Dimethyl Phthalate	131-11-3	-1	-1	0		

COPC	Dose-Response Notes	Site-Specific NOEC (mg/kg)
Antimony	Insufficient detects for statistical evaluation	--a
Arsenic	No statistical relationship	13.8
Barium	No statistical relationship	500
Beryllium	No statistical relationship	2.82
Cadmium	No statistical relationship	6.18
Chromium (total)	No statistical relationship	3360
Chromium(+6)	No statistical relationship	4.71
Cobalt	No statistical relationship	7.58
Copper	No statistical relationship	199
Cyanide (total)	No statistical relationship	6.74
Lead	No statistical relationship	244
Manganese	No statistical relationship	1560
Mercury (inorganic)	No statistical relationship including additional LAN	395
Nickel	No statistical relationship	23.1
Selenium	No statistical relationship	15
Silver	No statistical relationship	49.4
Thallium	No statistical relationship	3.27
Vanadium	No statistical relationship	48.5
Zinc	One statistical relationship but difference of 1% in	332
Acenaphthene	Insufficient detects for statistical evaluation	--
Acenaphthylene	Insufficient detects for statistical evaluation	--
Anthracene	No statistical relationship	0.104
Aroclor-1016	Insufficient detects for statistical evaluation	--
Aroclor-1242	Insufficient detects for statistical evaluation	--
Aroclor-1248	Insufficient detects for statistical evaluation	--
Aroclor-1254	No statistical relationship	1.61
Aroclor-1260	No statistical relationship	1.86
Benzo(a)anthracene	One statistical relationship but difference of 1% in	2.22
Benzo(a)pyrene	One statistical relationship but difference of 1% in	2.99
Benzo(b)fluoranthene	One statistical relationship but difference of 1% in	2.54
Benzo(g,h,i)perylene	One statistical relationship but difference of 1% in	1.58
Benzo(k)fluoranthene	Insufficient detects for statistical evaluation	--
Bis(2-ethylhexyl)phthalat	Insufficient detects for statistical evaluation	--
Butyl benzyl phthalate	Insufficient detects for statistical evaluation	--
Chrysene	One statistical relationship but difference of 1% in	2.78
Di-n-Butyl Phthalate	Insufficient detects for statistical evaluation	--
Di-n-octylphthalate	Insufficient detects for statistical evaluation	--
Dibenzo(a,h)anthracene	Insufficient detects for statistical evaluation	--
Diethyl phthalate	Insufficient detects for statistical evaluation	--
Dimethyl Phthalate	Insufficient detects for statistical evaluation	--
Dinitrotoluene[2,4-]	Insufficient detects for statistical evaluation	--
Dinitrotoluene[2,6-]	Insufficient detects for statistical evaluation	--
Fluoranthene	One statistical relationship but difference of 1% in	7.12
Fluorene	Insufficient detects for statistical evaluation	--
Indeno(1,2,3-cd)pyrene	Insufficient detects for statistical evaluation	--
Methylnaphthalene[2-]	No statistical relationship	0.0822
Naphthalene	Insufficient detects for statistical evaluation	--
Phenanthrene	One statistical relationship but difference of 1% in	6.03
Pyrene	One statistical relationship but difference of 1% in	6.01

EARTHWORM EcoPRGs						SOIL EcoPRG = low effect geomean TRV	
Group	**COPC**	**Analyte Code**	**Earthworm GMM LOEC**	**Earthworm Site-specific NOEC**	**BV**	Raw Eco-PRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**
D/F	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	10	-1	0	10	**10**
HE	Amino-2,6-dinitrotoluene[4-]	19406-51-0	180	-1	0	180	**180**
HE	Amino-4,6-dinitrotoluene[2-]	35572-78-2	430	-1	0	430	**430**
HE	Dinitrotoluene[2,4-]	121-14-2	180	-1	0	180	**180**
HE	Dinitrotoluene[2,6-]	606-20-2	44.5	-1	0	44.5	**44**
HE	HMX	2691-41-0	160	-1	0	160	**160**
HE	PETN	78-11-5	-1	-1	0		
HE	RDX	121-82-4	15.7	-1	0	15.7	**15**
HE	Tetryl	479-45-8	-1	-1	0		
HE	Trinitrobenzene[1,3,5-]	99-35-4	28.4	-1	0	28.4	**28**
HE	Trinitrotoluene[2,4,6-]	118-96-7	58.8	-1	0	58.8	**58**
INORG	Antimony	SB	780	-1	0.83	780	**780**
INORG	Arsenic	AS	68	13.8	8.17	68	**68**
INORG	Barium	BA	3290	500	295	3290	**3200**
INORG	Beryllium	BE	403	2.82	1.83	403	**400**
INORG	Boron	B	-1	-1	4.1		
INORG	Cadmium	CD	760	6.18	0.4	760	**760**
INORG	Chromium(+6)	CR(+6)	3.4	4.71	0	4.71	**4.7**
INORG	Chromium (total)	CR	-1	3360	19.3		
INORG	Cobalt	CO	-1	7.58	8.64		
INORG	Copper	CU	530	199	14.7	530	**530**
INORG	Cyanide (total)	CN(-1)	-1	6.74	0.82		
INORG	Lead	PB	8410	244	22.3	8410	**8400**
INORG	Manganese	MN	4500	1560	671	4500	**4500**
INORG	Mercury (inorganic)	HGI	0.5	395	0.1	395	**390**
INORG	Mercury (methyl)	HGM	12.5	-1	0	12.5	**12**
INORG	Nickel	NI	1390	23.1	15.4	1390	**1300**
INORG	Selenium	SE	41	15	1.52	41	**41**
INORG	Silver	AG	-1	49.4	1		
INORG	Thallium	TL	-1	3.27	0.73		
INORG	Uranium	U	-1	-1	1.82		
INORG	Vanadium	V	-1	48.5	39.6		
INORG	Zinc	ZN	939	332	48.8	939	**930**
PAH	Acenaphthene	83-32-9	-1	-1	0		
PAH	Acenaphthylene	208-96-8	-1	-1	0		
PAH	Anthracene	120-12-7	-1	0.104	0		
PAH	Benzo(a)anthracene	56-55-3	-1	2.22	0		
PAH	Benzo(a)pyrene	50-32-8	-1	2.99	0		
PAH	Benzo(b)fluoranthene	205-99-2	-1	2.54	0		
PAH	Benzo(g,h,i)perylene	191-24-2	-1	1.58	0		
PAH	Benzo(k)fluoranthene	207-08-9	-1	-1	0		
PAH	Chrysene	218-01-9	-1	2.78	0		
PAH	Dibenzo(a,h)anthracene	53-70-3	-1	-1	0		
PAH	Fluoranthene	206-44-0	23.5	7.12	0	23.5	**23**
PAH	Fluorene	86-73-7	19.5	-1	0	19.5	**19**
PAH	Indeno(1,2,3-cd)pyrene	193-39-5	-1	-1	0		
PAH	Methylnaphthalene[2-]	91-57-6	-1	0.0822	0		
PAH	Naphthalene	91-20-3	-1	-1	0		
PAH	Phenanthrene	85-01-8	12.7	6.03	0	12.7	**12**
PAH	Pyrene	129-00-0	20.2	6.01	0	20.2	**20**
PCB	Aroclor-1016	12674-11-2	-1	-1	0		
PCB	Aroclor-1242	53469-21-9	-1	-1	0		
PCB	Aroclor-1248	12672-29-6	-1	-1	0		
PCB	Aroclor-1254	11097-69-1	-1	1.61	0		
PCB	Aroclor-1260	11096-82-5	-1	1.86	0		
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	-1	-1	0		
SVOC	Butyl benzyl phthalate	85-68-7	-1	-1	0		
SVOC	Di-n-Butyl Phthalate	84-74-2	-1	-1	0		
SVOC	Di-n-octylphthalate	117-84-0	-1	-1	0		
SVOC	Diethyl phthalate	84-66-2	-1	-1	0		
SVOC	Dimethyl Phthalate	131-11-3	101	-1	0	101	**100**

MEXICAN SPOTTED OWL EcoPRGs			SOIL EcoPRG [FLESH DIET, MXSO(f)] = TRV/ ((I_food_dw) * AUF_MXSO * (fs + (ff * TF_flesh_dw))))	
Group	**COPC**	**Analyte Code**	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**
D/F	Tetrachlorodibenzodioxin[2,3,7,8	1746-01-6		
HE	Amino-2,6-dinitrotoluene[4-]	19406-51-0		
HE	Amino-4,6-dinitrotoluene[2-]	35572-78-2		
HE	Dinitrotoluene[2,4-]	121-14-2		
HE	Dinitrotoluene[2,6-]	606-20-2	43014996.05	**43000000**
HE	HMX	2691-41-0		
HE	PETN	78-11-5		
HE	RDX	121-82-4	1802284.033	**1800000**
HE	Tetryl	479-45-8		
HE	Trinitrobenzene[1,3,5-]	99-35-4		
HE	Trinitrotoluene[2,4,6-]	118-96-7	7282651.152	**7200000**
INORG	Antimony	SB		
INORG	Arsenic	AS	1718565.235	**1700000**
INORG	Barium	BA	57184684.8	**57000000**
INORG	Beryllium	BE		
INORG	Boron	B	2217330.119	**2200000**
INORG	Cadmium	CD	997385.6209	**990000**
INORG	Chromium(+6)	CR(+6)	8374191.566	**8300000**
INORG	Chromium (total)	CR	2004840.271	**2000000**
INORG	Cobalt	CO	5359501.195	**5300000**
INORG	Copper	CU	2745506.561	**2700000**
INORG	Cyanide (total)	CN(-1)	1378.002528	**1300**
INORG	Lead	PB	8468137.395	**8400000**
INORG	Manganese	MN	139097219.1	**130000000**
INORG	Mercury (inorganic)	HGI	58689.26759	**58000**
INORG	Mercury (methyl)	HGM	20.89248278	**20**
INORG	Nickel	NI	4727795.734	**4700000**
INORG	Selenium	SE	170920.2985	**170000**
INORG	Silver	AG	1400457.957	**1400000**
INORG	Thallium	TL	234711.4556	**230000**
INORG	Uranium	U	60684575.11	**60000000**
INORG	Vanadium	V	265308.1441	**260000**
INORG	Zinc	ZN	6163301.967	**6100000**
PAH	Acenaphthene	83-32-9		
PAH	Acenaphthylene	208-96-8		
PAH	Anthracene	120-12-7		
PAH	Benzo(a)anthracene	56-55-3	66539.25148	**66000**
PAH	Benzo(a)pyrene	50-32-8		
PAH	Benzo(b)fluoranthene	205-99-2		
PAH	Benzo(g,h,i)perylene	191-24-2		
PAH	Benzo(k)fluoranthene	207-08-9		
PAH	Chrysene	218-01-9		
PAH	Dibenzo(a,h)anthracene	53-70-3		
PAH	Fluoranthene	206-44-0		
PAH	Fluorene	86-73-7		

MEXICAN SPOTTED OWL EcoPRGs			SOIL EcoPRG [FLESH DIET, MXSO(f)] = TRV/ ((I_food_dw) * AUF_MXSO * (fs + (ff * TF_flesh_dw))))	
Group	**COPC**	**Analyte Code**	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**
PAH	Indeno(1,2,3-cd)pyrene	193-39-5		
PAH	Methylnaphthalene[2-]	91-57-6		
PAH	Naphthalene	91-20-3	53349648.21	**53000000**
PAH	Phenanthrene	85-01-8		
PAH	Pyrene	129-00-0	7077922.078	**7000000**
PCB	Aroclor-1016	12674-11-2		
PCB	Aroclor-1242	53469-21-9	14378.05039	**14000**
PCB	Aroclor-1248	12672-29-6	428799.6778	**420000**
PCB	Aroclor-1254	11097-69-1	254515.9721	**250000**
PCB	Aroclor-1260	11096-82-5	924822.4152	**920000**
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	21437.51117	**21000**
SVOC	Butyl benzyl phthalate	85-68-7		
SVOC	Di-n-Butyl Phthalate	84-74-2	4648.187633	**4600**
SVOC	Di-n-octylphthalate	117-84-0		
SVOC	Diethyl phthalate	84-66-2		
SVOC	Dimethyl Phthalate	131-11-3		

AMERICAN KESTREL EcoPRGs			SOIL EcoPRG [FLESH/INVERTEBRATE DIET, AK(fi)] = TRV/ ((I_food_dw) * PAUF_AKfi * (fs + ((fi * TF_invert_dw) + (ff * TF_flesh_dw))))	
Group	COPC	Analyte Code	Raw EcoPRG (mg/kg of soil)	Eco-PRG (mg/kg of soil)
D/F	Tetrachlorodibenzodioxin[2,3,7,8	1746-01-6		
HE	Amino-2,6-dinitrotoluene[4-]	19406-51-0		
HE	Amino-4,6-dinitrotoluene[2-]	35572-78-2		
HE	Dinitrotoluene[2,4-]	121-14-2		
HE	Dinitrotoluene[2,6-]	606-20-2	204875320	**200000000**
HE	HMX	2691-41-0		
HE	PETN	78-11-5		
HE	RDX	121-82-4	678460.5941	**670000**
HE	Tetryl	479-45-8		
HE	Trinitrobenzene[1,3,5-]	99-35-4		
HE	Trinitrotoluene[2,4,6-]	118-96-7	72588922.76	**72000000**
INOR(	Antimony	SB		
INOR(	Arsenic	AS	32701618.3	**32000000**
INOR(	Barium	BA	403465345.5	**400000000**
INOR(	Beryllium	BE		
INOR(	Boron	B	5623107.597	**5600000**
INOR(	Cadmium	CD	229919.5282	**220000**
INOR(	Chromium(+6)	CR(+6)	441853633.6	**440000000**
INOR(	Chromium (total)	CR	16732708.81	**16000000**
INOR(	Cobalt	CO	42044969.84	**42000000**
INOR(	Copper	CU	21857195.35	**21000000**
INOR(	Cyanide (total)	CN(-1)	109649.1228	**100000**
INOR(	Lead	PB	16594448.05	**16000000**
INOR(	Manganese	MN	1513081639	**1500000000**
INOR(	Mercury (inorganic)	HGI	210692.8714	**210000**
INOR(	Mercury (methyl)	HGM	462.8887149	**460**
INOR(	Nickel	NI	13189456.14	**13000000**
INOR(	Selenium	SE	805911.8484	**800000**
INOR(	Silver	AG	3904686.649	**3900000**
INOR(	Thallium	TL	14511721.14	**14000000**
INOR(	Uranium	U	4310607374	**4300000000**
INOR(	Vanadium	V	15661187.28	**15000000**
INOR(	Zinc	ZN	17691509.93	**17000000**
PAH	Acenaphthene	83-32-9		
PAH	Acenaphthylene	208-96-8		
PAH	Anthracene	120-12-7		
PAH	Benzo(a)anthracene	56-55-3	1918567.303	**1900000**
PAH	Benzo(a)pyrene	50-32-8		
PAH	Benzo(b)fluoranthene	205-99-2		
PAH	Benzo(g,h,i)perylene	191-24-2		
PAH	Benzo(k)fluoranthene	207-08-9		
PAH	Chrysene	218-01-9		
PAH	Dibenzo(a,h)anthracene	53-70-3		
PAH	Fluoranthene	206-44-0		

AMERICAN KESTREL EcoPRGs			SOIL EcoPRG [FLESH/INVERTEBRATE DIET, AK(fi)] = TRV/ ((I_food_dw) * PAUF_AKfi * (fs + ((fi * TF_invert_dw) + (ff * TF_flesh_dw))))	
Group	COPC	Analyte Code	Raw EcoPRG (mg/kg of soil)	Eco-PRG (mg/kg of soil)
PAH	Fluorene	86-73-7		
PAH	Indeno(1,2,3-cd)pyrene	193-39-5		
PAH	Methylnaphthalene[2-]	91-57-6		
PAH	Naphthalene	91-20-3	24958983.84	**24000000**
PAH	Phenanthrene	85-01-8		
PAH	Pyrene	129-00-0	49678276.53	**49000000**
PCB	Aroclor-1016	12674-11-2		
PCB	Aroclor-1242	53469-21-9	58240.66105	**58000**
PCB	Aroclor-1248	12672-29-6	170691.947	**170000**
PCB	Aroclor-1254	11097-69-1	84111.78639	**84000**
PCB	Aroclor-1260	11096-82-5	178913.4895	**170000**
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	28669.58507	**28000**
SVOC	Butyl benzyl phthalate	85-68-7		
SVOC	Di-n-Butyl Phthalate	84-74-2	15653.30934	**15000**
SVOC	Di-n-octylphthalate	117-84-0		
SVOC	Diethyl phthalate	84-66-2		
SVOC	Dimethyl Phthalate	131-11-3		

AMERICAN ROBIN EcoPRGs			SOIL EcoPRG [INVERT DIET, AR(i)] = TRV/ ((I_food_dw) * PAUF_ARi * (fs + (fi * TF_invert_dw)))		SOIL EcoPRG [INVERT-PLANT DIET, AR(ip)] = TRV/ ((I_food_dw) * PAUF_ARip * (fs + ((fi * TF_invert_dw) + (fp * TF_plant_dw))))		SOIL EcoPRG [PLANT DIET, AR(p)] = TRV/ ((I_food_dw) * PAUF_ARp * (fs + (fp * TF_plant_dw)))	
Group	**COPC**	**Analyte Code**	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**
D/F	Tetrachlorodibenzodioxin[2,3,7,8	1746-01-6						
HE	Amino-2,6-dinitrotoluene[4-]	19406-51-0						
HE	Amino-4,6-dinitrotoluene[2-]	35572-78-2						
HE	Dinitrotoluene[2,4-]	121-14-2						
HE	Dinitrotoluene[2,6-]	606-20-2	61334.01482	**61000**	29443.87874	**29000**	18744.14246	18000
HE	HMX	2691-41-0						
HE	PETN	78-11-5						
HE	RDX	121-82-4	205.1282051	**200**	175.3632245	**170**	158.0429426	150
HE	Tetryl	479-45-8						
HE	Trinitrobenzene[1,3,5-]	99-35-4						
HE	Trinitrotoluene[2,4,6-]	118-96-7	17942.41794	**17000**	1036.226447	**1000**	495.6836536	490
INOR	Antimony	SB						
INOR	Arsenic	AS	9186.681363	**9100**	11832.99107	**11000**	20702.40296	20000
INOR	Barium	BA	104019.8511	**100000**	77177.99543	**77000**	62085.30806	62000
INOR	Beryllium	BE						
INOR	Boron	B	1677.270098	**1600**	611.6143455	**610**	357.0549126	350
INOR	Cadmium	CD	70.02624373	**70**	115.7847051	**110**	911.6331096	910
INOR	Chromium(+6)	CR(+6)	109181.1414	**100000**	122913.6113	**120000**	160583.9416	160000
INOR	Chromium (total)	CR	4573.619527	**4500**	6136.660114	**6100**	12189.78102	12000
INOR	Cobalt	CO	11315.13648	**11000**	13795.88544	**13000**	21111.11111	21000
INOR	Copper	CU	6466.634451	**6400**	8267.61924	**8200**	14099.61686	14000
INOR	Cyanide (total)	CN(-1)	46.26951995	**46**	40.68037934	**40**	37.70028275	37
INOR	Lead	PB	4642.001597	**4600**	5035.805036	**5000**	6123.595506	6100
INOR	Manganese	MN	372690.7631	**370000**	186743.4445	**180000**	121221.865	120000
INOR	Mercury (inorganic)	HGI	68.45289542	**68**	51.0057317	**51**	41.02209945	41
INOR	Mercury (methyl)	HGM	0.154255896	**0.15**	0.26993812	**0.26**	32.32323232	32
INOR	Nickel	NI	3918.343476	**3900**	6316.322863	**6300**	35924.93298	35000
INOR	Selenium	SE	241.7165377	**240**	246.4579117	**240**	272.0105125	270
INOR	Silver	AG	1178.830653	**1100**	1698.781629	**1600**	4381.778742	4300

AMERICAN ROBIN EcoPRGs			SOIL EcoPRG [INVERT DIET, AR(i)] = TRV/ ((I_food_dw) * PAUF_ARi * (fs + (fi * TF_invert_dw)))		SOIL EcoPRG [INVERT-PLANT DIET, AR(ip)] = TRV/ ((I_food_dw) * PAUF_ARip * (fs + ((fi * TF_invert_dw) + (fp * TF_plant_dw))))		SOIL EcoPRG [PLANT DIET, AR(p)] = TRV/ ((I_food_dw) * PAUF_ARp * (fs + (fp * TF_plant_dw)))	
Group	COPC	Analyte Code	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**
INOR	Thallium	TL	3647.495603	**3600**	4110.574453	**4100**	5384.615385	5300
INOR	Uranium	U	989690.7216	**980000**	1006857.604	**1000000**	1122302.158	1100000
INOR	Vanadium	V	3703.918723	**3700**	3975.387491	**3900**	4796.992481	4700
INOR	Zinc	ZN	5568.801907	**5500**	8673.372746	**8600**	35437.88187	35000
PAH	Acenaphthene	83-32-9						
PAH	Acenaphthylene	208-96-8						
PAH	Anthracene	120-12-7						
PAH	Benzo(a)anthracene	56-55-3	539.7225725	**530**	396.1495742	**390**	315.6342183	310
PAH	Benzo(a)pyrene	50-32-8						
PAH	Benzo(b)fluoranthene	205-99-2						
PAH	Benzo(g,h,i)perylene	191-24-2						
PAH	Benzo(k)fluoranthene	207-08-9						
PAH	Chrysene	218-01-9						
PAH	Dibenzo(a,h)anthracene	53-70-3						
PAH	Fluoranthene	206-44-0						
PAH	Fluorene	86-73-7						
PAH	Indeno(1,2,3-cd)pyrene	193-39-5						
PAH	Methylnaphthalene[2-]	91-57-6						
PAH	Naphthalene	91-20-3	7620.86211	**7600**	2330.230001	**2300**	1304.950657	1300
PAH	Phenanthrene	85-01-8						
PAH	Pyrene	129-00-0	15162.72189	**15000**	18121.14649	**18000**	26248.39949	26000
PCB	Aroclor-1016	12674-11-2						
PCB	Aroclor-1242	53469-21-9	17.93078716	**17**	30.47015448	**30**	432.9004329	430
PCB	Aroclor-1248	12672-29-6	52.53720638	**52**	89.37831737	**89**	1313.901345	1300
PCB	Aroclor-1254	11097-69-1	25.82033351	**25**	44.27635827	**44**	862.2754491	860
PCB	Aroclor-1260	11096-82-5	54.50959297	**54**	94.5343445	**94**	3454.545455	3400
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	8.78755682	**8.7**	15.42638529	**15**	9909.90991	9900
SVOC	Butyl benzyl phthalate	85-68-7						
SVOC	Di-n-Butyl Phthalate	84-74-2	4.831418021	**4.8**	8.264694553	**8.2**	145.6815817	140

AMERICAN ROBIN EcoPRGs			SOIL EcoPRG [INVERT DIET, AR(i)] = TRV/ ((I_food_dw) * PAUF_ARi * (fs + (fi * TF_invert_dw)))		SOIL EcoPRG [INVERT-PLANT DIET, AR(ip)] = TRV/ ((I_food_dw) * PAUF_ARip * (fs + ((fi * TF_invert_dw) + (fp * TF_plant_dw))))		SOIL EcoPRG [PLANT DIET, AR(p)] = TRV/ ((I_food_dw) * PAUF_ARp * (fs + (fp * TF_plant_dw)))	
Group	COPC	Analyte Code	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**
SVOC	Di-n-octylphthalate	117-84-0						
SVOC	Diethyl phthalate	84-66-2						
SVOC	Dimethyl Phthalate	131-11-3						

GRAY FOX EcoPRGs			SOIL EcoPRG [FLESH DIET, RF(f)] = TRV/ ((I_food_dw) * PAUF_RFf * (fs + (ff * TF_flesh_dw)))	
Group	COPC	Analyte Code	Raw EcoPRG (mg/kg of soil)	Eco-PRG (mg/kg of soil)
D/F	Tetrachlorodibenzodioxin[2,3,7,8-	1746-01-6	18.79893745	**18**
HE	Amino-2,6-dinitrotoluene[4-]	19406-51-0	1830933538	**1800000000**
HE	Amino-4,6-dinitrotoluene[2-]	35572-78-2	2662994949	**2600000000**
HE	Dinitrotoluene[2,4-]	121-14-2	560373825	**560000000**
HE	Dinitrotoluene[2,6-]	606-20-2	362376893.3	**360000000**
HE	HMX	2691-41-0	4326866549	**4300000000**
HE	PETN	78-11-5	12891220518	**12000000000**
HE	RDX	121-82-4	606536693.2	**600000000**
HE	Tetryl	479-45-8	125582116.3	**120000000**
HE	Trinitrobenzene[1,3,5-]	99-35-4	2897043474	**2800000000**
HE	Trinitrotoluene[2,4,6-]	118-96-7	3374856912	**3300000000**
INORG	Antimony	SB	1206581048	**1200000000**
INORG	Arsenic	AS	208584831.9	**200000000**
INORG	Barium	BA	5343114349	**5300000000**
INORG	Beryllium	BE	115291414.2	**110000000**
INORG	Boron	B	5976649490	**5900000000**
INORG	Cadmium	CD	202494209	**200000000**
INORG	Chromium(+6)	CR(+6)	1268082188	**1200000000**
INORG	Chromium (total)	CR	5095315633	**5000000000**
INORG	Cobalt	CO	390016148.9	**390000000**
INORG	Copper	CU	3055098551	**3000000000**
INORG	Cyanide (total)	CN(-1)	908730158.7	**900000000**
INORG	Lead	PB	2989907031	**2900000000**
INORG	Manganese	MN	4166621377	**4100000000**
INORG	Mercury (inorganic)	HGI	98840611.51	**98000000**
INORG	Mercury (methyl)	HGM	20375.575	**20000**
INORG	Nickel	NI	764119601.3	**760000000**
INORG	Selenium	SE	17606965.31	**17000000**
INORG	Silver	AG	1202548576	**1200000000**
INORG	Thallium	TL	1383762.274	**1300000**
INORG	Uranium	U	325795003.6	**320000000**
INORG	Vanadium	V	189079770.5	**180000000**
INORG	Zinc	ZN	2576417234	**2500000000**
PAH	Acenaphthene	83-32-9	7961232260	**7900000000**
PAH	Acenaphthylene	208-96-8	7730053102	**7700000000**
PAH	Anthracene	120-12-7	10508905155	**10000000000**
PAH	Benzo(a)anthracene	56-55-3	31307249.83	**31000000**
PAH	Benzo(a)pyrene	50-32-8	300749546.8	**300000000**
PAH	Benzo(b)fluoranthene	205-99-2	666264011.5	**660000000**
PAH	Benzo(g,h,i)perylene	191-24-2	984483681.1	**980000000**
PAH	Benzo(k)fluoranthene	207-08-9	1194045348	**1100000000**
PAH	Chrysene	218-01-9	30549070.71	**30000000**
PAH	Dibenzo(a,h)anthracene	53-70-3	234025234	**230000000**
PAH	Fluoranthene	206-44-0	1069735599	**1000000000**
PAH	Fluorene	86-73-7	2735906513	**2700000000**

GRAY FOX EcoPRGs			SOIL EcoPRG [FLESH DIET, RF(f)] = TRV/ ((I_food_dw) * PAUF_RFf * (fs + (ff * TF_flesh_dw)))	
Group	**COPC**	**Analyte Code**	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**
PAH	Indeno(1,2,3-cd)pyrene	193-39-5	1264709117	**1200000000**
PAH	Methylnaphthalene[2-]	91-57-6	1355912219	**1300000000**
PAH	Naphthalene	91-20-3	447172165.6	**440000000**
PAH	Phenanthrene	85-01-8	538298318	**530000000**
PAH	Pyrene	129-00-0	859414701.2	**850000000**
PCB	Aroclor-1016	12674-11-2	19636844.64	**19000000**
PCB	Aroclor-1242	53469-21-9	11091548.49	**11000000**
PCB	Aroclor-1248	12672-29-6	526556.7766	**520000**
PCB	Aroclor-1254	11097-69-1	1962792.285	**1900000**
PCB	Aroclor-1260	11096-82-5	4267518.973	**4200000**
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	137979190	**130000000**
SVOC	Butyl benzyl phthalate	85-68-7	6449735450	**6400000000**
SVOC	Di-n-Butyl Phthalate	84-74-2	4050059344	**4000000000**
SVOC	Di-n-octylphthalate	117-84-0	374396135.3	**370000000**
SVOC	Diethyl phthalate	84-66-2	6.84338E+11	**6.8E+11**
SVOC	Dimethyl Phthalate	131-11-3	13342683449	**13000000000**

MOUNTAIN COTTONTAIL EcoPRGs			SOIL EcoPRG [PLANT DIET, DC(p)] = TRV/ ((I_food_dw) * PAUF_DCp * (fs + (fp * TF_plant_dw)))	
Group	**COPC**	**Analyte Code**	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**
D/F	Tetrachlorodibenzodioxin[2,3,7,8	1746-01-6	0.004994355	**0.0049**
HE	Amino-2,6-dinitrotoluene[4-]	19406-51-0	59610.80485	**59000**
HE	Amino-4,6-dinitrotoluene[2-]	35572-78-2	20366.46822	**20000**
HE	Dinitrotoluene[2,4-]	121-14-2	13622.94806	**13000**
HE	Dinitrotoluene[2,6-]	606-20-2	1233.153542	**1200**
HE	HMX	2691-41-0	20167.37662	**20000**
HE	PETN	78-11-5	23656.8856	**23000**
HE	RDX	121-82-4	2221.316297	**2200**
HE	Tetryl	479-45-8	162.9038665	**160**
HE	Trinitrobenzene[1,3,5-]	99-35-4	27610.6842	**27000**
HE	Trinitrotoluene[2,4,6-]	118-96-7	9937.189972	**9900**
INORG	Antimony	SB	47260.71347	**47000**
INORG	Arsenic	AS	19642.2379	**19000**
INORG	Barium	BA	257724.8708	**250000**
INORG	Beryllium	BE	16262.58574	**16000**
INORG	Boron	B	15378.43127	**15000**
INORG	Cadmium	CD	2565.252042	**2500**
INORG	Chromium(+6)	CR(+6)	187700.9209	**180000**
INORG	Chromium (total)	CR	759666.4589	**750000**
INORG	Cobalt	CO	51889.56663	**51000**
INORG	Copper	CU	131939.6938	**130000**
INORG	Cyanide (total)	CN(-1)	144219.6043	**140000**
INORG	Lead	PB	170835.2704	**170000**
INORG	Manganese	MN	136885.5856	**130000**
INORG	Mercury (inorganic)	HGI	4333.944235	**4300**
INORG	Mercury (methyl)	HGM	178.5216179	**170**
INORG	Nickel	NI	110119.4053	**110000**
INORG	Selenium	SE	291.2967421	**290**
INORG	Silver	AG	29014.5826	**29000**
INORG	Thallium	TL	236.4745311	**230**
INORG	Uranium	U	46815.10958	**46000**
INORG	Vanadium	V	28537.39731	**28000**
INORG	Zinc	ZN	335406.995	**330000**
PAH	Acenaphthene	83-32-9	96842.16715	**96000**
PAH	Acenaphthylene	208-96-8	98677.45775	**98000**
PAH	Anthracene	120-12-7	221380.9745	**220000**
PAH	Benzo(a)anthracene	56-55-3	1112.488088	**1100**
PAH	Benzo(a)pyrene	50-32-8	15191.50306	**15000**
PAH	Benzo(b)fluoranthene	205-99-2	23930.51178	**23000**
PAH	Benzo(g,h,i)perylene	191-24-2	86381.42799	**86000**
PAH	Benzo(k)fluoranthene	207-08-9	60859.64245	**60000**
PAH	Chrysene	218-01-9	1156.580603	**1100**
PAH	Dibenzo(a,h)anthracene	53-70-3	15377.83366	**15000**
PAH	Fluoranthene	206-44-0	49545.29803	**49000**
PAH	Fluorene	86-73-7	43482.46733	**43000**
PAH	Indeno(1,2,3-cd)pyrene	193-39-5	92872.51796	**92000**

MOUNTAIN COTTONTAIL EcoPRGs			SOIL EcoPRG [PLANT DIET, DC(p)] = TRV/ ((I_food_dw) * PAUF_DCp * (fs + (fp * TF_plant_dw)))	
Group	**COPC**	**Analyte Code**	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**
PAH	Methylnaphthalene[2-]	91-57-6	20965.54526	**20000**
PAH	Naphthalene	91-20-3	731.526649	**730**
PAH	Phenanthrene	85-01-8	11470.01395	**11000**
PAH	Pyrene	129-00-0	21374.71478	**21000**
PCB	Aroclor-1016	12674-11-2	2501.651619	**2500**
PCB	Aroclor-1242	53469-21-9	2030.396083	**2000**
PCB	Aroclor-1248	12672-29-6	98.18688982	**98**
PCB	Aroclor-1254	11097-69-1	4449.836185	**4400**
PCB	Aroclor-1260	11096-82-5	82566.24826	**82000**
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	361387.7884	**360000**
SVOC	Butyl benzyl phthalate	85-68-7	448560.9551	**440000**
SVOC	Di-n-Butyl Phthalate	84-74-2	735729.6686	**730000**
SVOC	Di-n-octylphthalate	117-84-0	1545446.452	**1500000**
SVOC	Diethyl phthalate	84-66-2	1613231.656	**1600000**
SVOC	Dimethyl Phthalate	131-11-3	11106.15349	**11000**

DEER MOUSE EcoPRGs			SOIL EcoPRG [INVERT-PLANT DIET, DM(ip)] = TRV/ ((I_food_dw) * PAUF_Dmip * (fs + ((fi * TF_invert_dw) + (fp * TF_plant_dw))))	
Group	**COPC**	**Analyte Code**	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**
D/F	Tetrachlorodibenzodioxin[2,3,7,8	1746-01-6	7.08799E-05	**0.00007**
HE	Amino-2,6-dinitrotoluene[4-]	19406-51-0	4236.239951	**4200**
HE	Amino-4,6-dinitrotoluene[2-]	35572-78-2	4334.944644	**4300**
HE	Dinitrotoluene[2,4-]	121-14-2	3722.480728	**3700**
HE	Dinitrotoluene[2,6-]	606-20-2	744.9494949	**740**
HE	HMX	2691-41-0	14528.02092	**14000**
HE	PETN	78-11-5	18504.32208	**18000**
HE	RDX	121-82-4	944.1201001	**940**
HE	Tetryl	479-45-8	131.8601857	**130**
HE	Trinitrobenzene[1,3,5-]	99-35-4	21695.13479	**21000**
HE	Trinitrotoluene[2,4,6-]	118-96-7	8018.221408	**8000**
INORG	Antimony	SB	40951.36566	**40000**
INORG	Arsenic	AS	5455.107837	**5400**
INORG	Barium	BA	159171.7891	**150000**
INORG	Beryllium	BE	10181.81818	**10000**
INORG	Boron	B	10101.0101	**10000**
INORG	Cadmium	CD	123.7487708	**120**
INORG	Chromium(+6)	CR(+6)	100295.9831	**100000**
INORG	Chromium (total)	CR	209588.6822	**200000**
INORG	Cobalt	CO	19280.71928	**19000**
INORG	Copper	CU	32260.0722	**32000**
INORG	Cyanide (total)	CN(-1)	61229.94652	**61000**
INORG	Lead	PB	65587.81533	**65000**
INORG	Manganese	MN	99597.97692	**99000**
INORG	Mercury (inorganic)	HGI	2185.538247	**2100**
INORG	Mercury (methyl)	HGM	0.568437171	**0.56**
INORG	Nickel	NI	8266.450893	**8200**
INORG	Selenium	SE	104.6768261	**100**
INORG	Silver	AG	4404.609475	**4400**
INORG	Thallium	TL	131.5911408	**130**
INORG	Uranium	U	33463.46905	**33000**
INORG	Vanadium	V	18202.5974	**18000**
INORG	Zinc	ZN	31688.60493	**31000**
PAH	Acenaphthene	83-32-9	30231.05161	**30000**
PAH	Acenaphthylene	208-96-8	29529.6351	**29000**
PAH	Anthracene	120-12-7	55858.12037	**55000**
PAH	Benzo(a)anthracene	56-55-3	620.6644761	**620**
PAH	Benzo(a)pyrene	50-32-8	4898.298049	**4800**
PAH	Benzo(b)fluoranthene	205-99-2	9445.100354	**9400**
PAH	Benzo(g,h,i)perylene	191-24-2	8539.4058	**8500**
PAH	Benzo(k)fluoranthene	207-08-9	18156.60068	**18000**
PAH	Chrysene	218-01-9	567.1392827	**560**
PAH	Dibenzo(a,h)anthracene	53-70-3	4098.613251	**4000**
PAH	Fluoranthene	206-44-0	6971.556051	**6900**
PAH	Fluorene	86-73-7	12385.43473	**12000**
PAH	Indeno(1,2,3-cd)pyrene	193-39-5	20779.22078	**20000**

DEER MOUSE EcoPRGs			SOIL EcoPRG [INVERT-PLANT DIET, DM(ip)] = TRV/ ((I_food_dw) * PAUF_Dmip * (fs + ((fi * TF_invert_dw) + (fp * TF_plant_dw))))	
Group	**COPC**	**Analyte Code**	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**
PAH	Methylnaphthalene[2-]	91-57-6	4482.420507	**4400**
PAH	Naphthalene	91-20-3	495.195861	**490**
PAH	Phenanthrene	85-01-8	2869.344349	**2800**
PAH	Pyrene	129-00-0	5778.120185	**5700**
PCB	Aroclor-1016	12674-11-2	108.2220839	**100**
PCB	Aroclor-1242	53469-21-9	54.98638309	**54**
PCB	Aroclor-1248	12672-29-6	2.570694087	**2.5**
PCB	Aroclor-1254	11097-69-1	88.21296757	**88**
PCB	Aroclor-1260	11096-82-5	881.6871202	**880**
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	215.9304775	**210**
SVOC	Butyl benzyl phthalate	85-68-7	30214.35087	**30000**
SVOC	Di-n-Butyl Phthalate	84-74-2	15798.37787	**15000**
SVOC	Di-n-octylphthalate	117-84-0	330.5591248	**330**
SVOC	Diethyl phthalate	84-66-2	660634.7839	**660000**
SVOC	Dimethyl Phthalate	131-11-3	6926.406926	**6900**

MONTANE SHREW EcoPRGs			SOIL EcoPRG [INVERT DIET, MS(i)] = TRV/ ((I_food_dw) * PAUF_MSi * (fs + (fi * TF_invert_dw)))	
Group	**COPC**	**Analyte Code**	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**
D/F	Tetrachlorodibenzodioxin[2,3,7,8	1746-01-6	3.21149E-05	**0.000032**
HE	Amino-2,6-dinitrotoluene[4-]	19406-51-0	2055.643306	**2000**
HE	Amino-4,6-dinitrotoluene[2-]	35572-78-2	2601.829938	**2600**
HE	Dinitrotoluene[2,4-]	121-14-2	2413.137191	**2400**
HE	Dinitrotoluene[2,6-]	606-20-2	1251.143126	**1200**
HE	HMX	2691-41-0	50446.13299	**50000**
HE	PETN	78-11-5	185188.2472	**180000**
HE	RDX	121-82-4	870.9651979	**870**
HE	Tetryl	479-45-8	5722.196585	**5700**
HE	Trinitrobenzene[1,3,5-]	99-35-4	151156.2324	**150000**
HE	Trinitrotoluene[2,4,6-]	118-96-7	193665.0351	**190000**
INORG	Antimony	SB	277537.2925	**270000**
INORG	Arsenic	AS	3214.268702	**3200**
INORG	Barium	BA	199796.9543	**190000**
INORG	Beryllium	BE	8001.504042	**8000**
INORG	Boron	B	22538.2723	**22000**
INORG	Cadmium	CD	58.62573661	**58**
INORG	Chromium(+6)	CR(+6)	69800.63268	**69000**
INORG	Chromium (total)	CR	114863.7937	**110000**
INORG	Cobalt	CO	11965.74573	**11000**
INORG	Copper	CU	19568.39421	**19000**
INORG	Cyanide (total)	CN(-1)	55299.26097	**55000**
INORG	Lead	PB	47828.5392	**47000**
INORG	Manganese	MN	224372.786	**220000**
INORG	Mercury (inorganic)	HGI	2390.767568	**2300**
INORG	Mercury (methyl)	HGM	0.254757471	**0.25**
INORG	Nickel	NI	3901.945553	**3900**
INORG	Selenium	SE	80.97437539	**80**
INORG	Silver	AG	2380.39927	**2300**
INORG	Thallium	TL	91.38664757	**91**
INORG	Uranium	U	29006.52647	**29000**
INORG	Vanadium	V	13950.43297	**13000**
INORG	Zinc	ZN	15876.83773	**15000**
PAH	Acenaphthene	83-32-9	21625.25366	**21000**
PAH	Acenaphthylene	208-96-8	20606.30369	**20000**
PAH	Anthracene	120-12-7	35637.68061	**35000**
PAH	Benzo(a)anthracene	56-55-3	730.5347407	**730**
PAH	Benzo(a)pyrene	50-32-8	3350.963757	**3300**
PAH	Benzo(b)fluoranthene	205-99-2	7572.799451	**7500**
PAH	Benzo(g,h,i)perylene	191-24-2	4240.548032	**4200**
PAH	Benzo(k)fluoranthene	207-08-9	11958.51889	**11000**
PAH	Chrysene	218-01-9	554.5022731	**550**
PAH	Dibenzo(a,h)anthracene	53-70-3	2517.955817	**2500**
PAH	Fluoranthene	206-44-0	3720.148136	**3700**
PAH	Fluorene	86-73-7	8393.78608	**8300**
PAH	Indeno(1,2,3-cd)pyrene	193-39-5	11958.51889	**11000**
PAH	Methylnaphthalene[2-]	91-57-6	2696.601755	**2600**

MONTANE SHREW EcoPRGs			SOIL EcoPRG [INVERT DIET, MS(i)] = TRV/ ((I_food_dw) * PAUF_MSi * (fs + (fi * TF_invert_dw)))	
Group	**COPC**	**Analyte Code**	Raw EcoPRG (mg/kg of soil)	**Eco-PRG (mg/kg of soil)**
PAH	Naphthalene	91-20-3	1291.014084	**1200**
PAH	Phenanthrene	85-01-8	1823.774264	**1800**
PAH	Pyrene	129-00-0	3785.81141	**3700**
PCB	Aroclor-1016	12674-11-2	50.81360666	**50**
PCB	Aroclor-1242	53469-21-9	25.28752256	**25**
PCB	Aroclor-1248	12672-29-6	1.180879591	**1.1**
PCB	Aroclor-1254	11097-69-1	40.19761841	**40**
PCB	Aroclor-1260	11096-82-5	397.2049534	**390**
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	96.50698441	**96**
SVOC	Butyl benzyl phthalate	85-68-7	14659.67259	**14000**
SVOC	Di-n-Butyl Phthalate	84-74-2	7241.652961	**7200**
SVOC	Di-n-octylphthalate	117-84-0	147.6865007	**140**
SVOC	Diethyl phthalate	84-66-2	590305.0417	**590000**
SVOC	Dimethyl Phthalate	131-11-3	13090.40683	**13000**

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Los Alamos National Laboratory

ECORISK Database Release 4.1

(September 2017)

ESL and EcoPRG History Summary by ECORISK Database Release*

**** If you have a specific question(s) that this document does not address adequately, you may contact the database manager for additional help answering your question(s).***

Table 10a. Task 1.7 Updates – Updates to LOAEL/LOEC-based Tier 2 TRVs Notes for ESLs (September 2017)
Table 10b. Task 1.7 Updates - Updates to LOAEL/LOEC-based Tier 3 TRVs Notes for ESLs (September 2017)
Table 11. Task 1.8 Updates – Updates to LOAEL/LOEC-based Tier 1 TRV Notes for ESLs and Values for select ESLs and EcoPRGs (September 2017)
Table 12a. Task 2.2 – ESL Receptor Parameter Updates (September 2017)
Table 12b. Task 2.2 – ESL TF_flesh_dw Updates (September 2017)
Table 13. Task 2.2 – EcoPRG Receptor Parameter Updates (September 2017)
Table 14a. ESL Updates – Non-Radionulcide both N- and L-ESL (September 2017)
Table 14b. ESL Updates – Non-Radionulcide N-ESL Only (September 2017)
Table 14c. ESL Updates – Non-Radionulcide L-ESL Only (September 2017)
Table 15. ESL Updates – Radionuclide (September 2017)
Table 16a. Final (Minimum) ESL Updates – Non-radionucludes (September 2017)
Table 16b. Final (Minimum) ESL Updates – Radionucludes, Soil (September 2017)

Tables

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
October 1998 – Beta Release	Original ESL models were as follows: Soil ESLs for Bird Receptors: American kestrel (Avian intermediate carnivore), American kestrel (Avian top carnivore), American robin (Avian insectivore) for 46 non-radionuclides and 18 radionuclides (See Table 2). Soil ESLs for Mammalian Receptors: Deer mouse (Mammalian omnivore), Desert cottontail (Mammalian herbivore), Red fox (Mammalian top carnivore), Vagrant shrew (Mammalian insectivore) for 102 non-radionuclides and 18 radionuclides (See Table 3). Soil ESLs for Invertebrate Receptor: Earthworm (Soil-dwelling invertebrate) for 37 non-radionuclides and 18 radionuclides (See Table 4). Soil ESLs for Plant Receptor: Generic plant (Terrestrial autotroph - producer) for 41 non-radionuclides and 18 radionuclides (See Table 5). Sediment and Water ESLs for 12 radionuclides for Aquatic Community Organism Receptors: Aquatic snails (Aquatic herbivore - grazer), Daphnids (Aquatic omnivore/ herbivore), Fish (Aquatic intermediate carnivore), and Algae (Aquatic autotroph – producer). (See Table 6). BACK TO TOP

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
June 1999 – Release 1.0	Addition of sediment ESLs for 19 radionuclides and or 49 non-radionuclides for the new bird receptor, Violet-green Swallow (Avian aerial insectivore). Addition of sediment ESLs for 19 radionuclides and or 106 non-radionuclides for the new Mammal receptor, Occult little brown myotis bat (Mammalian aerial insectivore). Addition of 85 sediment ESLs for non-radionuclides ESLs for the new aquatic community organism receptor. Addition of 7 radionuclides (Cesium-134, Cobalt-60, Europium-152, Radium-228, Sodium-22, Thorium-228, Thorium-230) for sediment and water for aquatic community organism receptors. Addition of non-radionuclide and radionuclide ESLs (19 rad, 48 non-rad) for soil for the new Bird receptors, American robin (Avian omnivore) and American robin (Avian herbivore). Addition of non-radionuclide and radionuclide ESLs for water for all bird (19 rad, 48 non-rad) and mammal (19 rad, 106 non-rad) receptors. Addition of 3 ESLs for soil for Boron, Fluoride and Radium-228 for all applicable bird receptors. Addition of 3 ESLs for soil for Boron, Fluoride, Strontium (stable), Dichlorobenzene[1,4-], and Radium-228 for all applicable mammal receptors. Addition of 2 ESLs for soil for Trinitrotoluene[2,4,6-], and Radium-228 for the earthworm receptor. Addition of 3 ESLs for soil for Amino-2, 6-dinitrotoluene[4-], Boron, and Radium-228 for the generic plant receptor. Numerous ESL updates. Documentation of specific reasons for updates not available at this time. General documentation of reasons for ESL updates indicated that the radionuclide ESL models underwent extensive revisions and the non-radionuclide ESLs were multiplied by a factor of 0.3 per the recommendation of NMED. BACK TO TOP

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
April 2000 – Release 1.1	Addition of 5 ESLs for water for Tetrachlorodibenzodioxin[2,3,7,8-], Dinitrotoluene[2,6-], Fluoride, Pentachloronitrobenzene, and Dichloroethene[1,1-] for the aquatic community organism receptor. Addition of soil and water ESLs for Dinitrobenzene[1,3-] for all applicable bird receptors. Addition of a soil ESL for Dibenzofuran for the desert cottontail receptor. Deletion of sediment ESLs for Butanone[2-], Chloroform, Dichloroethane[1,2-], Dichloroethene[cis-1,2-], Dinitrotoluene[2,6-], and Nitrobenzene for the aquatic community organism receptor. The Chloroform ESL was deleted because the toxicity data it was based on was deemed unsuitable. Reasons for other deletions not available at this time. Deletion of water ESL for Dichloroethene[cis-1,2-] for the aquatic community organism. Reason for deletion not available at this time. Numerous ESL updates. Documentation of specific reasons for ESL updates is not available at his time. General reasons for ESL updates are described below. Some ESLs were updated based on reasons documented in the December 1999 Interim ESLs memorandum (Ref ID 1484) and included: 1) the 0.3 factor was removed from the non-radionuclide ESL equations, 2) a correction to the water ESLs to account for a units conversion problem was made (values were multiplied by 1000), 3) all ESL values were rounded down to two significant figures and 4) the aquatic community organism receptor ESL for chlordane was revised. Some ESLs were updated due to the availability of new PTSE derived CS TRVs to replace secondary data source TRVs in ESL calculations. PTSE CS TRVs derived included Amino-2,6-dinitrotoluene[4-]/ Plant, Amino-4,6-dinitrotoluene[2-]/ Plant, Boron/ Bird, /Mammal and /Plant; Chromium (total)/ Bird and /Mammal, Fluoride/ Bird and / Mammal, Manganese/ Bird, / Mammal and / Plant; Nitroglycerine/ Mammal, Strontium (stable)/ Mammal, Trinitrotoluene[2,4,6-]/ Earthworm, /Mammal and /Plant; Uranium/ Bird, / Mammal and / Plant; and Vanadium/ Bird and / Mammal. Some ESLs were updated due to quality assurance issues including correction of errors in ESL calculations/parameters, rounding of values or reporting of data.

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	BACK TO TOP

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
September 2000 – Release 1.2	Addition of soil, sediment and water ESLs for Dichloroethane[1,2-] for all applicable bird and mammal receptors because new PTSE derived TRVs were available. Addition of soil, sediment and water ESLs for Lead-210, Neptunium-237, Thorium-229, Uranium-233, and Uranium-236 for all applicable bird, mammal, earthworm, generic plant and aquatic community organism receptors. Addition of soil ESLs for HMX and RDX for the earthworm receptor. Reason for addition not available at this time. Addition of a water ESL for Dinitrobenzene[1,3-] for the aquatic community organism receptor. Reason for addition not available at this time. Deletion of soil, sediment and water ESLs for Chloro-3-methylphenol[4-] for all applicable bird, mammal, and aquatic community organism receptors. Reasons for deletions not available at this time. Deletion of soil, sediment and water ESLs for Tetrachloroethane[1,1,2,2-] for all applicable mammal, and aquatic community organism receptors. Reasons for deletions not available at this time. Deletion of sediment ESLs for Dinitrobenzene[1,3-], Iron, Polychlorinated Biphenyls, Dimethyl Phthalate, and Phenol for the aquatic community organism receptor. Deletion of water ESLs for Calcium, Nitrate (expressed as NO3), and Dichloroethene[1,1-] for the aquatic community organism receptor. Reasons for deletions not available at this time. Deletion of the soil ESL or Dibenzofuran for the desert cottontail receptor. Reason for deletion not available at this time. Numerous ESL updates. Some ESLs were updated because new PTSE derived CS TRVs were available to replace secondary data source TRVs. PTSE CS TRVs available included Acetone/Bird, Barium Bird, Barium/Mammal, Barium/Plant, HMX/Invertebrate, HMX/Mammal, Lead/Mammal, Lead/Bird, Lead/Invertebrate, Lead/Plant, RDX/Invertebrate, RDX/Mammal, Silver/Bird, Silver/Plant,1,3,5-Trinitrobenzene/ Mammal, Thallium/Plant, Zinc/Bird, Zinc Invertebrate.

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Other ESLs were updated for quality assurance issues including correction of errors in ESL calculations/parameters, rounding of values or reporting of data. BACK TO TOP

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
September 2001 – Release 1.3	Addition of soil ESL for Chromium (total) for the earthworm receptor due to the availability of a new internally approved secondary data source TRV. Addition of soil ESL for DDT[4,4'-] for the generic plant receptor due to the availability of a new internally approved secondary data source TRV. Addition of water ESL for Dichloroethene[1,1-] for the aquatic community organism receptor due to the availability of a new internally approved secondary data source TRV. Numerous ESL updates. Some ESLs were updated because new PTSE derived CS TRVs were available to replace secondary data source TRVs. PTSE CS TRVs available included DDE[4,4'-]/Bird, DDE[4,4'-]/Mammal, DDT[4,4'-]/Bird, DDT[4,4'-]/Mammal, DDT[4,4'-]/Plant, Aroclor-1016, Aroclor-1242, Aroclor-1248, Aroclor-1254 and Aroclor-1260/Mammal; Aroclor-1242, Aroclor-1248, Aroclor-1254 and Aroclor-1260/Bird; and Aroclor-1254/Plant. Other ESLs were updated for quality assurance issues including correction of errors in ESL calculations/parameters, rounding of values or reporting of data. BACK TO TOP
March 2002 – Release 1.4	Numerous ESL updates. Radionuclide ESLs, except Tritium, were updated due to revision of TF_plant and TF_invert from a dry weight basis to a fresh weight basis assuming 85% and 61% moisture content of plant and invertebrate diets, respectively (Ref ID 0561). This revision was required for units to cancel correctly in the ESL model equations. Radionuclide ESLs for Tritium were updated due to revision of TF_plant and TF_invert to assume equilibrium between the tritium in soil moisture and tissue waters. The value is calculated by dividing the moisture in tissues by the moisture in soil where 61% moisture content of invertebrates is based on beetles (Ref ID 0561, Table 4-1, p. 4-13) and 85% moisture content of plant material is based on leaves (Ref ID 0561, Table 4-2, p.4-14) and soil moisture of 10% is based on an average soil moisture found in the Los Alamos area. This revision was required for units to cancel correctly in the ESL model equations.

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Radionuclide ESLs were also updated due to the revision of TF_flesh, which was revised because it is calculated from TF_plant and TF_invert, which were revised as explained above. This revision was required for units to cancel correctly in the ESL model equations. Radionuclide ESLs were also update due to the revision of all receptor intake rates from a dry weight basis to a fresh weight basis where the moisture content of invertebrates is assumed to be 61% (beetles (Ref ID 0561, Table 4-1, p. 4-13)), of plant materials is assumed to be 85% (leaves (Ref ID 0561, Table 4-2, p.4-14)), and flesh is assumed to be 68% (mammals - mice, voles, rabbits (Ref ID 0561,Table 4-1, p. 4-13). This revision was required for units to cancel correctly in the ESL model equations. Radionuclide ESLs were also updated due to the replacement of TF_beef with TF_blood in ESL models. TF(blood) is calculated by multiplying TF(beef) by I(food) or in the case of water intake, I(water). TF(blood) is required in all radionuclide ESL models for wildlife, and TF(beef) was used as a surrogate measure to estimate body burdens for internal dose calculations. TF(beef) has been replaced by TF(blood) in all these models so that the units in these models cancel properly. Internal dose calculations require a TF that models the transfer of radionuclides from food to blood. Other reasons for ESL updates include the rounding of ESL model parameters to 3 significant digits for reporting consistency as well addressing quality assurance issues. BACK TO TOP

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
September 2002 – Release 1.5	Addition of soil, sediment and water ESLs for Trinitrotoluene[2,4,6-] for all applicable bird receptors due to the availability of a new PTSE derived CS TRV. Addition of soil ESL for Tetrachloroethene for the generic plant receptor due to the availability of a new PTSE derived CS TRV. Numerous ESL updates. Some ESLs were updated due to the availability of new PTSE derived CS TRVs to replace secondary data source TRVs in ESL calculations. Applicable PTSE TRVs derived included Tetrachlorodibenzodioxin[2,3,7,8-]/Bird, Mammal, and Plant; Antimony/Mammal, Cadmium/Bird, Mammal and Invertebrate; Copper/Bird and Mammal; Mercury (inorganic) /Bird, Mammal and Invertebrate; Nickel /Bird, Mammal and Invertebrate; Selenim/Invertebrate, Zinc/Mammal and Plant; Tetrachloroethene/Mammal, Trichloroethane[1,1,1-]/Mammal, Trichloroethene/Mammal, and Xylene (total)/Bird. Some ESLs were updated due to quality assurance issues for TRVs. Specific details of issues are not available at this time. BACK TO TOP
November 2003 – Release 2.0	Addition of soil ESLs for Antimony, Barium, and Beryllium for the earthworm receptor due to the availability of EPA Eco-SSL TRVs. Deletion of the soil ESL for Trinitrotoluene[2,4,6-] for the earthworm receptor because the toxicity data it was based on was deemed unsuitable. Deletion of soil ESLs for Aluminum for all applicable bird, mammal and generic plant receptors because EPA Eco-SSL uses a soil pH of less than 5.5 as an indicator of toxicity instead of an Aluminum soil concentration. Numerous ESL updates. Some ESLs were updated due to the availability of new PTSE derived GMM TRVs to replace PTSE derived CS TRVs or secondary data source TRVs in ESL calculations. Applicable PTSE GMM TRVs included, Aroclor-1016, Aroclor-1242, Aroclor-1254, Aroclor-1260, DDT[4,4'-], Di-n-Butyl Phthalate, Nickel, RDX, and Tetrachlorodibenzodioxin[2,3,7,8-] for food exposure for Mammals; Antimony, Cadmium, and Lead for drinking water exposure for Mammals; Aroclor-1260,

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Barium, Boron, Copper, DDE[4,4'-], Nickel, and Zinc for food exposure for Birds; Aroclor-1254, Boron, and Di-n-Butyl Phthalate for soil exposure for Plants; and Zinc for soil exposure for Invertebrates. Some ESLs were updated due to the availability of EPA Eco-SSL TRVs to replace PTSE or secondary data source TRVs in ESL calculations. Applicable EPA Eco-SSL TRVs available included Antimony, Barium, Beryllium, Cadmium, Cobalt, Lead, and Dieldrin for food exposure for Mammals; Cadmium, Cobalt, Lead, and Dieldrin for food exposures for Birds; Antimony, Barium, Beryllium, Cadmium, and Lead for soil exposure for Invertebrates; and Cadmium, Cobalt, and Lead for soil exposure for Plants. Some ESLs were updated due to the availability of EPA NRWQC CCC TRVs to replace other secondary data source TRVs. Applicable EPA NRWQC CCC TRVs available included Selenium and Mercury (inorganic) for water exposure for the aquatic community organism receptor. Other ESLs were updated due to addressing data quality assurance issues or because the previously used toxicity data the ESLs were based on was deemed unsuitable and was revised appropriately to make it suitable. Specific details of issues are not available at this time. BACK TO TOP

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
September 2004 – Release 2.1	A mammalian screening receptor used in soil and water ESL models for a mammalian insectivore in the database has changed. The vagrant shrew (*Sorex vagrans*) in New Mexico has been reclassified as the montane shrew, also known as the dusky shrew, (*Sorex monticolus*) by Eastern New Mexico University (see http://fwie.fw.vt.edu/states/nmex_main/species/050725.htm for more information). However, this the ESLs for the vagrant shrew are applicable to the montane shrew because the short-tailed shrew data that was used as surrogates for parameters in the vagrant shrew ESL models are applicable for the montane shrew as a mammalian insectivore. As a result, only the ESL screening receptor common and scientific name has changed. Addition of soil ESL for HMX for the generic plant receptor due to the availability of a new Tier 2 TRV (PTSE GMM TRV). Addition of soil ESL for Trinitrotoluene[2,4,6-] for the earthworm receptor due to the availability of a new Tier 3 TRV (PTSE CS TRV). Addition of sediment and soil ESLs for RDX for all applicable bird receptors due to the availability of a new Tier 2 TRV (PTSE GMM TRV). Addition of sediment, soil and water ESLs for Thallium for all applicable bird receptors due to the availability of a newly approved Tier 4 TRV (secondary data source CS TRV). Addition of 16 air ESLs for Acetone, Benzene, Carbon, Tetrachloride, Chloroform, Chloromethane, Dichlorodifluoromethane, Dichloroethane[1,1-], Dichloroethane[1,2-], Dichloroethene[1,1-], Methylene Chloride, Tetrachloroethene, Toluene, Trichloroethane[1,1,1-], Trichloroethene, Trichlorofluoromethane, and Xylene (Total) for the new Mammal receptor, Botta's Pocket Gopher (Burrowing mammal). These ESL were added due to the availability of new Tier 2 TRVs (PTSE GMM TRVs). Deletion of sediment, soil and water ESLs for Tetrachlorodibenzodioxin[2,3,7,8-] for all applicable bird receptors due to discontinued use of previous Tier 3 (CS) TRV that was deemed unsuitable because it was based on an non-oral exposure (i.p. injection). Numerous ESL updates. Naphthalene soil and sediment ESLs for all applicable bird receptors updated due to the previous Tier 4 TRV (secondary data source CS TRV) being replaced by a new Tier 2 TRV (PTSE GMM TRV).

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Chromium (+6) soil, sediment and water ESLs for all applicable bird receptors updated due to the previous Tier 4 (CS) TRV being replaced by a new Tier 3 TRV (PTSE CS TRV). Chromium (total) soil, sediment and water ESLs are based on Chromium (+6) toxicity data and because the oral chromium (+6) TRV for birds was updated (see previous paragraph), the corresponding chromium (total) ESLs for birds were updated accordingly based on the new chromium (+6) data. HMX soil ESL for the earthworm receptor updated due to the previous Tier 3 TRV (PTSE CS TRV) being replaced by a new Tier 2 TRV (PTSE GMM TRV). RDX soil ESL for the earthworm receptor updated due to the previous Tier 3 TRV (PTSE CS TRV) being replaced by a new Tier 3 TRV (PTSE CS TRV). Trinitrotoluene[2,4,6-] soil ESL for the generic plant receptor updated due to the Tier 3 TRV (PTSE CS TRV) being replaced by a new Tier 2 TRV (PTSE GMM TRV). Plutonium-241 water ESL for the vagrant shrew receptor updated due to the revision of the ESL model parameter, TF_blood, which was corrected for a previous rounding error. All ESL for radionuclides in sediment for aquatic receptors were revised based on the guidance of DOE-STD-1153-2002 to not include internal dose for aquatic organisms exposed to radionuclides in sediment. The ESL model parameter, DCF_int_fw, was set to 0 to incorporate this guidance. BACK TO TOP

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
September 2005 – Release 2.2	**New ESLs** Sediment and water ESLs for iron for aquatic community organisms due to this analyte being added as a new LANL exposure concern. Water ESLs for perchlorate ion for mammalian and avian receptors due to development of a New Tier 2 (GMM) TRV and New Tier 3 (CS) TRV, respectively. Soil and sediment ESLs for mammalian receptors for BHC[alpha-] due to the development of a New Tier 3 (CS) TRV. Soil ESLs for the earthworm for fluoranthene, phenanthrene and pyrene due to the development of New Tier 3 (CS) TRVs. Soil ESL for the generic plant for naphthalene due to the development of a New Tier 3 (CS) TRV. **ESL Updates** Revision of various Transfer Factors (TF) for soil-to-plant and soil-to invertebrate for both inorganic and organic analytes based on the most current EPA EcoSSL bioaccumulation data or models (ID 1401), which resulted in the revision of the calculated soil-to-flesh TF and as well as numerous ESL updates. Inorganic TFs were replaced with more comprehensive empirical values, median values from the empirical data set. Organic TFs for soil-to-invertebrates were revised based on a more appropriate bioaccumulation model (BAFww = (Kww/Kd)/0.16 where logKww = 0.87*logKow-2.0 and Kd = foc*Koc where foc is 1%, or 0.01.) cited in the 2005 EPA EcoSSL bioaccumulation data report (REF ID1401, Table 5 and dry to fresh weight ratio (0.16) for earthworms from Ref ID 1574), except for Dieldrin, DDT[4,4'-], and DDE[4,4'-], which were based on the median of comprehensive empirical data sets. Organic TFs for soil-to-plants were revised based on a more appropriate bioaccumulation model (BAF=10^(-0.4057LogKow+1.781) r2 =0.3226, n=228,p<0.0001) cited in the 2005 EPA EcoSSL bioaccumulation data report (REF ID1401). Furthermore, various TRVs were also updated and this contributed to the ESL updates. TRV updates include replacement of: Tier 1 TRVs with new Tier 1 TRVs from EPA from EcoSSL 2005 data Tier 3 or 4 TRVs with new Tier 1 TRVs from EPA EcoSSL 2005 data Tier 3 or 4 TRVs with new Tier 2 TRVs Tier 3 TRVs with a more appropriate Tier 3 TRVs Below is a list of the 99 analytes updated grouped based on type of revisions* A.) TF

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	revisions only, B.) TF and TRV revisions, and C.) TRV revisions only. **Detailed information on changes available from the "What's New In this Release" screen in the Ecorisk Database - section Change Type, ESLs, Update).* **<u>A.) TF REVISONS ONLY</u>** **HIGH EXPLOSIVES/ Sediment and Soil ESLs** Amino-2,6-dinitrotoluene[4-] Amino-4,6-dinitrotoluene[2-] Dinitrobenzene[1,3-] Dinitrotoluene[2,4-] Dinitrotoluene[2,6-] HMX Nitroglycerine Nitrotoluene[2-] Nitrotoluene[3-] Nitrotoluene[4-] PETN RDX Tetryl Trinitrobenzene[1,3,5-] Trinitrotoluene[2,4,6-] **INORGANICS/ Sediment and Soil ESLs** Aluminum (sediment) Arsenic Barium Cadmium Chromium (total) Copper Manganese Mercury (inorganic) Nickel Selenium (soil) Silver Strontium (stable) Uranium Zinc **POLYAROMATIC HYDROCARBONS/ Sediment and Soil ESLs** Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene (soil) Benzo(a)pyrene (soil) Benzo(b)fluoranthene (soil) Benzo(g,h,i)perylene Benzo(k)fluoranthene (soil) Chrysene (soil) Dibenzo(a,h)anthracene (soil)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Fluoranthene
	Fluorene
	Indeno(1,2,3-cd)pyrene (soil)
	Methylnaphthalene[2-]
	Naphthalene
	Phenanthrene (soil)
	Pyrene
	POLYCHLORINATED BIPHENYLS/ Soil ESLs
	Aroclor-1016
	Aroclor-1242
	Aroclor-1248
	Aroclor-1254
	Aroclor-1260
	PESTICIDES/ Sediment and Soil ESLs
	BHC[beta-]
	BHC[gamma-]
	Chlordane[alpha-]
	Chlordane[gamma-]
	DDE[4,4'-]
	DDT[4,4'-]
	Dieldrin
	Endosulfan
	Endrin
	Heptachlor (soil)
	Kepone
	Methoxychlor[4,4'-]
	Toxaphene (Technical Grade)
	SEMI-VOLATILE ORGANIC COMPOUNDS/ Sediment and Soil ESLs
	Benzoic Acid
	Bis(2-ethylhexyl)phthalate
	Butyl Benzyl Phthalate
	Chlorobenzene
	Chlorophenol[2-]
	Dimethyl Phthalate
	Di-n-Butyl Phthalate
	Di-n-octylphthalate
	Nitrobenzene
	Pentachloronitrobenzene
	Phenol
	VOLATILE ORGANIC COMPOUNDS/ Sediment and Soil ESLs
	Acetone
	Benzene
	Butanone[2-]
	Chloroform
	Dichlorobenzene[1,4-]
	Dichloroethane[1,1-]
	Dichloroethane[1,2-]
	Dichloroethene[1,1-]
	Dichloroethene[cis/trans-1,2-]

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Methylene Chloride Tetrachloroethene Toluene Trichlorobenzene[1,2,4-] Trichloroethane[1,1,1-] Trichloroethene Xylene (Total) **<u>B.) TF REVISIONS & TRV REVISIONS</u>** **INORGANICS/ Sediment and Soil ESLs** Antimony (sediment) Barium Beryllium Cadmium Chromium (total) Cobalt Lead Vanadium **PESTICIDES/ Sediment and Soil ESLs** DDT[4,4'-] Dieldrin **SEMI-VOLATILE ORGANIC COMPOUNDS/ Sediment and Soil ESLs** Pentachlorophenol **<u>C.) TRV REVISIONS ONLY</u>** **DIOXIN/FURANS/ Soil ESLs** Tetrachlorodibenzodioxin[2,3,7,8-] **INORGANICS/ Sediment, Soil and Water ESLs** Antimony (soil) Arsenic (soil) Barium (soil) Cadmium (soil) Chromium (total) (soil and water) Chromium(+6) Lead (soil) Vanadium (soil) **POLYAROMATIC HYDROCARBONS/ Sediment and Soil ESLs** Fluorene (soil) **SEMI-VOLATILE ORGANIC COMPOUNDS/ Sediment and Soil ESLs** Pentachlorophenol Other Changes: Documentation and value for DCF_int_fw for aquatic receptors (algae, aquatic snail, daphnid and generic fish) for water Rad ESL model. This change did not affect ESLs, it was only a documentation error after from the previous release that was made after ESLs had been calculated. Added TF_beef_fw for BHC[alpha-]. Needed to calculate ESL for this new

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	exposure concern. BACK TO TOP

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
October 2008 – Release 2.3	**New ESLs** Soil and Sediment ESLs for DDD[4,4'-] [a], Diethyl Phthalate, Methyl-2-pentanone[4-], Methylphenol[2-], and Aldrin due to these analytes being added as a new LANL exposure concerns. Soil ESLs for Manganese and Anthracene [a] for the earthworm due to availability of New Tier 1 TRV and New Tier 2 (GMM) TRV, respectively. **ESL Updates** Revision of the equation used to calculate the Transfer Factor (TF) for soil-to-flesh for both inorganic and organic analytes, which resulted in the revision of the calculated soil-to-flesh TF and as well as numerous ESL updates. The equation is now: TF_flesh_dw equals TF_beef_fw * [I_foodcomposite_fw * MAX(TF_plant_dw * {1 - MC_plant}, TF_invert_dw * {1 - MC_invert}) + I_soilcomposite_dw]/ (1-MC_flesh) Previous equation: TF_flesh_dw equals TF_beef_fw * [I_foodcomposite_fw * If(TF_invert_dw > TF_plant_dw, TF_invert_dw * {1 - MC_invert}, TF_plant_dw * (1-MC_plant)) + I_soilcomposite_dw]/ (1-MC_flesh) Where: I_soilcomposite_dw is the maximum dry weight intake of soil (0.00281 kg-dry soil/d) for prey species (American robin, deer mouse, desert cottontail and shrew) of the red fox and American kestrel MAX is maximum MC_plant is the moisture content of plant matter, which is assumed to be 85% (leaves (Ref ID 0561, Table 4-2, p.4-14)) MC_invert is the moisture content of invertebrates, which is assumed to be 61% (beetles (Ref ID 0561, Table 4-1, p. 4-13)) MC_flesh is the moisture content of flesh, which is assumed to be 68% (mammals - mice, voles, rabbits and birds – passerines (Ref ID 0561, Table 4-1, p. 4-13) TF_beef_fw is the food to beef transfer factor (mg-COPC/kg-fresh beef per mg-COPC/d) Furthermore, various TRVs were also updated and this contributed to the ESL updates. TRV updates include replacement of: Tier 1 TRVs with new Tier 1 TRVs from EPA from EcoSSL 2005 data Tier 3 or 4 TRVs with new Tier 1 TRVs from EPA EcoSSL 2005 data Tier 3 or 4 TRVs with new Tier 2 TRVs

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Tier 3 TRVs with a more appropriate Tier 3 TRVs Below is a list of the analytes updated grouped based on type of revisions* A.) TF revisions only, B.) TF and TRV revisions and C.) TRV revisions only. **Detailed information on changes available from the "What's New In this Release" screen in the Ecorisk Database - section Change Type, ESLs, Update).* **<u>A.) TF REVISONS ONLY</u>** **HIGH EXPLOSIVES** Nitrotoluene[3-] (soil) RDX (soil) **INORGANICSs** Barium (soil) Cyanide (total) (soil) **POLYAROMATIC HYDROCARBONS** Benzo(a)anthracene (soil) Chrysene (soil) **SEMI-VOLATILE ORGANIC COMPOUNDS** Carbazole (soil) **VOLATILE ORGANIC COMPOUNDS** Chloroform (soil) Dichloroethane[1,1-] (soil) **<u>B.) TF REVISIONS & TRV REVISIONS</u>** **NONE** **<u>C.) TRV REVISIONS ONLY</u>** **INORGANICS** Chromium(+6) (sediment, soil) Copper (sediment, soil) Manganese (sediment, soil) Nickel (sediment, soil) Selenium (sediment, soil) Silver (sediment, soil) Zinc (sediment, soil) **POLYAROMATIC HYDROCARBONS** [a] Benzo(a)pyrene (sediment, soil) Fluoranthene (soil) Fluorene (soil) Naphthalene (sediment, soil) Phenanthrene soil) Pyrene (soil) **PESTICIDES** [a] DDE[4,4'-] (sediment, soil) DDT[4,4'-] (sediment, soil)

Table 1. ESL Changes by Ecorisk Database Release

<table>
<tr><th>Ecorisk Database Release</th><th>ESL Changes</th></tr>
<tr><td></td><td>
[a] TRVs developed for PAHs and DDT and metabolites DDE and DDD were done according to the following methods: TRVs_Methods_LANL&EcoSSLData

Other Changes:
Updated documentation for Aluminum ESL for soil by removing an ESL value of > 5 and indicating in notes “pH dependent. Aluminum is identified as a COPC only at sites where the soil pH is less than 5.5.
Added TF_plant_dw, TF_invert_dw, TF_beef_fw and TF_flesh_dw for DDD[4,4’-], Diethyl Phthalate, Methyl-2-pentanone[4-], Methylphenol[2-], and Aldrin. Needed to calculate ESLs for these new LANL exposure concerns.
Updated interface screens:
<table>
<tr><td>Brand new Anayte Search menu screen with concise instructions that shows menu for searching for ESLs by analyte and accessed via the updated Main Menu screen. Contains the same buttons that were originally on old Main Menu screen and leads to the same Analyte Search Result screens.</td></tr>
<tr><td>Brand new Contact Information screen that shows point of contact information for Ecorisk Db. Accessed via a button on the updated Home screen.</td></tr>
<tr><td>Updated Home screen to reduce clutter of information. Contains button to access contact information, ESL search menus and report menus, what's new in this release information, and a button to exit the Db.</td></tr>
<tr><td>Updated Main Menu screen to reduce clutter of information. Contains button to new screens that show ESL search menus (by analyte or by screening receptor), and summary and custom report menus. Also contains buttons to see the existing screens for ESL radionuclide and non-radionuclide model information.</td></tr>
<tr><td>Updated Custom Report Menu screen that now has a design similar to the other search menus (e.g., Screening Receptor Search menu) and concise instructions. Contains the same buttons that were on Old Main Menu screen. Accessed via the updated Main Menu screen.</td></tr>
<tr><td>Updated Primary Toxicty Study (PTS) Description screen that now shows vertical scroll bars that were missing in some fields. Recommended update.</td></tr>
<tr><td>Updated Primary Toxicity Value (PTV) Evaluation screen that now shows more information to aid in understanding better how the PTV confidence ratings are determined. More specifically, this form now shows Maximum weighted scores for the different exposure scenarios (i.e., bird or mammal, oral ingestion; mammal, inhalation; and plant or invertebrate). Recommended update.</td></tr>
<tr><td>Brand new Screening Receptor Search menu screen with concise instructions that shows menu for searching for ESLs by screening receptor and accessed via the updated Main Menu screen. Contains the same buttons that were originally on old main Menu screen and leads to the same Receptor Search Result screens.</td></tr>
<tr><td>Brand new Summary Reports Menu screen with concise instructions that shows menu for summary reports and accessed via the updated Main Menu Screen. Contains the same buttons that were originally on old main Menu screen but improved in presentation.</td></tr>
</table>
</td></tr>
</table>

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Updated Select TRV Summary Report Criteria screen in which redundancy was removed (the same sentence was repeated twice). Recommended update.
	Updated Weighting Factor Description screen that now explains in more detail what is done with the weighting factors and why. Recommended update.
	BACK TO TOP

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
December 2009 – Release 2.4	In this release of the database, ESLs/TRVs were added for chemicals for which no toxicity data was previously available. Online toxicity databases were searched for relevant existing TRVs or for primary toxicity data and/or references from which TRVs could be derived for these chemicals (see EcoriskDbR2.4_ToxicityData_ResourceSummary_SoilESLs_112409.xls for details of search results). Of those 40 chemicals of concern, 11 chemicals now have LANL peer reviewed/ approved TRVs/ESLs incorporated into this release of the database, 5 chemicals have interim ESLs/ TRVs because LANL peer reviewed/ approved values could not be obtained in time for this release of the database (see Interim_SoilESLs_R2.4_111309.xls), 13 chemicals have surrogate ESLs/TRVs (see Interim_SoilESLs_R2.4_111309.xls) based on chemicals already in the database, and the remaining 12 chemicals still have no ESL at this time. Note – The sum of the numbers adds up to 41 instead of 40 because Hexanone[2-] has both an incorporated ESL (for birds) and an interim ESL (for mammals). Below is a summary of the ESLs/ TRVs incorporated into Release 2.4 of the Ecorisk Database, as well as other relevant data or interface changes. **New ESLs** Soil and Sediment ESLs for birds due to availability of new TRVs: • Molybdenum • Hexachlorobenzene • Hexanone[2-] Soil and Sediment ESLs for mammals due to availability of new TRVs: • Lithium • Carbon Disulfide • Hexachlorobenzene • Dichlorobenzene[1,2-] • Dichlorobenzene[1,3-] • Vinyl Chloride Soil ESL for earthworm due to availability of new TRVs: • Chloroaniline[4-] • Hexachlorobenzene • Styrene Soil ESL for plant due to availability of new TRVs: • Chloroaniline[4-] • Hexachlorobenzene • Styrene Alternative screening approach for Iron for plant based on EPA EcoSSL's report • See http://www.epa.gov/ecotox/ecossl/pdf/eco-ssl_iron.pdf Sediement ESL for aquatic community organism due to availability of a new

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	TRVs: • Molybdenum **ESL Updates** Soil ESLs for deer mouse, desert cottontail and red fox due to TF updates: • Methylphenol[2-] **New TRVs** Tier 2 (Geometric Mean) oral diet TRVs from LANL were developed with the PTSE Process for the following chemicals and receptor groups: • Lithium/ mammal Tier 3 (Critical Study) oral diet TRVs from LANL were developed with the PTSE Process for the following chemicals and receptor groups: • Hexanone[2-]/ bird Tier 4 (based on secondary data) oral diet TRVs from ORNL were identified for the following chemicals and receptor groups: • Lithium/ plant • Molybdenum/ plant • Molybdenum/ bird • Styrene/ earthworm • Vinyl Chloride/ mammal Tier 4 (based on secondary data) oral diet TRVs from EPA ECOTOX were identified for the following chemicals and receptor groups: • Carbon Disulfide/ mammal • Chloroaniline[4-]/ earthworm • Chloroaniline[4-]/ plant • Dichlorobenzene[1,2-]/ mammal • Dichlorobenzene[1,3-]/ mammal • Hexachlorobenzene/ bird • Hexachlorobenzene/ mammal • Hexachlorobenzene/ earthworm • Hexachlorobenzene/ plant • Styrene/ plant **TRV Updates** The use status of various TRVs changed for the following reasons: • Vinyl chloride/ mammal oral diet TRV records deleted due to availability of updated toxicity information for oral diet TRV from same data source (ORNL).

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	• Vinyl chloride/ mammal drinking water TRV no longer used because primary toxicity data is for oral diet exposure, which is no longer considered an appropriate TRV surrogate for a drinking water exposure. • Carbon Tetrachloride/ mammal oral TRVs no longer used because currently not an exposure concern for this exposure pathway. • Molybdenum/ aquatic community organism sediment TRV selected for use because this chemical is now a chemical of concern. **New TFs** All New TFs (except where noted otherwise) were acquired for the following chemicals because these chemicals are new exposure concerns: • Carbon Disulfide • Chloroaniline[4-] • Dichlorobenzene[1,2-] • Dichlorobenzene[1,3-] • Hexachlorobenzene • Hexanone[2-] • Styrene • Vinyl Chloride • Lithium (only TF_invert and TF_flesh) • Molybdenum (only TF_invert and TF_flesh) **TF Updates** TFs for the following chemicals were updated: • Methylphenol[2-] – all TFs updated due to availability of more appropriate data • Molybdenum – TF_beef and TF_plant updated due to availability of more appropriate data **Interface Updates** • Added "Other Reports" links to the "Menu" screen to allow access to other files on the Ecorisk Db from within the database interface including;

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
October 2010 – Release 2.5	In this release of the database, ESLs/TRVs were added for chemicals for which no toxicity data was previously available. Online toxicity databases were searched for relevant existing TRVs or for primary toxicity data and/or references from which TRVs could be derived for x chemicals (see EcoriskDbR2.5_ToxicityData_ResourceSummary_SoilESLs_101310.xls for details of search results). In this release of the database, an additional 11 new chemicals now have LANL peer reviewed/ approved TRVs/ESLs incorporated into this release of the database, no chemicals have interim ESLs/ TRVs at this time, 13 chemicals have surrogate ESLs/TRVs (see Interim_SoilESLs_R2.5_101310.xls) based on chemicals already in the database, and the remaining 8 chemicals from the original data gap list still have no ESLs at this time. **New ESLs** Soil and Sediment ESLs for birds due to availability of new TRVs: • Benz(a)anthracene • Diphenylamine • Iodomethane • Pyrene Soil and Sediment ESLs for mammals due to availability of new TRVs: • Carbazole • Nitroaniline[2-] • Benzyl alcohol • Hexanone[2-] • Trichlorofluoromethane Soil ESL for plant due to availability of new TRVs: • Methylphenol[2-] • Methylphenol[3-] **ESL Updates** Water ESL for aquatic community organism due to retraction of previous TRV and replacement with available alternative TRV: • Beryllium **New TRVs** Tier 2 (Geometric Mean) oral diet TRVs from LANL were developed with the PTSE Process for the following chemicals and receptor groups: • Hexanone[2-]/Mammal • Trichlorofluoromethane/Mammal Tier 3 (Critical Study) oral diet TRVs from LANL were developed with the PTSE Process for the following chemicals and receptor groups:

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	• Benzyl alcohol/Mammal • Carbazole/Mammal • Nitroaniline[2-]/Mammal Tier 4 (based on secondary data) oral diet TRVs from identified for the following chemicals and receptor groups: • Diphenylamine/Bird • Iodomethane/Bird • Benz(a)anthracene/Bird • Pyrene/Bird • Methylphenol[2-]/Plant • Methylphenol[3-]/Plant **TRV Updates** The use status of various TRVs changed for the following reasons: • Beryllium/Aquatic community organism water TRV deleted due to retraction of value by publishing data source. TRV replaced with available alternative value. **New TFs** All New TFs (except where noted otherwise) were acquired for the following chemicals because these chemicals are new exposure concerns: • Benzyl alcohol • Diphenylamine • Iodomethane • Nitroanilin[2-] **TF Updates** TFs for the following chemicals were updated: • Carbazole – TF_beef updated due to availability of more appropriate data • Trichlorofluoromethane – TF_plant updated due to availability of more appropriate data **Interface Updates** None.

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
October 2011 – Release 3.0	BACK TO TOP In this release of the database, LOAEL/LOEC-based food TRVs and soil ESLs were added for all chemicals in the database where toxicity data was available to do so. NOAEL/NOEC-based TRV/ESL updates were also made as necessary based on a quality assurance review of the data. **New NOAEL/NOEC-based ESLs** • No new values **NOAEL/NOEC-based ESL Updates** • Deletion of soil ESLs for plants due to retraction of previous TRV because toxicity data is under review: ○ Aldrin ○ Rdx ○ Tetryl ○ Lithium ○ Molybdenum • Deletion of soil ESLs for plants and earthworms due to retraction of previous TRV because toxicity data is under review: ○ Chromium (total) • Deletion of water ESLs for aquatic community organisms due to retraction of previous TRV because toxicity data is under review: ○ Chromium (+6) • Updates to soil, sediment and water ESLs for mammals due to the availability of a more relevant TRV: ○ Amino-2,6-dinitrotoluene[4-] ○ Amino-4,6-dinitrotoluene[2-] ○ Dimethyl Phthalate ○ Di-n-octylphthalate ○ Dinitrotoluene[2,4-] ○ Dinitrotoluene[2,6-] ○ Nitrobenzene ○ Nitrotoluene[2-] ○ Nitrotoluene[3-] ○ Nitrotoluene[4-] ○ Methylnaphthalene[2-] ○ PETN • Updates to soil and sediment ESLs for chromium (total) for birds and mammals because the TRV is now based on chromium (+3) toxicity data instead of chromium (+6) TRV multiplied by 7 because the former is the

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes

	predominant form in the environment for these two media.
	• Updates to water ESLs for chromium (total) for birds, mammals and aquatic community organisms because the TRV is now based on chromium (+6) toxicity data instead of chromium (+6) TRV multiplied by 7 because the former is the predominant form in the environment for these two media.
	• Update to sediment ESL for aquatic community organisms due to correction of existing TRV:
	  o Iron
	• Updates to soil and sediment ESLs for birds due to correction of existing TRV:
	  o Benzo(a)anthracene
	• Updates to soil and sediment ESLs for mammals due to correction of existing TRV:
	  o Carbazole
	• Updates to soil ESL for plants due to correction of existing TRV:
	  o Styrene
	Minimum ESL Updates
	• Lithium/soil due to retraction of plant TRV, which was the receptor with the minimum ESL in the previous release of the database. Montane shrew has the new minimum ESL.
	New NOAEL/NOEC-based TRVs
	• Bird and mammals/ food (Tier 1):
	  o Chromium (total)
	• Mammals/ food and water (Tier 4):
	  o Amino-2,6-dinitrotoluene[4-]
	  o Amino-4,6-dinitrotoluene[2-]
	  o Dimethyl Phthalate
	  o Di-n-octylphthalate
	  o Dinitrotoluene[2,4-]
	  o Dinitrotoluene[2,6-]
	  o Nitrobenzene
	  o Nitrotoluene[2-]
	  o Nitrotoluene[3-]
	  o Nitrotoluene[4-]
	  o Methylnaphthalene[2-]
	  o PETN
	• Aquatic community organisms/ water (Tier 4):
	  o Chromium (total)
	New NOAEL/NOEC-based TRV Updates
	• The use status of food and water TRVs for mammals changed from YES to

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes

	NO due to replacement by a more relevant TRV:
	  ○ Amino-2,6-dinitrotoluene[4-]
	  ○ Amino-4,6-dinitrotoluene[2-]
	  ○ Dimethyl Phthalate
	  ○ Di-n-octylphthalate
	  ○ Dinitrotoluene[2,4-]
	  ○ Dinitrotoluene[2,6-]
	  ○ Nitrobenzene
	  ○ Nitrotoluene[2-]
	  ○ Nitrotoluene[3-]
	  ○ Nitrotoluene[4-]
	  ○ Methylnaphthalene[2-]
	  ○ PETN
	• The use status of food and water TRVs for birds changed from YES to NO due to replacement by a more relevant TRV:
	  ○ Chromium (total)
	• The use status of the soil TRV for plants changed from YES to NO due to replacement by a more relevant TRV:
	  ○ Styrene
	• The following TRVs were updated due to data entry or calculation corrections:
	  ○ Benzo(a)anthracene/Food/Bird
	  ○ Carbazol/Food/Mammal
	  ○ Styrene/Soil/Plant
	  ○ Iron/Sediment/Aquatic community organism
	• The following TRVs were deleted or use status was changed from YES to NO due to toxicity data being under review:
	  ○ Aldrin/Soil/Plant (deleted)
	  ○ RDX/Soil/Plant
	  ○ Tetryl/Soil/Plant
	  ○ Chromium (total)/Soil/Plant and Invertebrate
	  ○ Chromium (+6)/Sediment/Aquatic community organism
	• The use status of food TRVs for mammals changed from YES to NO due to replacement by a more relevant TRV and the TRV was updated due to a calculation correction:
	  ○ Chromium (total)
	• The soil TRVs for plants were updated due to a calculation correction and their use status was also changed from YES to NO due to the toxicity data set being under review:
	  ○ Lithium

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	○ Molybdenum **New TFs** • No new values **TF Updates** • No updated values **Interface Updates** • New and updated summary report designs that allow easier access to toxicity data for export to other applications for data mining or analysis purposes. • Addition of LOAEL/LOEC-based TRV/soil ESL fields to interface screens and reports.

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes

October 2012 – Release 3.1	In this release of the database, LOAEL/LOEC-based water and sediment TRVs and ESLs were added for all chemicals for all receptors in the database where toxicity data was available to do so. NOAEL/NOEC-based TRV/ESL updates for water and sediment for birds and mammals were also made as necessary based on a quality assurance review of the data. In addition to the quality assurance review of the data, a literature search was performed for the aquatic community organism toxicity data for water and sediment ESLs for all chemicals, in order to identify more suitable data. LANL's Screening Level Ecological Risk Assessment (SLERA) methods, revision 3 (LA-UR-12-24152, ER ID 226715), which is forthcoming (in October) presents the details of the data sources utilized to update the aquatic ESLs.
	
	New NOAEL/NOEC-based ESLs
	• Recent literature review for toxicity data for sediment for aquatic community organisms filled data gap.
	    o Uranium
	NOAEL/NOEC-based ESL Updates
	• Deletion of sediment ESLs for aquatic community organisms due to retraction of previous TRV because toxicity data was found to be unsuitable because it represents a marine environment:
	    o Antimony
	    o Benzoic acid
	• Updates to sediment ESLs for aquatic community organisms due to the availability of a more relevant TRV:
	    • Acenaphthene
	    • Acenaphthylene
	    • Aluminum
	    • Anthracene
	    • Aroclor-1016
	    • Aroclor-1242
	    • Aroclor-1248
	    • Aroclor-1254
	    • Aroclor-1260
	    • Arsenic
	    • Barium
	    • Benzene
	    • Benzo(a)anthracene
	    • Benzo(a)pyrene

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	• Benzo(b)fluoranthene • Benzo(g,h,i)perylene • BHC[beta-] • BHC[gamma-] • Butyl Benzyl Phthalate • Cadmium • Chlordane[alpha-] • Chlordane[gamma-] • Chlorobenzene • Chlorophenol[2-] • Chromium (total) • Chrysene • Copper • DDE[4,4'-] • DDT[4,4'-] • Dibenzo(a,h)anthracene • Dibenzofuran • Dichlorobenzene[1,4-] • Dichloroethane[1,1-] • Dichloroethene[1,1-] • Dichloroethene[cis/trans-1,2-] • Dieldrin • Di-n-Butyl Phthalate • Endosulfan • Endrin • Fluoranthene • Fluorene • Heptachlor • Indeno(1,2,3-cd)pyrene • Lead • Manganese • Mercury (inorganic) • Methylene Chloride • Methylnaphthalene[2-] • Naphthalene

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	- Nickel - Pentachlorophenol - Phenanthrene - Pyrene - Selenium - Silver - Tetrachlorodibenzodioxin[2,3,7,8-] - Tetrachloroethene - Toluene - Toxaphene (Technical Grade) - Trichlorobenzene[1,2,4-] - Trichloroethane[1,1,1-] - Trichloroethene - Xylene (Total) - Zinc • Updates to sediment ESLs for birds and mammals for aluminum due to the availability of a more relevant ESL based on the pH ESL reported by EPA EcoSSL. • Updates to water ESLs for aquatic community organisms due to the availability of a more relevant TRV: - Acenaphthene - Acenaphthylene - Acetone - Aluminum - Anthracene - Antimony - Aroclor-1242 - Aroclor-1248 - Aroclor-1254 - Aroclor-1260 - Barium - Benzene - Benzo(b)fluoranthene - Benzo(g,h,i)perylene - Benzo(k)fluoranthene

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	• Benzoic Acid • Beryllium • BHC[beta-] • BHC[gamma-] • Boron • Butanone[2-] • Butyl Benzyl Phthalate • Cadmium • Chloride • Chlorobenzene • Chloroform • Chlorophenol[2-] • Chrysene • DDE[4,4'-] • DDT[4,4'-] • Dibenzo(a,h)anthracene • Dibenzofuran • Dichloroethane[1,1-] • Dichloroethane[1,2-] • Dichloroethene[1,1-] • Dichloroethene[cis/trans-1,2-] • Dimethyl Phthalate • Di-n-Butyl Phthalate • Dinitrobenzene[1,3-] • Dinitrotoluene[2,4-] • Dinitrotoluene[2,6-] • Di-n-octylphthalate • Fluoranthene • Fluoride • Heptachlor • Indeno(1,2,3-cd)pyrene • Lead • Manganese • Methylene Chloride • Methylnaphthalene[2-]

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	- Molybdenum - Naphthalene - Nickel - Nitrobenzene - Pentachlorophenol - Phenol - Pyrene - Silver - Strontium (stable) - Tetrachlorodibenzodioxin[2,3,7,8-] - Tetrachloroethene - Thallium - Toluene - Trichlorobenzene[1,2,4-] - Trichloroethane[1,1,1-] - Trichloroethene - Uranium - Xylene (Total) - Zinc • Updates to water ESLs for the red fox and the occult little brown myotis bat due to correction of data entry error: o Di-n-Butyl Phthalate **Minimum ESL Updates** • None. **New NOAEL/NOEC-based TRVs** • Filled data gap for Aquatic Community Organism: o Uranium • Recent literature review identified new sediment TRVs for Aquatic Community Organisms: - Acenaphthene - Acenaphthylene - Aluminum - Anthracene - Antimony - Aroclor-1016 - Aroclor-1242

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	• Aroclor-1248 • Aroclor-1254 • Aroclor-1260 • Arsenic • Barium • Benzene • Benzo(a)anthracene • Benzo(a)pyrene • Benzo(b)fluoranthene • Benzo(g,h,i)perylene • Benzo(k)fluoranthene • BHC[beta-] • BHC[gamma-] • Butyl Benzyl Phthalate • Cadmium • Chlordane[alpha-] • Chlordane[gamma-] • Chlorobenzene • Chlorophenol[2-] • Chromium (total) • Chrysene • Copper • Cyanide (total) • DDE[4,4'-] • DDT[4,4'-] • Dibenzo(a,h)anthracene • Dichlorobenzene[1,4-] • Dichloroethane[1,1-] • Dichloroethene[1,1-] • Dichloroethene[cis/trans-1,2-] • Dieldrin • Di-n-Butyl Phthalate • Endosulfan • Endrin • Fluoranthene

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	- Fluorene - Heptachlor - Indeno(1,2,3-cd)pyrene - Iron - Lead - Manganese - Mercury (inorganic) - Methylene Chloride - Methylnaphthalene[2-] - Naphthalene - Nickel - Pentachlorophenol - Phenanthrene - Pyrene - Selenium - Silver - Tetrachlorodibenzodioxin[2,3,7,8-] - Tetrachloroethene - Toluene - Toxaphene (Technical Grade) - Trichlorobenzene[1,2,4-] - Trichloroethane[1,1,1-] - Trichloroethene - Uranium - Xylene (Total) - Zinc - Recent literature review identified new water TRVs for Aquatic Community Organisms: - Acenaphthene - Acenaphthylene - Acetone - Aluminum - Anthracene - Antimony - Aroclor-1016

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	• Aroclor-1242 • Aroclor-1248 • Aroclor-1254 • Aroclor-1260 • Arsenic • Barium • Benzene • Benzo(a)anthracene • Benzo(a)pyrene • Benzo(b)fluoranthene • Benzo(g,h,i)perylene • Benzo(k)fluoranthene • Benzoic Acid • Beryllium • BHC[beta-] • BHC[gamma-] • Bis(2-ethylhexyl)phthalate • Boron • Butanone[2-] • Butyl Benzyl Phthalate • Cadmium • Chlordane[alpha-] • Chlordane[gamma-] • Chloride • Chlorobenzene • Chloroform • Chlorophenol[2-] • Chromium (total) • Chromium(+6) • Chrysene • Cobalt • Copper • Cyanide (total) • DDE[4,4'-] • DDT[4,4'-]

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	• Dibenzo(a,h)anthracene • Dibenzofuran • Dichlorobenzene[1,4-] • Dichloroethane[1,1-] • Dichloroethane[1,2-] • Dichloroethene[1,1-] • Dichloroethene[cis/trans-1,2-] • Dieldrin • Dimethyl Phthalate • Di-n-Butyl Phthalate • Dinitrobenzene[1,3-] • Dinitrotoluene[2,4-] • Dinitrotoluene[2,6-] • Di-n-octylphthalate • Endosulfan • Endrin • Fluoranthene • Fluorene • Fluoride • Heptachlor • Indeno(1,2,3-cd)pyrene • Iron • Lead • Manganese • Mercury (inorganic) • Mercury (methyl) • Methoxychlor[4,4'-] • Methylene Chloride • Methylnaphthalene[2-] • Molybdenum • Naphthalene • Nickel • Nitrobenzene • Pentachloronitrobenzene • Pentachlorophenol

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	• Phenanthrene • Phenol • Pyrene • Selenium • Silver • Strontium (stable) • Tetrachlorodibenzodioxin[2,3,7,8-] • Tetrachloroethene • Thallium • Toluene • Toxaphene (Technical Grade) • Trichlorobenzene[1,2,4-] • Trichloroethane[1,1,1-] • Trichloroethene • Uranium • Vanadium • Xylene (Total) • Zinc **New NOAEL/NOEC-based TRV Updates** • The use status of sediment TRVs for Aquatic Community Organisms changed from YES to NO due to replacement by a more relevant TRV: • Acenaphthene • Acenaphthylene • Aluminum • Anthracene • Antimony • Aroclor-1016 • Aroclor-1242 • Aroclor-1248 • Aroclor-1254 • Aroclor-1260 • Arsenic • Barium • Benzene • Benzo(a)anthracene

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	• Benzo(a)pyrene • Benzo(b)fluoranthene • Benzo(g,h,i)perylene • Benzo(k)fluoranthene • Benzoic Acid • BHC[beta-] • BHC[gamma-] • Butyl Benzyl Phthalate • Cadmium • Chlordane[alpha-] • Chlordane[gamma-] • Chlorobenzene • Chlorophenol[2-] • Chromium (total) • Chrysene • Copper • Cyanide (total) • DDE[4,4'-] • DDT[4,4'-] • Dibenzo(a,h)anthracene • Dichlorobenzene[1,4-] • Dichloroethane[1,1-] • Dichloroethene[1,1-] • Dichloroethene[cis/trans-1,2-] • Dieldrin • Di-n-Butyl Phthalate • Endosulfan • Endrin • Fluoranthene • Fluorene • Heptachlor • Indeno(1,2,3-cd)pyrene • Iron • Lead • Manganese

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	• Mercury (inorganic) • Methylene Chloride • Methylnaphthalene[2-] • Naphthalene • Nickel • Pentachlorophenol • Phenanthrene • Pyrene • Selenium • Silver • Tetrachlorodibenzodioxin[2,3,7,8-] • Tetrachloroethene • Toluene • Toxaphene (Technical Grade) • Trichlorobenzene[1,2,4-] • Trichloroethane[1,1,1-] • Trichloroethene • Xylene (Total) • Zinc • The use status of water TRVs for Aquatic Community Organisms changed from YES to NO due to replacement by a more relevant TRV: • Acenaphthene • Acenaphthylene • Acetone • Aluminum • Anthracene • Antimony • Aroclor-1016 • Aroclor-1242 • Aroclor-1248 • Aroclor-1254 • Aroclor-1260 • Arsenic • Barium • Benzene

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	• Benzo(a)anthracene • Benzo(a)pyrene • Benzo(b)fluoranthene • Benzo(g,h,i)perylene • Benzo(k)fluoranthene • Benzoic Acid (previous value was also corrected) • Beryllium • BHC[beta-] • BHC[gamma-] • Bis(2-ethylhexyl)phthalate • Boron • Butanone[2-] • Butyl Benzyl Phthalate • Cadmium • Calcium • Chlordane[alpha-] • Chlordane[gamma-] • Chloride • Chloro-3-methylphenol[4-] • Chlorobenzene • Chloroform • Chlorophenol[2-] • Chromium (total) • Chromium(+6) • Chrysene • Cobalt • Copper • Cyanide (total) • DDE[4,4'-] • DDT[4,4'-] • Dibenzo(a,h)anthracene • Dibenzofuran • Dichlorobenzene[1,4-] • Dichloroethane[1,1-] • Dichloroethane[1,2-]

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	• Dichloroethene[1,1-] • Dichloroethene[cis/trans-1,2-] • Dichloroethene[cis-1,2-] • Dieldrin • Dimethyl Phthalate • Di-n-Butyl Phthalate • Dinitrobenzene[1,3-] • Dinitrotoluene[2,4-] • Dinitrotoluene[2,6-] • Di-n-octylphthalate • Endosulfan • Endrin • Fluoranthene • Fluorene • Fluoride • Heptachlor • Indeno(1,2,3-cd)pyrene • Iron • Lead • Manganese • Mercury (inorganic) • Mercury (methyl) • Methoxychlor[4,4'-] • Methylene Chloride • Methylnaphthalene[2-] • Molybdenum • Naphthalene • Nickel • Nitrobenzene • Pentachloronitrobenzene • Pentachlorophenol • Phenanthrene • Phenol • Pyrene • Selenium

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	- Silver - Strontium (stable) - Tetrachlorodibenzodioxin[2,3,7,8-] - Tetrachloroethane[1,1,2,2-] - Tetrachloroethene - Thallium - Toluene - Toxaphene (Technical Grade) - Trichlorobenzene[1,2,4-] - Trichloroethane[1,1,1-] - Trichloroethene - Uranium - Vanadium - Xylene (Total) - Zinc - The use status of the sediment TRV for Aluminum bird and mammal receptors changed from YES to NO due to replacement by a more relevant TRV; TRV/ESL based on pH as is the case for soil. **New TFs** - No new values. **TF Updates** - No updated values. **Interface Updates** - Updated water and sediment ESL derivation screens to be current with revision 3 of the SLERA.

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
October 2014 – Release 3.2	In release 3.2 of the ECORISK database, TRVs were updated/added for some high explosive and inorganic chemicals for plants, invertebrates and birds. Transfer Factors were updated/added for many radionuclides, high explosives, organics and inorganics. Receptor parameters for the American kestrel and desert cottontail were also made based on review of the data. The latest TRV Methods document was linked to the database interface and extraneous linked documents removed. **New NOAEL/NOEC-based ESLs** Recent literature review for toxicity data, transfer factor data and receptor data for soil ESLs resulted in new ESLs for the following:

Analyte Name	ESL Receptor
Amino-2,6-dinitrotoluene[4-]	Earthworm (Soil-dwelling invertebrate)
Amino-2,6-dinitrotoluene[4-]	Generic plant (Terrestrial autotroph - producer)
Amino-4,6-dinitrotoluene[2-]	Earthworm (Soil-dwelling invertebrate)
Amino-4,6-dinitrotoluene[2-]	Generic plant (Terrestrial autotroph - producer)
Dinitrotoluene[2,4-]	Earthworm (Soil-dwelling invertebrate)
Dinitrotoluene[2,4-]	Generic plant (Terrestrial autotroph - producer)
Dinitrotoluene[2,6-]	American kestrel (Avian intermediate carnivore)
Dinitrotoluene[2,6-]	American kestrel (Avian top carnivore)
Dinitrotoluene[2,6-]	American robin (Avian herbivore)
Dinitrotoluene[2,6-]	American robin (Avian insectivore)
Dinitrotoluene[2,6-]	American robin (Avian omnivore)
Dinitrotoluene[2,6-]	Earthworm (Soil-dwelling invertebrate)
HMX	Earthworm (Soil-dwelling invertebrate)
Nitroglycerine	Earthworm (Soil-dwelling invertebrate)
Nitroglycerine	Generic plant (Terrestrial autotroph - producer)
RDX	Generic plant (Terrestrial autotroph - producer)
Trinitrobenzene[1,3,5-]	Earthworm (Soil-dwelling invertebrate)
Antimony	Generic plant (Terrestrial autotroph - producer)
Beryllium	Generic plant (Terrestrial autotroph - producer)

NOAEL/NOEC-based ESL Updates

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Recent literature review for toxicity data, transfer factor data and receptor data for soil ESLs resulted in updated ESLs for the following:

Analyte Group	Analyte Name	ESL Receptor
D/F	Tetrachlorodibenzodioxin[2,3,7,8-]	Desert cottontail (Mammalian herbivore)
D/F	Tetrachlorodibenzodioxin[2,3,7,8-]	Red fox (Mammalian top carnivore)
HE	Amino-2,6-dinitrotoluene[4-]	Deer mouse (Mammalian omnivore)
HE	Amino-2,6-dinitrotoluene[4-]	Desert cottontail (Mammalian herbivore)
HE	Amino-2,6-dinitrotoluene[4-]	Generic plant (Terrestrial autotroph - producer)
HE	Amino-2,6-dinitrotoluene[4-]	Montane shrew (Mammalian insectivore)
HE	Amino-2,6-dinitrotoluene[4-]	Red fox (Mammalian top carnivore)
HE	Amino-4,6-dinitrotoluene[2-]	Deer mouse (Mammalian omnivore)
HE	Amino-4,6-dinitrotoluene[2-]	Desert cottontail (Mammalian herbivore)
HE	Amino-4,6-dinitrotoluene[2-]	Generic plant (Terrestrial autotroph - producer)
HE	Amino-4,6-dinitrotoluene[2-]	Montane shrew (Mammalian insectivore)
HE	Amino-4,6-dinitrotoluene[2-]	Red fox (Mammalian top carnivore)
HE	Dinitrobenzene[1,3-]	American kestrel (Avian intermediate carnivore)
HE	Dinitrobenzene[1,3-]	American kestrel (Avian top carnivore)
HE	Dinitrobenzene[1,3-]	Desert cottontail (Mammalian herbivore)
HE	Dinitrobenzene[1,3-]	Red fox (Mammalian top carnivore)
HE	Dinitrotoluene[2,4-]	Deer mouse (Mammalian omnivore)
HE	Dinitrotoluene[2,4-]	Desert cottontail (Mammalian herbivore)
HE	Dinitrotoluene[2,4-]	Red fox (Mammalian top carnivore)
HE	Dinitrotoluene[2,6-]	Deer mouse (Mammalian omnivore)
HE	Dinitrotoluene[2,6-]	Desert cottontail (Mammalian herbivore)
HE	Dinitrotoluene[2,6-]	Red fox (Mammalian top carnivore)
HE	HMX	Deer mouse (Mammalian omnivore)
HE	HMX	Desert cottontail (Mammalian herbivore)
HE	HMX	Earthworm (Soil-dwelling invertebrate)
HE	HMX	Montane shrew (Mammalian insectivore)
HE	HMX	Red fox (Mammalian top carnivore)
HE	Nitroglycerine	Desert cottontail (Mammalian herbivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	HE	Nitroglycerine	Red fox (Mammalian top carnivore)
	HE	Nitrotoluene[2-]	Desert cottontail (Mammalian herbivore)
	HE	Nitrotoluene[2-]	Red fox (Mammalian top carnivore)
	HE	Nitrotoluene[3-]	Desert cottontail (Mammalian herbivore)
	HE	Nitrotoluene[3-]	Red fox (Mammalian top carnivore)
	HE	Nitrotoluene[4-]	Desert cottontail (Mammalian herbivore)
	HE	Nitrotoluene[4-]	Red fox (Mammalian top carnivore)
	HE	PETN	Desert cottontail (Mammalian herbivore)
	HE	PETN	Red fox (Mammalian top carnivore)
	HE	RDX	American kestrel (Avian intermediate carnivore)
	HE	RDX	American kestrel (Avian top carnivore)
	HE	RDX	American robin (Avian herbivore)
	HE	RDX	American robin (Avian insectivore)
	HE	RDX	American robin (Avian omnivore)
	HE	RDX	Deer mouse (Mammalian omnivore)
	HE	RDX	Desert cottontail (Mammalian herbivore)
	HE	RDX	Earthworm (Soil-dwelling invertebrate)
	HE	RDX	Montane shrew (Mammalian insectivore)
	HE	RDX	Red fox (Mammalian top carnivore)
	HE	Tetryl	Deer mouse (Mammalian omnivore)
	HE	Tetryl	Desert cottontail (Mammalian herbivore)
	HE	Tetryl	Red fox (Mammalian top carnivore)
	HE	Trinitrobenzene[1,3,5-]	Deer mouse (Mammalian omnivore)
	HE	Trinitrobenzene[1,3,5-]	Desert cottontail (Mammalian herbivore)
	HE	Trinitrobenzene[1,3,5-]	Red fox (Mammalian top carnivore)
	HE	Trinitrotoluene[2,4,6-]	American kestrel (Avian intermediate carnivore)
	HE	Trinitrotoluene[2,4,6-]	American kestrel (Avian top carnivore)
	HE	Trinitrotoluene[2,4,6-]	American robin (Avian herbivore)
	HE	Trinitrotoluene[2,4,6-]	American robin (Avian insectivore)
	HE	Trinitrotoluene[2,4,6-]	American robin (Avian omnivore)
	HE	Trinitrotoluene[2,4,6-]	Deer mouse (Mammalian omnivore)
	HE	Trinitrotoluene[2,4,6-]	Desert cottontail (Mammalian herbivore)
	HE	Trinitrotoluene[2,4,6-]	Montane shrew (Mammalian insectivore)
	HE	Trinitrotoluene[2,4,6-]	Red fox (Mammalian top carnivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	INORG	Antimony	Deer mouse (Mammalian omnivore)
	INORG	Antimony	Desert cottontail (Mammalian herbivore)
	INORG	Antimony	Generic plant (Terrestrial autotroph - producer)
	INORG	Antimony	Montane shrew (Mammalian insectivore)
	INORG	Antimony	Red fox (Mammalian top carnivore)
	INORG	Arsenic	American kestrel (Avian intermediate carnivore)
	INORG	Arsenic	American kestrel (Avian top carnivore)
	INORG	Arsenic	Desert cottontail (Mammalian herbivore)
	INORG	Arsenic	Red fox (Mammalian top carnivore)
	INORG	Barium	American kestrel (Avian intermediate carnivore)
	INORG	Barium	American kestrel (Avian top carnivore)
	INORG	Barium	Desert cottontail (Mammalian herbivore)
	INORG	Beryllium	Desert cottontail (Mammalian herbivore)
	INORG	Beryllium	Generic plant (Terrestrial autotroph - producer)
	INORG	Boron	American kestrel (Avian intermediate carnivore)
	INORG	Boron	American kestrel (Avian top carnivore)
	INORG	Boron	Desert cottontail (Mammalian herbivore)
	INORG	Cadmium	American kestrel (Avian intermediate carnivore)
	INORG	Cadmium	American kestrel (Avian top carnivore)
	INORG	Cadmium	Desert cottontail (Mammalian herbivore)
	INORG	Cadmium	Red fox (Mammalian top carnivore)
	INORG	Chromium (total)	American kestrel (Avian intermediate carnivore)
	INORG	Chromium (total)	American kestrel (Avian top carnivore)
	INORG	Chromium (total)	Desert cottontail (Mammalian herbivore)
	INORG	Chromium(+6)	American kestrel (Avian intermediate carnivore)
	INORG	Chromium(+6)	American kestrel (Avian top carnivore)
	INORG	Chromium(+6)	Desert cottontail (Mammalian herbivore)
	INORG	Chromium(+6)	Red fox (Mammalian top carnivore)
	INORG	Cobalt	American kestrel (Avian intermediate carnivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	INORG	Cobalt	American kestrel (Avian top carnivore)
	INORG	Cobalt	Desert cottontail (Mammalian herbivore)
	INORG	Cobalt	Red fox (Mammalian top carnivore)
	INORG	Copper	American kestrel (Avian intermediate carnivore)
	INORG	Copper	American kestrel (Avian top carnivore)
	INORG	Copper	Desert cottontail (Mammalian herbivore)
	INORG	Copper	Red fox (Mammalian top carnivore)
	INORG	Cyanide (total)	American kestrel (Avian intermediate carnivore)
	INORG	Cyanide (total)	American kestrel (Avian top carnivore)
	INORG	Cyanide (total)	Desert cottontail (Mammalian herbivore)
	INORG	Cyanide (total)	Red fox (Mammalian top carnivore)
	INORG	Fluoride	American kestrel (Avian intermediate carnivore)
	INORG	Fluoride	American kestrel (Avian top carnivore)
	INORG	Fluoride	American robin (Avian insectivore)
	INORG	Fluoride	American robin (Avian omnivore)
	INORG	Fluoride	Deer mouse (Mammalian omnivore)
	INORG	Fluoride	Desert cottontail (Mammalian herbivore)
	INORG	Fluoride	Montane shrew (Mammalian insectivore)
	INORG	Fluoride	Red fox (Mammalian top carnivore)
	INORG	Lead	American kestrel (Avian intermediate carnivore)
	INORG	Lead	American kestrel (Avian top carnivore)
	INORG	Lead	Desert cottontail (Mammalian herbivore)
	INORG	Lithium	Desert cottontail (Mammalian herbivore)
	INORG	Lithium	Red fox (Mammalian top carnivore)
	INORG	Manganese	American kestrel (Avian intermediate carnivore)
	INORG	Manganese	American kestrel (Avian top carnivore)
	INORG	Manganese	Desert cottontail (Mammalian herbivore)
	INORG	Mercury (inorganic)	American kestrel (Avian intermediate carnivore)
	INORG	Mercury (inorganic)	American kestrel (Avian top carnivore)
	INORG	Mercury (inorganic)	Desert cottontail (Mammalian herbivore)
	INORG	Mercury (inorganic)	Red fox (Mammalian top carnivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	INORG	Mercury (methyl)	American kestrel (Avian intermediate carnivore)
	INORG	Mercury (methyl)	American kestrel (Avian top carnivore)
	INORG	Mercury (methyl)	Desert cottontail (Mammalian herbivore)
	INORG	Mercury (methyl)	Red fox (Mammalian top carnivore)
	INORG	Molybdenum	American kestrel (Avian intermediate carnivore)
	INORG	Molybdenum	American kestrel (Avian top carnivore)
	INORG	Nickel	American kestrel (Avian intermediate carnivore)
	INORG	Nickel	American kestrel (Avian top carnivore)
	INORG	Nickel	Desert cottontail (Mammalian herbivore)
	INORG	Selenium	American kestrel (Avian intermediate carnivore)
	INORG	Selenium	American kestrel (Avian top carnivore)
	INORG	Selenium	Desert cottontail (Mammalian herbivore)
	INORG	Selenium	Red fox (Mammalian top carnivore)
	INORG	Silver	American kestrel (Avian intermediate carnivore)
	INORG	Silver	American kestrel (Avian top carnivore)
	INORG	Silver	Desert cottontail (Mammalian herbivore)
	INORG	Silver	Red fox (Mammalian top carnivore)
	INORG	Strontium (stable)	Desert cottontail (Mammalian herbivore)
	INORG	Thallium	American kestrel (Avian intermediate carnivore)
	INORG	Thallium	American kestrel (Avian top carnivore)
	INORG	Thallium	American robin (Avian insectivore)
	INORG	Thallium	American robin (Avian omnivore)
	INORG	Thallium	Deer mouse (Mammalian omnivore)
	INORG	Thallium	Desert cottontail (Mammalian herbivore)
	INORG	Thallium	Generic plant (Terrestrial autotroph - producer)
	INORG	Thallium	Montane shrew (Mammalian insectivore)
	INORG	Thallium	Red fox (Mammalian top carnivore)
	INORG	Titanium	Desert cottontail (Mammalian herbivore)
	INORG	Titanium	Red fox (Mammalian top carnivore)
	INORG	Uranium	American kestrel (Avian intermediate

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
			carnivore)
	INORG	Uranium	American kestrel (Avian top carnivore)
	INORG	Uranium	Desert cottontail (Mammalian herbivore)
	INORG	Vanadium	American kestrel (Avian intermediate carnivore)
	INORG	Vanadium	American kestrel (Avian top carnivore)
	INORG	Vanadium	Desert cottontail (Mammalian herbivore)
	INORG	Vanadium	Generic plant (Terrestrial autotroph - producer)
	INORG	Zinc	American kestrel (Avian intermediate carnivore)
	INORG	Zinc	Desert cottontail (Mammalian herbivore)
	INORG	Zinc	Red fox (Mammalian top carnivore)
	PAH	Acenaphthene	Desert cottontail (Mammalian herbivore)
	PAH	Acenaphthene	Red fox (Mammalian top carnivore)
	PAH	Acenaphthylene	Desert cottontail (Mammalian herbivore)
	PAH	Acenaphthylene	Red fox (Mammalian top carnivore)
	PAH	Anthracene	Desert cottontail (Mammalian herbivore)
	PAH	Anthracene	Red fox (Mammalian top carnivore)
	PAH	Benzo(a)anthracene	American kestrel (Avian intermediate carnivore)
	PAH	Benzo(a)anthracene	American kestrel (Avian top carnivore)
	PAH	Benzo(a)anthracene	Desert cottontail (Mammalian herbivore)
	PAH	Benzo(a)anthracene	Red fox (Mammalian top carnivore)
	PAH	Benzo(a)pyrene	Desert cottontail (Mammalian herbivore)
	PAH	Benzo(a)pyrene	Red fox (Mammalian top carnivore)
	PAH	Benzo(b)fluoranthene	Desert cottontail (Mammalian herbivore)
	PAH	Benzo(b)fluoranthene	Red fox (Mammalian top carnivore)
	PAH	Benzo(g,h,i)perylene	Desert cottontail (Mammalian herbivore)
	PAH	Benzo(g,h,i)perylene	Red fox (Mammalian top carnivore)
	PAH	Benzo(k)fluoranthene	Desert cottontail (Mammalian herbivore)
	PAH	Benzo(k)fluoranthene	Red fox (Mammalian top carnivore)
	PAH	Chrysene	Desert cottontail (Mammalian herbivore)
	PAH	Chrysene	Red fox (Mammalian top carnivore)
	PAH	Dibenzo(a,h)anthracene	Desert cottontail (Mammalian herbivore)
	PAH	Dibenzo(a,h)anthracene	Red fox (Mammalian top carnivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	PAH	Fluoranthene	Desert cottontail (Mammalian herbivore)
	PAH	Fluoranthene	Red fox (Mammalian top carnivore)
	PAH	Fluorene	Desert cottontail (Mammalian herbivore)
	PAH	Fluorene	Red fox (Mammalian top carnivore)
	PAH	Indeno(1,2,3-cd)pyrene	Desert cottontail (Mammalian herbivore)
	PAH	Indeno(1,2,3-cd)pyrene	Red fox (Mammalian top carnivore)
	PAH	Methylnaphthalene[2-]	Desert cottontail (Mammalian herbivore)
	PAH	Methylnaphthalene[2-]	Red fox (Mammalian top carnivore)
	PAH	Naphthalene	American kestrel (Avian intermediate carnivore)
	PAH	Naphthalene	American kestrel (Avian top carnivore)
	PAH	Naphthalene	Desert cottontail (Mammalian herbivore)
	PAH	Naphthalene	Red fox (Mammalian top carnivore)
	PAH	Phenanthrene	Desert cottontail (Mammalian herbivore)
	PAH	Phenanthrene	Red fox (Mammalian top carnivore)
	PAH	Pyrene	American kestrel (Avian top carnivore)
	PAH	Pyrene	Desert cottontail (Mammalian herbivore)
	PAH	Pyrene	Red fox (Mammalian top carnivore)
	PCB	Aroclor-1016	Desert cottontail (Mammalian herbivore)
	PCB	Aroclor-1016	Red fox (Mammalian top carnivore)
	PCB	Aroclor-1242	American kestrel (Avian intermediate carnivore)
	PCB	Aroclor-1242	American kestrel (Avian top carnivore)
	PCB	Aroclor-1242	Desert cottontail (Mammalian herbivore)
	PCB	Aroclor-1242	Red fox (Mammalian top carnivore)
	PCB	Aroclor-1248	American kestrel (Avian intermediate carnivore)
	PCB	Aroclor-1248	American kestrel (Avian top carnivore)
	PCB	Aroclor-1248	Desert cottontail (Mammalian herbivore)
	PCB	Aroclor-1248	Red fox (Mammalian top carnivore)
	PCB	Aroclor-1254	American kestrel (Avian intermediate carnivore)
	PCB	Aroclor-1254	American kestrel (Avian top carnivore)
	PCB	Aroclor-1254	Desert cottontail (Mammalian herbivore)
	PCB	Aroclor-1254	Red fox (Mammalian top carnivore)
	PCB	Aroclor-1260	American kestrel (Avian intermediate carnivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	PCB	Aroclor-1260	American kestrel (Avian top carnivore)
	PCB	Aroclor-1260	Desert cottontail (Mammalian herbivore)
	PCB	Aroclor-1260	Red fox (Mammalian top carnivore)
	PEST	Aldrin	Desert cottontail (Mammalian herbivore)
	PEST	Aldrin	Red fox (Mammalian top carnivore)
	PEST	BHC[alpha-]	Desert cottontail (Mammalian herbivore)
	PEST	BHC[alpha-]	Red fox (Mammalian top carnivore)
	PEST	BHC[beta-]	American kestrel (Avian intermediate carnivore)
	PEST	BHC[beta-]	American kestrel (Avian top carnivore)
	PEST	BHC[beta-]	Desert cottontail (Mammalian herbivore)
	PEST	BHC[beta-]	Red fox (Mammalian top carnivore)
	PEST	BHC[gamma-]	American kestrel (Avian intermediate carnivore)
	PEST	BHC[gamma-]	American kestrel (Avian top carnivore)
	PEST	BHC[gamma-]	Desert cottontail (Mammalian herbivore)
	PEST	BHC[gamma-]	Red fox (Mammalian top carnivore)
	PEST	Chlordane[alpha-]	American kestrel (Avian intermediate carnivore)
	PEST	Chlordane[alpha-]	American kestrel (Avian top carnivore)
	PEST	Chlordane[alpha-]	Desert cottontail (Mammalian herbivore)
	PEST	Chlordane[alpha-]	Red fox (Mammalian top carnivore)
	PEST	Chlordane[gamma-]	American kestrel (Avian intermediate carnivore)
	PEST	Chlordane[gamma-]	American kestrel (Avian top carnivore)
	PEST	Chlordane[gamma-]	Desert cottontail (Mammalian herbivore)
	PEST	Chlordane[gamma-]	Red fox (Mammalian top carnivore)
	PEST	DDD[4,4'-]	American kestrel (Avian intermediate carnivore)
	PEST	DDD[4,4'-]	American kestrel (Avian top carnivore)
	PEST	DDD[4,4'-]	Desert cottontail (Mammalian herbivore)
	PEST	DDD[4,4'-]	Red fox (Mammalian top carnivore)
	PEST	DDE[4,4'-]	American kestrel (Avian intermediate carnivore)
	PEST	DDE[4,4'-]	American kestrel (Avian top carnivore)
	PEST	DDE[4,4'-]	Desert cottontail (Mammalian herbivore)
	PEST	DDE[4,4'-]	Red fox (Mammalian top carnivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	PEST	DDT[4,4'-]	American kestrel (Avian intermediate carnivore)
	PEST	DDT[4,4'-]	American kestrel (Avian top carnivore)
	PEST	DDT[4,4'-]	Desert cottontail (Mammalian herbivore)
	PEST	DDT[4,4'-]	Red fox (Mammalian top carnivore)
	PEST	Dieldrin	American kestrel (Avian intermediate carnivore)
	PEST	Dieldrin	American kestrel (Avian top carnivore)
	PEST	Dieldrin	Desert cottontail (Mammalian herbivore)
	PEST	Dieldrin	Red fox (Mammalian top carnivore)
	PEST	Endosulfan	American kestrel (Avian intermediate carnivore)
	PEST	Endosulfan	American kestrel (Avian top carnivore)
	PEST	Endosulfan	Desert cottontail (Mammalian herbivore)
	PEST	Endosulfan	Red fox (Mammalian top carnivore)
	PEST	Endrin	American kestrel (Avian intermediate carnivore)
	PEST	Endrin	American kestrel (Avian top carnivore)
	PEST	Endrin	Desert cottontail (Mammalian herbivore)
	PEST	Endrin	Red fox (Mammalian top carnivore)
	PEST	Heptachlor	American kestrel (Avian intermediate carnivore)
	PEST	Heptachlor	American kestrel (Avian top carnivore)
	PEST	Heptachlor	Desert cottontail (Mammalian herbivore)
	PEST	Heptachlor	Red fox (Mammalian top carnivore)
	PEST	Kepone	American kestrel (Avian top carnivore)
	PEST	Kepone	Desert cottontail (Mammalian herbivore)
	PEST	Kepone	Red fox (Mammalian top carnivore)
	PEST	Methoxychlor[4,4'-]	American kestrel (Avian top carnivore)
	PEST	Methoxychlor[4,4'-]	Desert cottontail (Mammalian herbivore)
	PEST	Methoxychlor[4,4'-]	Red fox (Mammalian top carnivore)
	PEST	Toxaphene (Technical Grade)	American kestrel (Avian intermediate carnivore)
	PEST	Toxaphene (Technical Grade)	American kestrel (Avian top carnivore)
	PEST	Toxaphene (Technical Grade)	Desert cottontail (Mammalian herbivore)
	PEST	Toxaphene (Technical Grade)	Red fox (Mammalian top carnivore)
	SVOC	Benzoic Acid	Desert cottontail (Mammalian herbivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	SVOC	Benzoic Acid	Red fox (Mammalian top carnivore)
	SVOC	Bis(2-ethylhexyl)phthalate	American kestrel (Avian intermediate carnivore)
	SVOC	Bis(2-ethylhexyl)phthalate	American kestrel (Avian top carnivore)
	SVOC	Bis(2-ethylhexyl)phthalate	Desert cottontail (Mammalian herbivore)
	SVOC	Bis(2-ethylhexyl)phthalate	Red fox (Mammalian top carnivore)
	SVOC	Butyl Benzyl Phthalate	Desert cottontail (Mammalian herbivore)
	SVOC	Butyl Benzyl Phthalate	Red fox (Mammalian top carnivore)
	SVOC	Carbazole	Desert cottontail (Mammalian herbivore)
	SVOC	Carbazole	Red fox (Mammalian top carnivore)
	SVOC	Chlorobenzene	Desert cottontail (Mammalian herbivore)
	SVOC	Chlorobenzene	Red fox (Mammalian top carnivore)
	SVOC	Chlorophenol[2-]	American kestrel (Avian intermediate carnivore)
	SVOC	Chlorophenol[2-]	American kestrel (Avian top carnivore)
	SVOC	Chlorophenol[2-]	Desert cottontail (Mammalian herbivore)
	SVOC	Chlorophenol[2-]	Red fox (Mammalian top carnivore)
	SVOC	Diethyl Phthalate	Desert cottontail (Mammalian herbivore)
	SVOC	Diethyl Phthalate	Red fox (Mammalian top carnivore)
	SVOC	Dimethyl Phthalate	Desert cottontail (Mammalian herbivore)
	SVOC	Dimethyl Phthalate	Red fox (Mammalian top carnivore)
	SVOC	Di-n-Butyl Phthalate	American kestrel (Avian intermediate carnivore)
	SVOC	Di-n-Butyl Phthalate	American kestrel (Avian top carnivore)
	SVOC	Di-n-Butyl Phthalate	Desert cottontail (Mammalian herbivore)
	SVOC	Di-n-Butyl Phthalate	Red fox (Mammalian top carnivore)
	SVOC	Di-n-octylphthalate	Desert cottontail (Mammalian herbivore)
	SVOC	Di-n-octylphthalate	Red fox (Mammalian top carnivore)
	SVOC	Methylphenol[2-]	Desert cottontail (Mammalian herbivore)
	SVOC	Methylphenol[2-]	Red fox (Mammalian top carnivore)
	SVOC	Nitroaniline[2-]	Desert cottontail (Mammalian herbivore)
	SVOC	Nitroaniline[2-]	Red fox (Mammalian top carnivore)
	SVOC	Nitrobenzene	Desert cottontail (Mammalian herbivore)
	SVOC	Nitrobenzene	Red fox (Mammalian top carnivore)
	SVOC	Pentachloronitrobenzene	American kestrel (Avian intermediate carnivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	SVOC	Pentachloronitrobenzene	American kestrel (Avian top carnivore)
	SVOC	Pentachloronitrobenzene	Desert cottontail (Mammalian herbivore)
	SVOC	Pentachloronitrobenzene	Red fox (Mammalian top carnivore)
	SVOC	Pentachlorophenol	American kestrel (Avian intermediate carnivore)
	SVOC	Pentachlorophenol	American kestrel (Avian top carnivore)
	SVOC	Pentachlorophenol	Desert cottontail (Mammalian herbivore)
	SVOC	Pentachlorophenol	Red fox (Mammalian top carnivore)
	SVOC	Phenol	Desert cottontail (Mammalian herbivore)
	SVOC	Phenol	Red fox (Mammalian top carnivore)
	VOC	Acetone	American kestrel (Avian intermediate carnivore)
	VOC	Acetone	American kestrel (Avian top carnivore)
	VOC	Acetone	Desert cottontail (Mammalian herbivore)
	VOC	Acetone	Red fox (Mammalian top carnivore)
	VOC	Benzene	Desert cottontail (Mammalian herbivore)
	VOC	Benzene	Red fox (Mammalian top carnivore)
	VOC	Benzyl Alcohol	Desert cottontail (Mammalian herbivore)
	VOC	Butanone[2-]	Desert cottontail (Mammalian herbivore)
	VOC	Butanone[2-]	Red fox (Mammalian top carnivore)
	VOC	Carbon Disulfide	Desert cottontail (Mammalian herbivore)
	VOC	Chloroform	Desert cottontail (Mammalian herbivore)
	VOC	Chloroform	Red fox (Mammalian top carnivore)
	VOC	Dichlorobenzene[1,2-]	Desert cottontail (Mammalian herbivore)
	VOC	Dichlorobenzene[1,2-]	Red fox (Mammalian top carnivore)
	VOC	Dichlorobenzene[1,3-]	Desert cottontail (Mammalian herbivore)
	VOC	Dichlorobenzene[1,3-]	Red fox (Mammalian top carnivore)
	VOC	Dichlorobenzene[1,4-]	Desert cottontail (Mammalian herbivore)
	VOC	Dichlorobenzene[1,4-]	Red fox (Mammalian top carnivore)
	VOC	Dichloroethane[1,1-]	Desert cottontail (Mammalian herbivore)
	VOC	Dichloroethane[1,1-]	Red fox (Mammalian top carnivore)
	VOC	Dichloroethane[1,2-]	American kestrel (Avian intermediate carnivore)
	VOC	Dichloroethane[1,2-]	American kestrel (Avian top carnivore)
	VOC	Dichloroethane[1,2-]	Desert cottontail (Mammalian herbivore)
	VOC	Dichloroethane[1,2-]	Red fox (Mammalian top carnivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	VOC	Dichloroethene[1,1-]	Desert cottontail (Mammalian herbivore)
	VOC	Dichloroethene[1,1-]	Red fox (Mammalian top carnivore)
	VOC	Dichloroethene[cis/trans-1,2-]	Desert cottontail (Mammalian herbivore)
	VOC	Dichloroethene[cis/trans-1,2-]	Red fox (Mammalian top carnivore)
	VOC	Diphenylamine	American kestrel (Avian intermediate carnivore)
	VOC	Diphenylamine	American kestrel (Avian top carnivore)
	VOC	Hexachlorobenzene	American kestrel (Avian intermediate carnivore)
	VOC	Hexachlorobenzene	American kestrel (Avian top carnivore)
	VOC	Hexachlorobenzene	Desert cottontail (Mammalian herbivore)
	VOC	Hexachlorobenzene	Red fox (Mammalian top carnivore)
	VOC	Hexanone[2-]	American kestrel (Avian intermediate carnivore)
	VOC	Hexanone[2-]	American kestrel (Avian top carnivore)
	VOC	Hexanone[2-]	Desert cottontail (Mammalian herbivore)
	VOC	Hexanone[2-]	Red fox (Mammalian top carnivore)
	VOC	Iodomethane	American kestrel (Avian intermediate carnivore)
	VOC	Iodomethane	American kestrel (Avian top carnivore)
	VOC	Methyl-2-pentanone[4-]	Desert cottontail (Mammalian herbivore)
	VOC	Methyl-2-pentanone[4-]	Red fox (Mammalian top carnivore)
	VOC	Methylene Chloride	Desert cottontail (Mammalian herbivore)
	VOC	Methylene Chloride	Red fox (Mammalian top carnivore)
	VOC	Tetrachloroethene	Desert cottontail (Mammalian herbivore)
	VOC	Tetrachloroethene	Red fox (Mammalian top carnivore)
	VOC	Toluene	Desert cottontail (Mammalian herbivore)
	VOC	Toluene	Red fox (Mammalian top carnivore)
	VOC	Trichlorobenzene[1,2,4-]	Desert cottontail (Mammalian herbivore)
	VOC	Trichlorobenzene[1,2,4-]	Red fox (Mammalian top carnivore)
	VOC	Trichloroethane[1,1,1-]	Desert cottontail (Mammalian herbivore)
	VOC	Trichloroethane[1,1,1-]	Red fox (Mammalian top carnivore)
	VOC	Trichloroethene	Desert cottontail (Mammalian herbivore)
	VOC	Trichloroethene	Red fox (Mammalian top carnivore)
	VOC	Trichlorofluoromethane	Desert cottontail (Mammalian herbivore)
	VOC	Trichlorofluoromethane	Red fox (Mammalian top carnivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	VOC	Vinyl Chloride	Desert cottontail (Mammalian herbivore)
	VOC	Vinyl Chloride	Red fox (Mammalian top carnivore)
	VOC	Xylene (Total)	American kestrel (Avian intermediate carnivore)
	VOC	Xylene (Total)	American kestrel (Avian top carnivore)
	VOC	Xylene (Total)	Desert cottontail (Mammalian herbivore)
	VOC	Xylene (Total)	Red fox (Mammalian top carnivore)
	RAD	Americium-241	American kestrel (Avian intermediate carnivore)
	RAD	Americium-241	American kestrel (Avian top carnivore)
	RAD	Americium-241	American robin (Avian herbivore)
	RAD	Americium-241	American robin (Avian insectivore)
	RAD	Americium-241	American robin (Avian omnivore)
	RAD	Americium-241	Deer mouse (Mammalian omnivore)
	RAD	Americium-241	Desert cottontail (Mammalian herbivore)
	RAD	Americium-241	Earthworm (Soil-dwelling invertebrate)
	RAD	Americium-241	Generic plant (Terrestrial autotroph - producer)
	RAD	Americium-241	Montane shrew (Mammalian insectivore)
	RAD	Cesium-134	American kestrel (Avian intermediate carnivore)
	RAD	Cesium-134	American kestrel (Avian top carnivore)
	RAD	Cesium-134	American robin (Avian herbivore)
	RAD	Cesium-134	American robin (Avian insectivore)
	RAD	Cesium-134	American robin (Avian omnivore)
	RAD	Cesium-134	Desert cottontail (Mammalian herbivore)
	RAD	Cesium-134	Earthworm (Soil-dwelling invertebrate)
	RAD	Cesium-134	Generic plant (Terrestrial autotroph - producer)
	RAD	Cesium-134	Red fox (Mammalian top carnivore)
	RAD	Cesium-137 + Barium-137	American kestrel (Avian intermediate carnivore)
	RAD	Cesium-137 + Barium-137	American kestrel (Avian top carnivore)
	RAD	Cesium-137 + Barium-137	American robin (Avian herbivore)
	RAD	Cesium-137 + Barium-137	American robin (Avian insectivore)
	RAD	Cesium-137 + Barium-137	American robin (Avian omnivore)
	RAD	Cesium-137 + Barium-137	Deer mouse (Mammalian omnivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	RAD	Cesium-137 + Barium-137	Desert cottontail (Mammalian herbivore)
	RAD	Cesium-137 + Barium-137	Earthworm (Soil-dwelling invertebrate)
	RAD	Cesium-137 + Barium-137	Generic plant (Terrestrial autotroph - producer)
	RAD	Cesium-137 + Barium-137	Red fox (Mammalian top carnivore)
	RAD	Cobalt-60	Earthworm (Soil-dwelling invertebrate)
	RAD	Cobalt-60	Generic plant (Terrestrial autotroph - producer)
	RAD	Cobalt-60	Red fox (Mammalian top carnivore)
	RAD	Europium-152	American robin (Avian insectivore)
	RAD	Europium-152	American robin (Avian omnivore)
	RAD	Europium-152	Desert cottontail (Mammalian herbivore)
	RAD	Europium-152	Earthworm (Soil-dwelling invertebrate)
	RAD	Europium-152	Montane shrew (Mammalian insectivore)
	RAD	Europium-152	Red fox (Mammalian top carnivore)
	RAD	Lead-210	American kestrel (Avian intermediate carnivore)
	RAD	Lead-210	American kestrel (Avian top carnivore)
	RAD	Lead-210	American robin (Avian herbivore)
	RAD	Lead-210	American robin (Avian insectivore)
	RAD	Lead-210	American robin (Avian omnivore)
	RAD	Lead-210	Desert cottontail (Mammalian herbivore)
	RAD	Lead-210	Earthworm (Soil-dwelling invertebrate)
	RAD	Lead-210	Generic plant (Terrestrial autotroph - producer)
	RAD	Neptunium-237	American kestrel (Avian intermediate carnivore)
	RAD	Neptunium-237	American kestrel (Avian top carnivore)
	RAD	Neptunium-237	Desert cottontail (Mammalian herbivore)
	RAD	Neptunium-237	Red fox (Mammalian top carnivore)
	RAD	Plutonium-238	American kestrel (Avian intermediate carnivore)
	RAD	Plutonium-238	American robin (Avian herbivore)
	RAD	Plutonium-238	American robin (Avian insectivore)
	RAD	Plutonium-238	American robin (Avian omnivore)
	RAD	Plutonium-238	Deer mouse (Mammalian omnivore)
	RAD	Plutonium-238	Desert cottontail (Mammalian herbivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	RAD	Plutonium-238	Earthworm (Soil-dwelling invertebrate)
	RAD	Plutonium-238	Generic plant (Terrestrial autotroph - producer)
	RAD	Plutonium-238	Montane shrew (Mammalian insectivore)
	RAD	Plutonium-238	Red fox (Mammalian top carnivore)
	RAD	Plutonium-239, 240	American kestrel (Avian intermediate carnivore)
	RAD	Plutonium-239, 240	American robin (Avian herbivore)
	RAD	Plutonium-239, 240	American robin (Avian insectivore)
	RAD	Plutonium-239, 240	American robin (Avian omnivore)
	RAD	Plutonium-239, 240	Deer mouse (Mammalian omnivore)
	RAD	Plutonium-239, 240	Desert cottontail (Mammalian herbivore)
	RAD	Plutonium-239, 240	Earthworm (Soil-dwelling invertebrate)
	RAD	Plutonium-239, 240	Generic plant (Terrestrial autotroph - producer)
	RAD	Plutonium-239, 240	Montane shrew (Mammalian insectivore)
	RAD	Plutonium-239, 240	Red fox (Mammalian top carnivore)
	RAD	Plutonium-241	American robin (Avian herbivore)
	RAD	Plutonium-241	American robin (Avian insectivore)
	RAD	Plutonium-241	American robin (Avian omnivore)
	RAD	Plutonium-241	Deer mouse (Mammalian omnivore)
	RAD	Plutonium-241	Earthworm (Soil-dwelling invertebrate)
	RAD	Plutonium-241	Generic plant (Terrestrial autotroph - producer)
	RAD	Plutonium-241	Montane shrew (Mammalian insectivore)
	RAD	Radium-226	American kestrel (Avian intermediate carnivore)
	RAD	Radium-226	American kestrel (Avian top carnivore)
	RAD	Radium-226	American robin (Avian herbivore)
	RAD	Radium-226	American robin (Avian insectivore)
	RAD	Radium-226	American robin (Avian omnivore)
	RAD	Radium-226	Deer mouse (Mammalian omnivore)
	RAD	Radium-226	Desert cottontail (Mammalian herbivore)
	RAD	Radium-226	Earthworm (Soil-dwelling invertebrate)
	RAD	Radium-226	Generic plant (Terrestrial autotroph - producer)
	RAD	Radium-226	Montane shrew (Mammalian insectivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	RAD	Radium-226	Red fox (Mammalian top carnivore)
	RAD	Radium-228	American kestrel (Avian intermediate carnivore)
	RAD	Radium-228	American kestrel (Avian top carnivore)
	RAD	Radium-228	American robin (Avian herbivore)
	RAD	Radium-228	American robin (Avian insectivore)
	RAD	Radium-228	American robin (Avian omnivore)
	RAD	Radium-228	Deer mouse (Mammalian omnivore)
	RAD	Radium-228	Desert cottontail (Mammalian herbivore)
	RAD	Radium-228	Earthworm (Soil-dwelling invertebrate)
	RAD	Radium-228	Generic plant (Terrestrial autotroph - producer)
	RAD	Radium-228	Montane shrew (Mammalian insectivore)
	RAD	Radium-228	Red fox (Mammalian top carnivore)
	RAD	Sodium-22	American kestrel (Avian intermediate carnivore)
	RAD	Sodium-22	American kestrel (Avian top carnivore)
	RAD	Sodium-22	Red fox (Mammalian top carnivore)
	RAD	Strontium-90 + Yittrium-90	American kestrel (Avian intermediate carnivore)
	RAD	Strontium-90 + Yittrium-90	American kestrel (Avian top carnivore)
	RAD	Strontium-90 + Yittrium-90	American robin (Avian herbivore)
	RAD	Strontium-90 + Yittrium-90	American robin (Avian insectivore)
	RAD	Strontium-90 + Yittrium-90	American robin (Avian omnivore)
	RAD	Strontium-90 + Yittrium-90	Deer mouse (Mammalian omnivore)
	RAD	Strontium-90 + Yittrium-90	Desert cottontail (Mammalian herbivore)
	RAD	Strontium-90 + Yittrium-90	Earthworm (Soil-dwelling invertebrate)
	RAD	Strontium-90 + Yittrium-90	Generic plant (Terrestrial autotroph - producer)
	RAD	Strontium-90 + Yittrium-90	Red fox (Mammalian top carnivore)
	RAD	Thorium-228	American robin (Avian herbivore)
	RAD	Thorium-228	American robin (Avian omnivore)
	RAD	Thorium-228	Deer mouse (Mammalian omnivore)
	RAD	Thorium-228	Desert cottontail (Mammalian herbivore)
	RAD	Thorium-228	Generic plant (Terrestrial autotroph - producer)
	RAD	Thorium-228	Red fox (Mammalian top carnivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	RAD	Thorium-229	American kestrel (Avian intermediate carnivore)
	RAD	Thorium-229	American robin (Avian herbivore)
	RAD	Thorium-229	American robin (Avian omnivore)
	RAD	Thorium-229	Desert cottontail (Mammalian herbivore)
	RAD	Thorium-229	Generic plant (Terrestrial autotroph - producer)
	RAD	Thorium-230	American kestrel (Avian intermediate carnivore)
	RAD	Thorium-230	American kestrel (Avian top carnivore)
	RAD	Thorium-230	American robin (Avian herbivore)
	RAD	Thorium-230	American robin (Avian omnivore)
	RAD	Thorium-230	Deer mouse (Mammalian omnivore)
	RAD	Thorium-230	Desert cottontail (Mammalian herbivore)
	RAD	Thorium-230	Generic plant (Terrestrial autotroph - producer)
	RAD	Thorium-230	Red fox (Mammalian top carnivore)
	RAD	Thorium-232	American kestrel (Avian intermediate carnivore)
	RAD	Thorium-232	American kestrel (Avian top carnivore)
	RAD	Thorium-232	American robin (Avian herbivore)
	RAD	Thorium-232	American robin (Avian omnivore)
	RAD	Thorium-232	Deer mouse (Mammalian omnivore)
	RAD	Thorium-232	Desert cottontail (Mammalian herbivore)
	RAD	Thorium-232	Generic plant (Terrestrial autotroph - producer)
	RAD	Thorium-232	Red fox (Mammalian top carnivore)
	RAD	Tritium	American kestrel (Avian intermediate carnivore)
	RAD	Tritium	American kestrel (Avian top carnivore)
	RAD	Tritium	Desert cottontail (Mammalian herbivore)
	RAD	Tritium	Red fox (Mammalian top carnivore)
	RAD	Uranium-233	American kestrel (Avian intermediate carnivore)
	RAD	Uranium-233	American kestrel (Avian top carnivore)
	RAD	Uranium-233	American robin (Avian herbivore)
	RAD	Uranium-233	American robin (Avian insectivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	RAD	Uranium-233	American robin (Avian omnivore)
	RAD	Uranium-233	Deer mouse (Mammalian omnivore)
	RAD	Uranium-233	Desert cottontail (Mammalian herbivore)
	RAD	Uranium-233	Earthworm (Soil-dwelling invertebrate)
	RAD	Uranium-233	Generic plant (Terrestrial autotroph - producer)
	RAD	Uranium-233	Montane shrew (Mammalian insectivore)
	RAD	Uranium-233	Red fox (Mammalian top carnivore)
	RAD	Uranium-234	American kestrel (Avian intermediate carnivore)
	RAD	Uranium-234	American kestrel (Avian top carnivore)
	RAD	Uranium-234	American robin (Avian herbivore)
	RAD	Uranium-234	American robin (Avian insectivore)
	RAD	Uranium-234	American robin (Avian omnivore)
	RAD	Uranium-234	Deer mouse (Mammalian omnivore)
	RAD	Uranium-234	Desert cottontail (Mammalian herbivore)
	RAD	Uranium-234	Earthworm (Soil-dwelling invertebrate)
	RAD	Uranium-234	Generic plant (Terrestrial autotroph - producer)
	RAD	Uranium-234	Montane shrew (Mammalian insectivore)
	RAD	Uranium-234	Red fox (Mammalian top carnivore)
	RAD	Uranium-235	American robin (Avian herbivore)
	RAD	Uranium-235	American robin (Avian insectivore)
	RAD	Uranium-235	American robin (Avian omnivore)
	RAD	Uranium-235	Deer mouse (Mammalian omnivore)
	RAD	Uranium-235	Desert cottontail (Mammalian herbivore)
	RAD	Uranium-235	Earthworm (Soil-dwelling invertebrate)
	RAD	Uranium-235	Generic plant (Terrestrial autotroph - producer)
	RAD	Uranium-235	Montane shrew (Mammalian insectivore)
	RAD	Uranium-235	Red fox (Mammalian top carnivore)
	RAD	Uranium-236	American kestrel (Avian intermediate carnivore)
	RAD	Uranium-236	American kestrel (Avian top carnivore)
	RAD	Uranium-236	American robin (Avian herbivore)
	RAD	Uranium-236	American robin (Avian insectivore)
	RAD	Uranium-236	American robin (Avian omnivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes		
	RAD	Uranium-236	Deer mouse (Mammalian omnivore)
	RAD	Uranium-236	Desert cottontail (Mammalian herbivore)
	RAD	Uranium-236	Earthworm (Soil-dwelling invertebrate)
	RAD	Uranium-236	Generic plant (Terrestrial autotroph - producer)
	RAD	Uranium-236	Montane shrew (Mammalian insectivore)
	RAD	Uranium-236	Red fox (Mammalian top carnivore)
	RAD	Uranium-238	American kestrel (Avian intermediate carnivore)
	RAD	Uranium-238	American robin (Avian herbivore)
	RAD	Uranium-238	American robin (Avian insectivore)
	RAD	Uranium-238	American robin (Avian omnivore)
	RAD	Uranium-238	Desert cottontail (Mammalian herbivore)
	RAD	Uranium-238	Earthworm (Soil-dwelling invertebrate)
	RAD	Uranium-238	Generic plant (Terrestrial autotroph - producer)
	RAD	Uranium-238	Red fox (Mammalian top carnivore)

Minimum ESL Updates

Recent literature review for toxicity data, transfer factor data and receptor data for soil ESLs resulted in updated minimum ESLs for the following

Analyte Name
Amino-2,6-dinitrotoluene[4-]
Amino-4,6-dinitrotoluene[2-]
Dinitrotoluene[2,6-]
HMX
Nitroglycerine
RDX
Tetryl
Trinitrobenzene[1,3,5-]
Trinitrotoluene[2,4,6-]
Antimony
Fluoride
Thallium

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Vanadium Aroclor-1260 Dinitrotoluene[2,4-] Americium-241 Cesium-134 Cesium-137 + Barium-137 Cobalt-60 Europium-152 Lead-210 Plutonium-238 Plutonium-239, 240 Plutonium-241 Radium-226 Radium-228 Sodium-22 Strontium-90 + Yittrium-90 Uranium-233 Uranium-234 Uranium-235 Uranium-236 Uranium-238 **New NOAEL/NOEC-based TRVs** Recent literature review identified new soil TRVs based on EcoSSL based methodology from SERDP (REF ID 2006) and TTCP (REF ID 2010) for the following: • Amino-2,6-dinitrotoluene[4-]/Plant • Amino-2,6-dinitrotoluene[4-]/Invertebrate • Amino-4,6-dinitrotoluene[2-]/Plant • Amino-4,6-dinitrotoluene[2-]/Invertebrate • Dinitrotoluene[2,4-]/Plant • Dinitrotoluene[2,4-]/Invertebrate • HMX/Invertebrate • Nitroglycerine/Plant • Nitroglycerine/Invertebrate

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	• RDX/Plant Recent literature review identified new toxicological literature to develop LANL PTSE TRVs for the following*: • Antimony/Plant • Beryllium/Plant • Dinitrotoluene[2,6-]/Invertebrate • Dinitrotoluene[2,6-]/Plant • RDX/Invertebrate • Thallium/Plant • Trinitrobenzene[1,3,5-]/Invertebrate • Vanadium/Plant * LANL would like to acknowledge the support from Mark Rigby, PhD of Parsons for providing toxicological literature for high explosives and inorganics. **New NOAEL/NOEC-based TRV Updates** The use status of soil TRVs for Plant and Invertebrates were changed from YES to NO due to replacement by a more relevant TRV: • Amino-2,6-dinitrotoluene[4-]/Plant • Amino-4,6-dinitrotoluene[2-]/Plant • HMX/Invertebrate • Antimony/Invertebrate • Beryllium/Invertebrate • Vanadium/Invertebrate The soil TRVs for Plant and Invertebrates were deleted due to a correction of the data: • RDX/Invertebrate • Thallium/Plant **New TFs** • No new values. **TF Updates** Numerous TF_flesh, TF_beef, TF_blood, TF_invert and TF_plant were updated for inorganic, organic and radionuclide chemicals. • TF_flesh_dw **Analyte Name** Acenaphthene

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Acenaphthylene
	Acetone
	Aldrin
	Aluminum
	Amino-2,6-dinitrotoluene[4-]
	Amino-4,6-dinitrotoluene[2-]
	Anthracene
	Antimony
	Aroclor-1016
	Aroclor-1242
	Aroclor-1248
	Aroclor-1254
	Aroclor-1260
	Arsenic
	Barium
	Benzene
	Benzo(a)anthracene
	Benzo(a)pyrene
	Benzo(b)fluoranthene
	Benzo(g,h,i)perylene
	Benzo(k)fluoranthene
	Benzoic Acid
	Benzyl Alcohol
	Beryllium
	BHC[alpha-]
	BHC[beta-]
	BHC[gamma-]
	Bis(2-ethylhexyl)phthalate
	Boron
	Butanone[2-]
	Butyl Benzyl Phthalate
	Cadmium
	Carbazole
	Carbon Disulfide
	Chlordane[alpha-]
	Chlordane[gamma-]
	Chloro-3-methylphenol[4-]
	Chloroaniline[4-]
	Chlorobenzene

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Chloroform
	Chloromethane
	Chlorophenol[2-]
	Chromium (total)
	Chromium(+6)
	Chrysene
	Cobalt
	Copper
	Cyanide (total)
	DDD[4,4'-]
	DDE[4,4'-]
	DDT[4,4'-]
	Dibenzo(a,h)anthracene
	Dibenzofuran
	Dichlorobenzene[1,2-]
	Dichlorobenzene[1,3-]
	Dichlorobenzene[1,4-]
	Dichlorodifluoromethane
	Dichloroethane[1,1-]
	Dichloroethane[1,2-]
	Dichloroethene[1,1-]
	Dichloroethene[cis/trans-1,2-]
	Dieldrin
	Diethyl Phthalate
	Dimethyl Phthalate
	Di-n-Butyl Phthalate
	Dinitrobenzene[1,3-]
	Dinitrotoluene[2,4-]
	Dinitrotoluene[2,6-]
	Di-n-octylphthalate
	Diphenylamine
	Endosulfan
	Endrin
	Fluoranthene
	Fluorene
	Fluoride
	Heptachlor
	Hexachlorobenzene
	Hexanone[2-]

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	HMX
	Indeno(1,2,3-cd)pyrene
	Iodomethane
	Iron
	Kepone
	Lead
	Lithium
	Manganese
	Mercury (inorganic)
	Mercury (methyl)
	Methoxychlor[4,4'-]
	Methyl-2-pentanone[4-]
	Methylene Chloride
	Methylnaphthalene[2-]
	Methylphenol[2-]
	Methylphenol[3-]
	Molybdenum
	Naphthalene
	Nickel
	Nitroaniline[2-]
	Nitrobenzene
	Nitroglycerine
	Nitrotoluene[2-]
	Nitrotoluene[3-]
	Nitrotoluene[4-]
	Pentachloronitrobenzene
	Pentachlorophenol
	PETN
	Phenanthrene
	Phenol
	Pyrene
	RDX
	Selenium
	Silver
	Strontium (stable)
	Styrene
	Tetrachlorodibenzodioxin[2,3,7,8-]
	Tetrachloroethane[1,1,2,2-]

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Tetrachloroethene Tetryl Thallium Titanium Toluene Toxaphene (Technical Grade) Trichlorobenzene[1,2,4-] Trichloroethane[1,1,1-] Trichloroethene Trichlorofluoromethane Trinitrobenzene[1,3,5-] Trinitrotoluene[2,4,6-] Uranium Vanadium Vinyl Chloride Xylene (Total) Zinc • TF_flesh _fw **Analyte Name** Americium-241 Cesium-134 Cesium-137 + Barium-137 Cobalt-60 Europium-152 Lead-210 Neptunium-237 Plutonium-238 Plutonium-239, 240 Plutonium-241 Radium-226 Radium-228 Sodium-22 Strontium-90 + Yittrium-90 Thorium-228 Thorium-229 Thorium-230 Thorium-232 Tritium Uranium-233

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Uranium-234 Uranium-235 Uranium-236 Uranium-238
	• **TF_beef_fw**

Analyte Name
Acenaphthene
Acenaphthylene
Acetone
Aldrin
Amino-2,6-dinitrotoluene[4-]
Amino-4,6-dinitrotoluene[2-]
Anthracene
Aroclor-1016
Aroclor-1242
Aroclor-1248
Aroclor-1254
Aroclor-1260
Benzene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(g,h,i)perylene
Benzo(k)fluoranthene
Benzoic Acid
Benzyl Alcohol
BHC[alpha-]
BHC[beta-]
BHC[gamma-]
Bis(2-ethylhexyl)phthalate
Butanone[2-]
Butyl Benzyl Phthalate
Carbazole
Carbon Disulfide
Carbon Tetrachloride
Chlordane[alpha-]
Chlordane[gamma-]
Chloro-3-methylphenol[4-]
Chloroaniline[4-]

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Chlorobenzene
	Chloroform
	Chloromethane
	Chlorophenol[2-]
	Chrysene
	DDD[4,4'-]
	DDE[4,4'-]
	DDT[4,4'-]
	Dibenzo(a,h)anthracene
	Dibenzofuran
	Dichlorobenzene[1,2-]
	Dichlorobenzene[1,3-]
	Dichlorobenzene[1,4-]
	Dichlorodifluoromethane
	Dichloroethane[1,1-]
	Dichloroethane[1,2-]
	Dichloroethene[1,1-]
	Dichloroethene[cis/trans-1,2-]
	Dieldrin
	Diethyl Phthalate
	Dimethyl Phthalate
	Di-n-Butyl Phthalate
	Dinitrobenzene[1,3-]
	Dinitrotoluene[2,4-]
	Dinitrotoluene[2,6-]
	Di-n-octylphthalate
	Diphenylamine
	Endosulfan
	Endrin
	Fluoranthene
	Fluorene
	Heptachlor
	Hexachlorobenzene
	Hexanone[2-]
	HMX
	Indeno(1,2,3-cd)pyrene
	Iodomethane
	Kepone
	Methoxychlor[4,4'-]

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Methyl-2-pentanone[4-] Methylene Chloride Methylnaphthalene[2-] Methylphenol[2-] Methylphenol[3-] Naphthalene Nitroaniline[2-] Nitrobenzene Nitroglycerine Nitrotoluene[2-] Nitrotoluene[3-] Nitrotoluene[4-] Pentachloronitrobenzene Pentachlorophenol PETN Phenanthrene Phenol Pyrene RDX Styrene Tetrachlorodibenzodioxin[2,3,7,8-] Tetrachloroethane[1,1,2,2-] Tetrachloroethene Tetryl Toluene Toxaphene (Technical Grade) Trichlorobenzene[1,2,4-] Trichloroethane[1,1,1-] Trichloroethene Trichlorofluoromethane Trinitrobenzene[1,3,5-] Trinitrotoluene[2,4,6-] Vinyl Chloride Xylene (Total) • **TF_blood** **Analyte Name** Americium-241 Cesium-134

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Cesium-137 + Barium-137 Cobalt-60 Europium-152 Lead-210 Neptunium-237 Plutonium-238 Plutonium-239, 240 Plutonium-241 Radium-226 Radium-228 Sodium-22 Strontium-90 + Yittrium-90 Thorium-228 Thorium-229 Thorium-230 Thorium-232 Tritium Uranium-233 Uranium-234 Uranium-235 Uranium-236 Uranium-238 • **TF_invert_dw** **Analyte Name** Amino-2,6-dinitrotoluene[4-] Amino-4,6-dinitrotoluene[2-] Antimony Fluoride HMX RDX Thallium Trinitrotoluene[2,4,6-] • **TF_invert_fw** **Analyte Name** Americium-241 Cesium-134 Cesium-137 + Barium-137 Cobalt-60

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Europium-152 Lead-210 Plutonium-238 Plutonium-239, 240 Plutonium-241 Radium-226 Radium-228 Strontium-90 + Yittrium-90 Uranium-233 Uranium-234 Uranium-235 Uranium-236 Uranium-238 • **TF_plant_dw** **Analyte Name** Amino-2,6-dinitrotoluene[4-] Amino-4,6-dinitrotoluene[2-] Dinitrotoluene[2,4-] Dinitrotoluene[2,6-] HMX RDX Tetryl Trinitrobenzene[1,3,5-] Trinitrotoluene[2,4,6-] • **TF_plant_fw** **Analyte Name** Americium-241 Cesium-134 Cesium-137 + Barium-137 Cobalt-60 Europium-152 Lead-210 Plutonium-238 Plutonium-239, 240 Plutonium-241 Radium-226 Radium-228 Sodium-22

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Strontium-90 + Yittrium-90 Thorium-228 Thorium-229 Thorium-230 Thorium-232 Uranium-233 Uranium-234 Uranium-235 Uranium-236 Uranium-238

Updated Receptor Parameters

ESL Parameter or Equation	ESL Receptor
I_flesh_dw	American kestrel (Avian intermediate carnivore)
I_soil_dw	American kestrel (Avian intermediate carnivore)
I_flesh_fw	American kestrel (Avian intermediate carnivore)
I_invert_fw	American kestrel (Avian intermediate carnivore)
I_invert_dw	American kestrel (Avian intermediate carnivore)
I_food_dw	American kestrel (Avian intermediate carnivore)
I_food_fw	American kestrel (Avian intermediate carnivore)
I_flesh_fw	American kestrel (Avian top carnivore)
I_food_dw	American kestrel (Avian top carnivore)
I_soil_dw	American kestrel (Avian top carnivore)
I_flesh_dw	American kestrel (Avian top carnivore)
I_food_fw	American kestrel (Avian top carnivore)
bw	Desert cottontail (Mammalian herbivore)
I_food_dw	Desert cottontail (Mammalian herbivore)
I_food_fw	Desert cottontail (Mammalian herbivore)
I_plant_dw	Desert cottontail (Mammalian herbivore)
I_plant_fw	Desert cottontail (Mammalian herbivore)
I_soil_dw	Desert cottontail (Mammalian herbivore)

Interface Updates

- Updated the interface Contact Information, Home, Main Menu screens to reflect release information. Specifically, on the Menu Screen the Supplemental Report links were revised to include the TRV Development Methods Revision 1 report released February 2014. The

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	revised TRV Methodology document describes methods used to select toxicological data for aquatic community organisms in sediment and water and incorporates supplementary technical documents that support the development of TRVs.

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
October 2015 – Release 3.3	In release 3.3 of the ECORISK database, TRVs were updated/added for some high explosive chemicals for sediment aquatic community organisms and avian insectivores. Transfer Factors were updated/added for several high explosives and inorganics. **New NOAEL/NOEC-based ESLs** Recent literature review for toxicity data, transfer factor data and receptor data for sediment ESLs resulted in new ESLs for the following: **Analyte Name** — **ESL Receptor** Trinitrotoluene [2,4,6-] — Aquatic community (sediment) HMX — Aquatic community (sediment) RDX — Aquatic community (sediment) Trinitrobenzene [1,3,5-] — Aquatic community (sediment) Dinitrotoluene [2,6-] — Violet-green Swallow (avian aerial insectivore) **NOAEL/NOEC-based ESL Updates** Recent literature review for transfer factor data for sediment ESLs resulted in updated ESLs for the following: **Analyte Name** — **ESL Receptor** Trinitrotoluene [2,4,6-] — Occult little brown bat (mammalian aerial insectivore Trinitrotoluene [2,4,6-] — Violet-green Swallow (avian aerial insectivore) HMX — Occult little brown bat (mammalian aerial insectivore RDX — Violet-green Swallow (avian aerial insectivore) Amino-4,6-dinitrotoluene [2-] — Occult little brown bat (mammalian aerial insectivore Amino-2,6-dinitrotoluene [4-] — Occult little brown bat (mammalian aerial insectivore Antimony — Occult little brown bat (mammalian aerial insectivore Fluoride — Occult little brown bat (mammalian aerial insectivore Fluoride — Violet-green Swallow (avian aerial insectivore) Thallium — Occult little brown bat (mammalian aerial insectivore Thallium — Violet-green Swallow (avian aerial insectivore)

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Minimum ESL Updates Recent literature review for toxicity data, transfer factor data and receptor data for sediment ESLs resulted in updated minimum ESLs for the following: **Analyte Name** Trinitrotoluene [2,4,6-] HMX RDX Trinitrobenzene [1,3,5-] Amino-4,6-dinitrotoluene [2-] Amino-2,6-dinitrotoluene [4-] Antimony Fluoride Thallium **New NOAEL/NOEC-based TRVs** Recent literature review identified new toxicological literature to develop LANL PTSE TRVs for the following: <table><tr><th>Analyte</th><th>Receptor Category</th></tr><tr><td>Trinitrotoluene [2,4,6-]</td><td>Aquatic community - sediment</td></tr><tr><td>HMX</td><td>Aquatic community - sediment</td></tr><tr><td>RDX</td><td>Aquatic community - sediment</td></tr><tr><td>Trinitrobenzene [1,3,5-]</td><td>Aquatic community - sediment</td></tr><tr><td>Dinitrotoluene [2,6]</td><td>Birds – sediment aerial insectivore</td></tr></table> In addition to the above, new literature was reviewed to assess its relevance for updating soil TRVs for Aroclors. After the PTSE Part 2 review it was determined that the data was inadequate for inclusion in TRV derivation. However, the PTV study detail text for Aroclor 1260, Aroclor 1254, and Aroclor 1248 was updated to note which studies were reviewed and the reason the data were not included. **TF Updates** TF_invert_dw values were updated for sediment receptors for the following inorganic and HE compounds: **Analyte Name** Trinitrotoluene [2,4,6-] HMX RDX

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	Trinitrobenzene [1,3,5-] Amino-4,6-dinitrotoluene [2-] Amino-2,6-dinitrotoluene [4-] Antimony Fluoride Thallium **Interface Updates** Updated the interface Contact Information, Home, Main Menu screens to reflect release information. The Supplemental Report links on all screens were revised to include the TRV Development Methods Revision 1 report released February 2014. **Other Corrections** Edits were made to the reference list to correct duplicate reference numbers in R3.2. In that version, two different references were assigned Reference #2010. In R3.3, RTI (2005) is retained as Reference #2010, while Kuperman & Sunahara (2010) is assigned as new Reference #2022. All links to Kuperman & Sunahara have been updated to refer to Reference #2022.

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
October 2016 – Release 4.0	In Release 4.0 of the ECORISK database, the ESL part of the database was not updated. A new section was added to the ECORISK database for Ecological Preliminary Remediation Goals (EcoPRGs) for soil. The complete list of analytes, receptors and the EcoPRGs for each as well as final EcoPRGs are provided in Table 7.
September 2017 – Release 4.1	In release 4.1 of the ECORISK database, the following additions and updates were made. **Task 1.15b - New NOAEL/NOEC- and LOAEL/LOEC-TRVs and ESLs** Recent literature review identified new toxicological literature to develop LANL PTSE TRVs for the following terrestrial receptor categories for the perchlorate ion: **Analyte** — **Receptor Category** **Perchlorate ion** — **Invertebrate** **Plant** **Bird** **Mammal** See Table 8a. Task 1.15b - New NOAEL/NOEC- and LOAEL/LOEC-TRVs and ESLs (September 2017) In addition to the above, new literature was reviewed to assess its relevance for updating soil TRVs for PAHs/ Bird, TPH/ Plants and TPH/ Invertebrates. However, after the PTSE Part 1 review, it was determined that the data were inadequate for inclusion in TRV derivation. **Task 1.15b – New Perchlorate TFs for ESLs** Recent literature review identified new toxicological literature to develop LANL PTSE TRVs for the perchlorate ion for mammal, bird receptors, so perchlorate ion TFs were identfied to allow the calculation of the ESLs for these receptors. See Table 8b. Task 1.15b – New Perchlorate TFs for ESLs (September 2017) **Task 1.6 – Updates to LOAEL/LOEC Tier 1 TRV Notes and Values for EcoPRGs (September 2017)** LOAEL/ LOEC-based TRV notes were refined and values were updated for LANL Tier 1 TRVs based on EPA EcoSSL geometric mean NOAEL/ NOEC-based TRVs that EPA did not select for use for their EcoESLs, but for which data were available to calculate a geometric mean of LOAEL/LOECs. Prior to this update, the geometric mean NOAEL/NOEC-based TRVs were used as the LOAEL/LOEC-based TRV for

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	EcoPRG derivation. See Table 9. Task 1.6 – Updates to LOAEL/LOEC Tier 1 TRV Notes and Values for EcoPRGs (September 2017). **Task 1.7 Updates – Updates to LOAEL/LOEC-based Tier 2 TRVs Notes for ESLs (September 2017)** LOAEL/ LOEC-based TRV notes were updated to enhance data documentation for metals, PCBs, dioxin/furans, phthalates, and HE Tier 2 (geometric mean) TRVs (LANL-reviewed studies). See Table 10a. Task 1.7 Updates – Updates to LOAEL/LOEC-based Tier 2 TRVs Notes for ESLs (September 2017). **Task 1.7 Updates - Updates to LOAEL/LOEC-based Tier 3 TRVs Notes for ESLs (September 2017)** LOAEL/ LOEC-based TRV notes were updated to enhance data documentation for metals, PCBs, dioxin/furans, phthalates, and HE Tier 3 (critical study) TRVs (LANL-reviewed studies). See Table 10b. Task 1.7 Updates - Updates to LOAEL/LOEC-based Tier 3 TRVs Notes for ESLs (September 2017). **Task 1.8 Updates – Updates to LOAEL/LOEC-based Tier 1 TRV Notes for ESLs and Values for select ESLs and EcoPRGs (September 2017)** LOAEL/ LOEC-based TRV notes were refined and values were updated for LANL Tier 1 TRVs based on EPA EcoSSL geometric mean NOAEL/ NOEC-based TRVs that EPA did select for use for their EcoESLs. The LOAEL/LOEC-based TRVs were updated to include only bounded LOAEL/LOECs in the geometric mean calculation. Prior to this update, the LOAEL/LOEC-based TRVs included both bound and unboun LOAELs/LOECs in the geometric mean calculation. See Table 11. Task 1.8 Updates – Updates to LOAEL/LOEC-based Tier 1 TRV Notes for ESLs and Values for select ESLs and EcoPRGs (September 2017). **Task 2.2 – ESL Receptor Parameter Updates (September 2017)** As a result of revisions made to receptor parameters in the LANL SLERA and EcoPRG Methodologies to make them more site-specific/ relevant to LANL site conditions, the database was updated to reflect these changes. Changes were made to body weight, fraction of soil intake, food intake and water intake rates for the

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	following bird and mammal receptors including the American kestrel, American robin, desert cottontail surrogate for mountain cottontail, montane shrew, red fox surrogate for the gray fox, violet green swallow and occult little brown myotis bat. See Table 12a. Task 2.2 – ESL Receptor Parameter Updates (September 2017). **Task 2.2 – ESL TF_flesh_dw Updates (September 2017)** As a result of revisions made to receptor parameters in the LANL SLERA and EcoPRG Methodologies to make them more site-specific/ relevant to LANL site conditions, the database was updated to reflect these changes. As a result of changes were made to body weight, fraction of soil intake, food intake and water intake rates for the following bird and mammal receptors including the American kestrel, American robin, desert cottontail surrogate for mountain cottontail, montane shrew, red fox surrogate for the gray fox, violet green swallow and occult little brown myotis bat; the TF_flesh_fw composite parameters for intake rate and fraction of soil parameters were updated resulting in updated TF. See Table 12b. ESL TF_flesh_dw Updates (September 2017) **Task 2.2 – EcoPRG Receptor Parameter Updates (September 2017)** As a result of revisions made to receptor parameters in the LANL SLERA and EcoPRG Methodologies to make them more site-specific/ relevant to LANL site conditions, the database was updated to reflect these changes. Changes were made to body weight, fraction of soil intake, and food intake for the following bird and mammal receptors including the American kestrel, American robin, desert cottontail surrogate for mountain cottontail, montane shrew, and red fox surrogate for the gray fox. See Table 13. Task 2.2 – EcoPRG Receptor Parameter Updates (September 2017) **ESL Updates – Non-Radionulcide (September 2017)** Updates to soil and sediment non-radionuclide ESLs as a result of updates to NOAEL/NOEC-based ESLs, TFs, and or ESL receptor parameters. See Table 14. ESL Updates – Non-Radionulcide (September 2017) **ESL Updates – Radionuclide (September 2017)** Updates to soil and sediment radionuclide ESLs as a result of updates to TFs and or ESL receptor parameters.

Table 1. ESL Changes by Ecorisk Database Release

Ecorisk Database Release	ESL Changes
	See Table 15. ESL Updates – Radionuclide (September 2017) **Final (Minimum) ESL Updates (September 2017)** Updates to both non-radionucliude and radionuclide soil and sediment FINAL (Minimum) ESLs as a result of updates to ESLs. See Table 16. Final (Minimum) ESL Updates (September 2017) **Interface Updates** None. **Other Corrections** The names for the following receptors were updated to reflect more site-specific ESL receptors. Desert cottontail changed to mountain cottontail. The red fox changed to gray fox.
	BACK TO TOP

Table 2. Beta Release (October 1998) List of Soil ESLs for Bird Receptors					
Analyte Class	**Analyte Group**	**Analyte Name**	**Analyte Code**	**ESL Medium**	**Receptor Group**
NONRAD	D/F	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	SOIL	Bird
NONRAD	INORG	Aluminum	AL	SOIL	Bird
NONRAD	INORG	Arsenic	AS	SOIL	Bird
NONRAD	INORG	Barium	BA	SOIL	Bird
NONRAD	INORG	Cadmium	CD	SOIL	Bird
NONRAD	INORG	Chromium (total)	CR	SOIL	Bird
NONRAD	INORG	Chromium(+6)	CR(+6)	SOIL	Bird
NONRAD	INORG	Cobalt	CO	SOIL	Bird
NONRAD	INORG	Copper	CU	SOIL	Bird
NONRAD	INORG	Cyanide (total)	CN(-1)	SOIL	Bird
NONRAD	INORG	Lead	PB	SOIL	Bird
NONRAD	INORG	Manganese	MN	SOIL	Bird
NONRAD	INORG	Mercury (inorganic)	HGI	SOIL	Bird
NONRAD	INORG	Mercury (methyl)	HGM	SOIL	Bird
NONRAD	INORG	Nickel	NI	SOIL	Bird
NONRAD	INORG	Selenium	SE	SOIL	Bird
NONRAD	INORG	Silver	AG	SOIL	Bird
NONRAD	INORG	Uranium	U	SOIL	Bird
NONRAD	INORG	Vanadium	V	SOIL	Bird
NONRAD	INORG	Zinc	ZN	SOIL	Bird
NONRAD	PAH	Naphthalene	91-20-3	SOIL	Bird
NONRAD	PCB	Aroclor-1242	53469-21-9	SOIL	Bird
NONRAD	PCB	Aroclor-1248	12672-29-6	SOIL	Bird
NONRAD	PCB	Aroclor-1254	11097-69-1	SOIL	Bird
NONRAD	PCB	Aroclor-1260	11096-82-5	SOIL	Bird
NONRAD	PEST	BHC[beta-]	319-85-7	SOIL	Bird
NONRAD	PEST	BHC[gamma-]	58-89-9	SOIL	Bird
NONRAD	PEST	Chlordane[alpha-]	5103-71-9	SOIL	Bird
NONRAD	PEST	Chlordane[gamma-]	5103-74-2	SOIL	Bird
NONRAD	PEST	DDE[4,4'-]	72-55-9	SOIL	Bird
NONRAD	PEST	DDT[4,4'-]	50-29-3	SOIL	Bird
NONRAD	PEST	Dieldrin	60-57-1	SOIL	Bird
NONRAD	PEST	Endosulfan	115-29-7	SOIL	Bird
NONRAD	PEST	Endrin	72-20-8	SOIL	Bird
NONRAD	PEST	Heptachlor	76-44-8	SOIL	Bird
NONRAD	PEST	Kepone	143-50-0	SOIL	Bird
NONRAD	PEST	Methoxychlor[4,4'-]	72-43-5	SOIL	Bird
NONRAD	PEST	Toxaphene (Technical Grade)	8001-35-2	SOIL	Bird
NONRAD	SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	SOIL	Bird

Table 2. Beta Release (October 1998) List of Soil ESLs for Bird Receptors

Analyte Class	Analyte Group	Analyte Name	Analyte Code	ESL Medium	Receptor Group
NONRAD	SVOC	Chloro-3-methylphenol[4-]	59-50-7	SOIL	Bird
NONRAD	SVOC	Chlorophenol[2-]	95-57-8	SOIL	Bird
NONRAD	SVOC	Di-n-Butyl Phthalate	84-74-2	SOIL	Bird
NONRAD	SVOC	Pentachloronitrobenzene	82-68-8	SOIL	Bird
NONRAD	SVOC	Pentachlorophenol	87-86-5	SOIL	Bird
NONRAD	VOC	Acetone	67-64-1	SOIL	Bird
NONRAD	VOC	Xylene (Total)	1330-20-7	SOIL	Bird
RAD	RAD	Americium-241	AM-241	SOIL	Bird
RAD	RAD	Cesium-134	CS-134	SOIL	Bird
RAD	RAD	Cesium-137 + Barium-137	CS-137/ BA-137	SOIL	Bird
RAD	RAD	Cobalt-60	CO-60	SOIL	Bird
RAD	RAD	Europium-152	EU-152	SOIL	Bird
RAD	RAD	Plutonium-238	PU-238	SOIL	Bird
RAD	RAD	Plutonium-239, 240	PU-239/240	SOIL	Bird
RAD	RAD	Plutonium-241	PU-241	SOIL	Bird
RAD	RAD	Radium-226	RA-226	SOIL	Bird
RAD	RAD	Sodium-22	NA-22	SOIL	Bird
RAD	RAD	Strontium-90 + Yittrium-90	SR-90/ Y-90	SOIL	Bird
RAD	RAD	Thorium-228	TH-228	SOIL	Bird
RAD	RAD	Thorium-230	TH-230	SOIL	Bird
RAD	RAD	Thorium-232	TH-232	SOIL	Bird
RAD	RAD	Tritium	H-3	SOIL	Bird
RAD	RAD	Uranium-234	U-234	SOIL	Bird
RAD	RAD	Uranium-235	U-235	SOIL	Bird
RAD	RAD	Uranium-238	U-238	SOIL	Bird

BACK TO TOP

Table 3. Beta Release (October 1998) List of Soil ESLs for Mammalian Receptors

Analyte Class	Analyte Group	Analyte Name	Analyte Code	ESL Medium	Receptor Group
NONRAD	D/F	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	SOIL	Mammal
NONRAD	HE	Amino-2,6-dinitrotoluene[4-]	19406-51-0	SOIL	Mammal
NONRAD	HE	Amino-4,6-dinitrotoluene[2-]	35572-78-2	SOIL	Mammal
NONRAD	HE	Dinitrobenzene[1,3-]	99-65-0	SOIL	Mammal
NONRAD	HE	Dinitrotoluene[2,4-]	121-14-2	SOIL	Mammal
NONRAD	HE	Dinitrotoluene[2,6-]	606-20-2	SOIL	Mammal
NONRAD	HE	HMX	2691-41-0	SOIL	Mammal
NONRAD	HE	Nitroglycerine	55-63-0	SOIL	Mammal
NONRAD	HE	Nitrotoluene[2-]	88-72-2	SOIL	Mammal
NONRAD	HE	Nitrotoluene[3-]	99-08-1	SOIL	Mammal

Table 3. Beta Release (October 1998) List of Soil ESLs for Mammalian Receptors					
Analyte Class	**Analyte Group**	**Analyte Name**	**Analyte Code**	**ESL Medium**	**Receptor Group**
NONRAD	HE	Nitrotoluene[4-]	99-99-0	SOIL	Mammal
NONRAD	HE	PETN	78-11-5	SOIL	Mammal
NONRAD	HE	RDX	121-82-4	SOIL	Mammal
NONRAD	HE	Tetryl	479-45-8	SOIL	Mammal
NONRAD	HE	Trinitrobenzene[1,3,5-]	99-35-4	SOIL	Mammal
NONRAD	HE	Trinitrotoluene[2,4,6-]	118-96-7	SOIL	Mammal
NONRAD	INORG	Aluminum	AL	SOIL	Mammal
NONRAD	INORG	Antimony	SB	SOIL	Mammal
NONRAD	INORG	Arsenic	AS	SOIL	Mammal
NONRAD	INORG	Barium	BA	SOIL	Mammal
NONRAD	INORG	Beryllium	BE	SOIL	Mammal
NONRAD	INORG	Cadmium	CD	SOIL	Mammal
NONRAD	INORG	Chromium (total)	CR	SOIL	Mammal
NONRAD	INORG	Chromium(+6)	CR(+6)	SOIL	Mammal
NONRAD	INORG	Cobalt	CO	SOIL	Mammal
NONRAD	INORG	Copper	CU	SOIL	Mammal
NONRAD	INORG	Cyanide (total)	CN(-1)	SOIL	Mammal
NONRAD	INORG	Lead	PB	SOIL	Mammal
NONRAD	INORG	Manganese	MN	SOIL	Mammal
NONRAD	INORG	Mercury (inorganic)	HGI	SOIL	Mammal
NONRAD	INORG	Mercury (methyl)	HGM	SOIL	Mammal
NONRAD	INORG	Nickel	NI	SOIL	Mammal
NONRAD	INORG	Selenium	SE	SOIL	Mammal
NONRAD	INORG	Silver	AG	SOIL	Mammal
NONRAD	INORG	Thallium	TL	SOIL	Mammal
NONRAD	INORG	Titanium	TI	SOIL	Mammal
NONRAD	INORG	Uranium	U	SOIL	Mammal
NONRAD	INORG	Vanadium	V	SOIL	Mammal
NONRAD	INORG	Zinc	ZN	SOIL	Mammal
NONRAD	PAH	Acenaphthene	83-32-9	SOIL	Mammal
NONRAD	PAH	Acenaphthylene	208-96-8	SOIL	Mammal
NONRAD	PAH	Anthracene	120-12-7	SOIL	Mammal
NONRAD	PAH	Benzo(a)anthracene	56-55-3	SOIL	Mammal
NONRAD	PAH	Benzo(a)pyrene	50-32-8	SOIL	Mammal
NONRAD	PAH	Benzo(b)fluoranthene	205-99-2	SOIL	Mammal
NONRAD	PAH	Benzo(g,h,i)perylene	191-24-2	SOIL	Mammal
NONRAD	PAH	Benzo(k)fluoranthene	207-08-9	SOIL	Mammal
NONRAD	PAH	Chrysene	218-01-9	SOIL	Mammal
NONRAD	PAH	Dibenzo(a,h)anthracene	53-70-3	SOIL	Mammal
NONRAD	PAH	Fluoranthene	206-44-0	SOIL	Mammal

Table 3. Beta Release (October 1998) List of Soil ESLs for Mammalian Receptors					
Analyte Class	**Analyte Group**	**Analyte Name**	**Analyte Code**	**ESL Medium**	**Receptor Group**
NONRAD	PAH	Fluorene	86-73-7	SOIL	Mammal
NONRAD	PAH	Indeno(1,2,3-cd)pyrene	193-39-5	SOIL	Mammal
NONRAD	PAH	Methylnaphthalene[2-]	91-57-6	SOIL	Mammal
NONRAD	PAH	Naphthalene	91-20-3	SOIL	Mammal
NONRAD	PAH	Phenanthrene	85-01-8	SOIL	Mammal
NONRAD	PAH	Pyrene	129-00-0	SOIL	Mammal
NONRAD	PCB	Aroclor-1016	12674-11-2	SOIL	Mammal
NONRAD	PCB	Aroclor-1242	53469-21-9	SOIL	Mammal
NONRAD	PCB	Aroclor-1248	12672-29-6	SOIL	Mammal
NONRAD	PCB	Aroclor-1254	11097-69-1	SOIL	Mammal
NONRAD	PCB	Aroclor-1260	11096-82-5	SOIL	Mammal
NONRAD	PEST	BHC[beta-]	319-85-7	SOIL	Mammal
NONRAD	PEST	BHC[gamma-]	58-89-9	SOIL	Mammal
NONRAD	PEST	Chlordane[alpha-]	5103-71-9	SOIL	Mammal
NONRAD	PEST	Chlordane[gamma-]	5103-74-2	SOIL	Mammal
NONRAD	PEST	DDE[4,4'-]	72-55-9	SOIL	Mammal
NONRAD	PEST	DDT[4,4'-]	50-29-3	SOIL	Mammal
NONRAD	PEST	Dieldrin	60-57-1	SOIL	Mammal
NONRAD	PEST	Endosulfan	115-29-7	SOIL	Mammal
NONRAD	PEST	Endrin	72-20-8	SOIL	Mammal
NONRAD	PEST	Heptachlor	76-44-8	SOIL	Mammal
NONRAD	PEST	Kepone	143-50-0	SOIL	Mammal
NONRAD	PEST	Methoxychlor[4,4'-]	72-43-5	SOIL	Mammal
NONRAD	PEST	Toxaphene (Technical Grade)	8001-35-2	SOIL	Mammal
NONRAD	SVOC	Benzoic Acid	65-85-0	SOIL	Mammal
NONRAD	SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	SOIL	Mammal
NONRAD	SVOC	Butyl Benzyl Phthalate	85-68-7	SOIL	Mammal
NONRAD	SVOC	Chloro-3-methylphenol[4-]	59-50-7	SOIL	Mammal
NONRAD	SVOC	Chlorobenzene	108-90-7	SOIL	Mammal
NONRAD	SVOC	Chlorophenol[2-]	95-57-8	SOIL	Mammal
NONRAD	SVOC	Dimethyl Phthalate	131-11-3	SOIL	Mammal
NONRAD	SVOC	Di-n-Butyl Phthalate	84-74-2	SOIL	Mammal
NONRAD	SVOC	Di-n-octylphthalate	117-84-0	SOIL	Mammal
NONRAD	SVOC	Nitrobenzene	98-95-3	SOIL	Mammal
NONRAD	SVOC	Pentachloronitrobenzene	82-68-8	SOIL	Mammal
NONRAD	SVOC	Pentachlorophenol	87-86-5	SOIL	Mammal
NONRAD	SVOC	Phenol	108-95-2	SOIL	Mammal
NONRAD	VOC	Acetone	67-64-1	SOIL	Mammal
NONRAD	VOC	Benzene	71-43-2	SOIL	Mammal
NONRAD	VOC	Butanone[2-]	78-93-3	SOIL	Mammal

Table 3. Beta Release (October 1998) List of Soil ESLs for Mammalian Receptors

Analyte Class	Analyte Group	Analyte Name	Analyte Code	ESL Medium	Receptor Group
NONRAD	VOC	Chloroform	67-66-3	SOIL	Mammal
NONRAD	VOC	Dichloroethane[1,1-]	75-34-3	SOIL	Mammal
NONRAD	VOC	Dichloroethene[1,1-]	75-35-4	SOIL	Mammal
NONRAD	VOC	Dichloroethene[cis/trans-1,2-]	540-59-0	SOIL	Mammal
NONRAD	VOC	Methylene Chloride	75-09-2	SOIL	Mammal
NONRAD	VOC	Tetrachloroethane[1,1,2,2-]	79-34-5	SOIL	Mammal
NONRAD	VOC	Tetrachloroethene	127-18-4	SOIL	Mammal
NONRAD	VOC	Toluene	108-88-3	SOIL	Mammal
NONRAD	VOC	Trichlorobenzene[1,2,4-]	120-82-1	SOIL	Mammal
NONRAD	VOC	Trichloroethane[1,1,1-]	71-55-6	SOIL	Mammal
NONRAD	VOC	Trichloroethene	79-01-6	SOIL	Mammal
NONRAD	VOC	Xylene (Total)	1330-20-7	SOIL	Mammal
RAD	RAD	Americium-241	AM-241	SOIL	Mammal
RAD	RAD	Cesium-134	CS-134	SOIL	Mammal
RAD	RAD	Cesium-137 + Barium-137	CS-137/ BA-137	SOIL	Mammal
RAD	RAD	Cobalt-60	CO-60	SOIL	Mammal
RAD	RAD	Europium-152	EU-152	SOIL	Mammal
RAD	RAD	Plutonium-238	PU-238	SOIL	Mammal
RAD	RAD	Plutonium-239, 240	PU-239/240	SOIL	Mammal
RAD	RAD	Plutonium-241	PU-241	SOIL	Mammal
RAD	RAD	Radium-226	RA-226	SOIL	Mammal
RAD	RAD	Sodium-22	NA-22	SOIL	Mammal
RAD	RAD	Strontium-90 + Yittrium-90	SR-90/ Y-90	SOIL	Mammal
RAD	RAD	Thorium-228	TH-228	SOIL	Mammal
RAD	RAD	Thorium-230	TH-230	SOIL	Mammal
RAD	RAD	Thorium-232	TH-232	SOIL	Mammal
RAD	RAD	Tritium	H-3	SOIL	Mammal
RAD	RAD	Uranium-234	U-234	SOIL	Mammal
RAD	RAD	Uranium-235	U-235	SOIL	Mammal
RAD	RAD	Uranium-238	U-238	SOIL	Mammal

BACK TO TOP

Table 4. Beta Release (October 1998) List of Soil ESLs for Earthworm Receptor

Analyte Class	Analyte Class	Analyte Class	Analyte Class	Analyte Class	Analyte Class
NONRAD	D/F	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	SOIL	Invertebrate
NONRAD	INORG	Arsenic	AS	SOIL	Invertebrate
NONRAD	INORG	Cadmium	CD	SOIL	Invertebrate
NONRAD	INORG	Chromium(+6)	CR(+6)	SOIL	Invertebrate
NONRAD	INORG	Copper	CU	SOIL	Invertebrate

Table 4. Beta Release (October 1998) List of Soil ESLs for Earthworm Receptor					
Analyte Class	**Analyte Class**	**Analyte Class**	**Analyte Class**	**Analyte Class**	**Analyte Class**
NONRAD	INORG	Lead	PB	SOIL	Invertebrate
NONRAD	INORG	Mercury (inorganic)	HGI	SOIL	Invertebrate
NONRAD	INORG	Mercury (methyl)	HGM	SOIL	Invertebrate
NONRAD	INORG	Nickel	NI	SOIL	Invertebrate
NONRAD	INORG	Selenium	SE	SOIL	Invertebrate
NONRAD	INORG	Zinc	ZN	SOIL	Invertebrate
NONRAD	PAH	Fluorene	86-73-7	SOIL	Invertebrate
NONRAD	SVOC	Chlorobenzene	108-90-7	SOIL	Invertebrate
NONRAD	SVOC	Dimethyl Phthalate	131-11-3	SOIL	Invertebrate
NONRAD	SVOC	Nitrobenzene	98-95-3	SOIL	Invertebrate
NONRAD	SVOC	Pentachlorophenol	87-86-5	SOIL	Invertebrate
NONRAD	SVOC	Phenol	108-95-2	SOIL	Invertebrate
NONRAD	VOC	Dichlorobenzene[1,4-]	106-46-7	SOIL	Invertebrate
NONRAD	VOC	Trichlorobenzene[1,2,4-]	120-82-1	SOIL	Invertebrate
RAD	RAD	Americium-241	AM-241	SOIL	Invertebrate
RAD	RAD	Cesium-134	CS-134	SOIL	Invertebrate
RAD	RAD	Cesium-137 + Barium-137	CS-137/ BA-137	SOIL	Invertebrate
RAD	RAD	Cobalt-60	CO-60	SOIL	Invertebrate
RAD	RAD	Europium-152	EU-152	SOIL	Invertebrate
RAD	RAD	Plutonium-238	PU-238	SOIL	Invertebrate
RAD	RAD	Plutonium-239, 240	PU-239/240	SOIL	Invertebrate
RAD	RAD	Plutonium-241	PU-241	SOIL	Invertebrate
RAD	RAD	Radium-226	RA-226	SOIL	Invertebrate
RAD	RAD	Sodium-22	NA-22	SOIL	Invertebrate
RAD	RAD	Strontium-90 + Yittrium-90	SR-90/ Y-90	SOIL	Invertebrate
RAD	RAD	Thorium-228	TH-228	SOIL	Invertebrate
RAD	RAD	Thorium-230	TH-230	SOIL	Invertebrate
RAD	RAD	Thorium-232	TH-232	SOIL	Invertebrate
RAD	RAD	Tritium	H-3	SOIL	Invertebrate
RAD	RAD	Uranium-234	U-234	SOIL	Invertebrate
RAD	RAD	Uranium-235	U-235	SOIL	Invertebrate
RAD	RAD	Uranium-238	U-238	SOIL	Invertebrate

BACK TO TOP

Table 5. Beta Release (October 1998) List of Soil ESLs for Generic Plant Receptor					
Analyte Class	**Analyte Class**	**Analyte Class**	**Analyte Class**	**Analyte Class**	**Analyte Class**
NONRAD	HE	Amino-4,6-dinitrotoluene[2-]	35572-78-2	SOIL	Plant
NONRAD	HE	RDX	121-82-4	SOIL	Plant
NONRAD	HE	Tetryl	479-45-8	SOIL	Plant

Table 5. Beta Release (October 1998) List of Soil ESLs for Generic Plant Receptor					
Analyte Class	**Analyte Class**	**Analyte Class**	**Analyte Class**	**Analyte Class**	**Analyte Class**
NONRAD	HE	Trinitrotoluene[2,4,6-]	118-96-7	SOIL	Plant
NONRAD	INORG	Aluminum	AL	SOIL	Plant
NONRAD	INORG	Antimony	SB	SOIL	Plant
NONRAD	INORG	Arsenic	AS	SOIL	Plant
NONRAD	INORG	Barium	BA	SOIL	Plant
NONRAD	INORG	Beryllium	BE	SOIL	Plant
NONRAD	INORG	Cadmium	CD	SOIL	Plant
NONRAD	INORG	Chromium (total)	CR	SOIL	Plant
NONRAD	INORG	Chromium(+6)	CR(+6)	SOIL	Plant
NONRAD	INORG	Cobalt	CO	SOIL	Plant
NONRAD	INORG	Copper	CU	SOIL	Plant
NONRAD	INORG	Lead	PB	SOIL	Plant
NONRAD	INORG	Manganese	MN	SOIL	Plant
NONRAD	INORG	Mercury (inorganic)	HGI	SOIL	Plant
NONRAD	INORG	Nickel	NI	SOIL	Plant
NONRAD	INORG	Selenium	SE	SOIL	Plant
NONRAD	INORG	Silver	AG	SOIL	Plant
NONRAD	INORG	Thallium	TL	SOIL	Plant
NONRAD	INORG	Uranium	U	SOIL	Plant
NONRAD	INORG	Vanadium	V	SOIL	Plant
NONRAD	INORG	Zinc	ZN	SOIL	Plant
NONRAD	PAH	Acenaphthene	83-32-9	SOIL	Plant
NONRAD	PAH	Benzo(a)anthracene	56-55-3	SOIL	Plant
NONRAD	PAH	Benzo(b)fluoranthene	205-99-2	SOIL	Plant
NONRAD	PCB	Aroclor-1254	11097-69-1	SOIL	Plant
NONRAD	PEST	BHC[gamma-]	58-89-9	SOIL	Plant
NONRAD	PEST	Chlordane[alpha-]	5103-71-9	SOIL	Plant
NONRAD	PEST	Chlordane[gamma-]	5103-74-2	SOIL	Plant
NONRAD	PEST	Dieldrin	60-57-1	SOIL	Plant
NONRAD	PEST	Endrin	72-20-8	SOIL	Plant
NONRAD	PEST	Heptachlor	76-44-8	SOIL	Plant
NONRAD	SVOC	Dibenzofuran	132-64-9	SOIL	Plant
NONRAD	SVOC	Di-n-Butyl Phthalate	84-74-2	SOIL	Plant
NONRAD	SVOC	Pentachlorophenol	87-86-5	SOIL	Plant
NONRAD	SVOC	Phenol	108-95-2	SOIL	Plant
NONRAD	VOC	Methylene Chloride	75-09-2	SOIL	Plant
NONRAD	VOC	Toluene	108-88-3	SOIL	Plant
NONRAD	VOC	Xylene (Total)	1330-20-7	SOIL	Plant
RAD	RAD	Americium-241	AM-241	SOIL	Plant
RAD	RAD	Cesium-134	CS-134	SOIL	Plant

Table 5. Beta Release (October 1998) List of Soil ESLs for Generic Plant Receptor

Analyte Class	Analyte Class	Analyte Class	Analyte Class	Analyte Class	Analyte Class
RAD	RAD	Cesium-137 + Barium-137	CS-137/ BA-137	SOIL	Plant
RAD	RAD	Cobalt-60	CO-60	SOIL	Plant
RAD	RAD	Europium-152	EU-152	SOIL	Plant
RAD	RAD	Plutonium-238	PU-238	SOIL	Plant
RAD	RAD	Plutonium-239, 240	PU-239/240	SOIL	Plant
RAD	RAD	Plutonium-241	PU-241	SOIL	Plant
RAD	RAD	Radium-226	RA-226	SOIL	Plant
RAD	RAD	Sodium-22	NA-22	SOIL	Plant
RAD	RAD	Strontium-90 + Yittrium-90	SR-90/ Y-90	SOIL	Plant
RAD	RAD	Thorium-228	TH-228	SOIL	Plant
RAD	RAD	Thorium-230	TH-230	SOIL	Plant
RAD	RAD	Thorium-232	TH-232	SOIL	Plant
RAD	RAD	Tritium	H-3	SOIL	Plant
RAD	RAD	Uranium-234	U-234	SOIL	Plant
RAD	RAD	Uranium-235	U-235	SOIL	Plant
RAD	RAD	Uranium-238	U-238	SOIL	Plant

BACK TO TOP

Table 6. Beta Release (October 1998) List of Sediment and Water ESLs for Aquatic Community Organism Receptors

Analyte Class	Analyte Class	Analyte Class	Analyte Class	Analyte Class	Analyte Class
RAD	RAD	Americium-241	AM-241	WATER and SEDIMENT	Aquatic
RAD	RAD	Cesium-137 + Barium-137	CS-137/ BA-137	WATER and SEDIMENT	Aquatic
RAD	RAD	Plutonium-238	PU-238	WATER and SEDIMENT	Aquatic
RAD	RAD	Plutonium-239, 240	PU-239/240	WATER and SEDIMENT	Aquatic
RAD	RAD	Plutonium-241	PU-241	WATER and SEDIMENT	Aquatic
RAD	RAD	Radium-226	RA-226	WATER and SEDIMENT	Aquatic
RAD	RAD	Strontium-90 + Yittrium-90	SR-90/ Y-90	WATER and SEDIMENT	Aquatic
RAD	RAD	Thorium-232	TH-232	WATER and SEDIMENT	Aquatic
RAD	RAD	Tritium	H-3	WATER and SEDIMENT	Aquatic
RAD	RAD	Uranium-234	U-234	WATER and	Aquatic

Table 6. Beta Release (October 1998) List of Sediment and Water ESLs for Aquatic Community Organism Receptors

Analyte Class	Analyte Class	Analyte Class	Analyte Class	Analyte Class	Analyte Class
				SEDIMENT	
RAD	RAD	Uranium-235	U-235	WATER and SEDIMENT	Aquatic
RAD	RAD	Uranium-238	U-238	WATER and SEDIMENT	Aquatic

BACK TO TOP

Table 7. Ecological Preliminary Remediation Goals (EcoPRGs) for soil. Added to Ecorisk Database R4.0 (October 2016).

Group	COPC	Analyte Code	Red Fox	MXSO	A. Kestrel (flesh/invert diet)	A. Robin (plant diet)	A. Robin (invert/plant diet)	A. Robin (invert diet)	Desert Cottontail
D/F	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	15						0.0068
HE	Amino-2,6-dinitrotoluene[4-]	19406-51-0	1700000000						70000
HE	Amino-4,6-dinitrotoluene[2-]	35572-78-2	2500000000						21000
HE	Dinitrotoluene[2,4-]	121-14-2	550000000						15000
HE	Dinitrotoluene[2,6-]	606-20-2	350000000	42000000	200000000	18000	28000	59000	1300
HE	HMX	2691-41-0	4300000000						21000
HE	PETN	78-11-5	1.2E+10						24000
HE	RDX	121-82-4	600000000	1700000	670000	150	170	200	2300
HE	Tetryl	479-45-8	120000000						170
HE	Trinitrobenzene[1,3,5-]	99-35-4	2800000000						30000
HE	Trinitrotoluene[2,4,6-]	118-96-7	3300000000	7200000	72000000	480	1000	13000	10000
INORG	Antimony	SB	280000000						13000
INORG	Arsenic	AS	53000000	1700000	32000000	14000	9800	8100	8100
INORG	Barium	BA	1.1E+10	57000000	400000000	51000	63000	82000	690000
INORG	Beryllium	BE	110000000						36000
INORG	Boron	B	5900000000	2200000	5600000	350	600	1600	16000
INORG	Cadmium	CD	140000000	950000	410000	1500	200	120	2100
INORG	Chromium(+6)	CR(+6)	1900000000	8400000	440000000	98000	86000	82000	680000
INORG	Chromium (total)	CR	510000000	2000000	53000000	23000	15000	12000	170000
INORG	Cobalt	CO	1500000000	5500000	180000000	61000	47000	41000	380000

Group	COPC	Analyte Code	Red Fox	MXSO	A. Kestrel (flesh/invert diet)	A. Robin (plant diet)	A. Robin (invert/plant diet)	A. Robin (invert diet)	Desert Cottontail
INORG	Copper	CU	480000000	2700000	10000000	6000	3800	3000	26000
INORG	Cyanide (total)	CN(-1)	790000000	1100	100000	36	39	44	150000
INORG	Lead	PB	880000000	8400000	16000000	4900	4200	4000	67000
INORG	Manganese	MN	1.1E+10	130000000	7100000000	500000	740000	1300000	430000
INORG	Mercury (inorganic)	HGI	97000000	57000	210000	38	47	63	4800
INORG	Mercury (methyl)	HGM	15000	15	450	26	0.26	0.15	230
INORG	Nickel	NI	150000000	4600000	33000000	57000	14000	9300	47000
INORG	Selenium	SE	7500000	160000	230000	75	69	68	140
INORG	Silver	AG	1100000000	1300000	3900000	4000	1600	1100	33000
INORG	Thallium	TL	1400000	250000	14000000	3200	2800	2700	590
INORG	Uranium	U	320000000	60000000	4300000000	690000	670000	700000	100000
INORG	Vanadium	V	180000000	260000	5800000	1000	1000	1000	65000
INORG	Zinc	ZN	2100000000	4900000	66000000	120000	32000	20000	380000
PAH	Acenaphthene	83-32-9	7000000000						100000
PAH	Acenaphthylene	208-96-8	6800000000						100000
PAH	Anthracene	120-12-7	9300000000						240000
PAH	Benzo(a)anthracene	56-55-3	32000000	69000	1900000	280	340	460	1300
PAH	Benzo(a)pyrene	50-32-8	300000000						18000
PAH	Benzo(b)fluoranthene	205-99-2	660000000						28000
PAH	Benzo(g,h,i)perylene	191-24-2	910000000						110000
PAH	Benzo(k)fluoranthene	207-08-9	1100000000						74000
PAH	Chrysene	218-01-9	31000000						1300
PAH	Dibenzo(a,h)anthracene	53-70-3	230000000						20000
PAH	Fluoranthene	206-44-0	920000000						55000

Group	COPC	Analyte Code	Red Fox	MXSO	A. Kestrel (flesh/invert diet)	A. Robin (plant diet)	A. Robin (invert/plant diet)	A. Robin (invert diet)	Desert Cottontail
PAH	Fluorene	86-73-7	2400000000						47000
PAH	Indeno(1,2,3-cd)pyrene	193-39-5	1200000000						120000
PAH	Methylnaphthalene [2-]	91-57-6	1100000000						22000
PAH	Naphthalene	91-20-3	390000000	45000000	24000000	1300	2300	7500	760
PAH	Phenanthrene	85-01-8	470000000						12000
PAH	Pyrene	129-00-0	780000000	6300000	49000000	24000	17000	14000	23000
PCB	Aroclor-1016	12674-11-2	15000000						2900
PCB	Aroclor-1242	53469-21-9	9000000	11000	58000	360	30	17	2500
PCB	Aroclor-1248	12672-29-6	430000	340000	170000	1100	88	52	120
PCB	Aroclor-1254	11097-69-1	1600000	200000	83000	680	43	25	6000
PCB	Aroclor-1260	11096-82-5	3800000	810000	170000	2300	93	54	150000
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	100000000	16000	28000	7100	15	8.7	570000
SVOC	Butyl benzyl phthalate	85-68-7	5100000000						490000
SVOC	Di-n-Butyl Phthalate	84-74-2	3100000000	3500	15000	130	8.2	4.8	800000
SVOC	Di-n-octylphthalate	117-84-0	280000000						2700000
SVOC	Diethyl phthalate	84-66-2	6.2E+11						1700000
SVOC	Dimethyl Phthalate	131-11-3	1.2E+10						11000

Group	COPC	Analyte Code	Montane Shrew	Deer Mouse	Earthworm	Generic Plant	Background value	Soil Final EcoPRG (mg/kg)	Soil Final EcoPRG Receptor
D/F	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	3.1E-05	0.00007	10			**0.000031**	**Montane Shrew**

Group	COPC	Analyte Code	Montane Shrew	Deer Mouse	Earthworm	Generic Plant	Background value	Soil Final EcoPRG (mg/kg)	Soil Final EcoPRG Receptor
HE	Amino-2,6-dinitrotoluene[4-]	19406-51-0	2000	4200	180	330		**180**	**Earthworm**
HE	Amino-4,6-dinitrotoluene[2-]	35572-78-2	2500	4300	430	140		**140**	**Generic Plant**
HE	Dinitrotoluene[2,4-]	121-14-2	2100	3700	180	60		**60**	**Generic Plant**
HE	Dinitrotoluene[2,6-]	606-20-2	1100	740	44			**44**	**Earthworm**
HE	HMX	2691-41-0	38000	14000	160	3500		**160**	**Earthworm**
HE	PETN	78-11-5	140000	18000				**18000**	**Deer Mouse**
HE	RDX	121-82-4	840	940	15	360		**15**	**Earthworm**
HE	Tetryl	479-45-8	2700	130				**130**	**Deer Mouse**
HE	Trinitrobenzene[1,3,5-]	99-35-4	65000	21000	28			**28**	**Earthworm**
HE	Trinitrotoluene[2,4,6-]	118-96-7	80000	8000	58	120		**58**	**Earthworm**
INORG	Antimony	SB	9700	9700	780	58	0.83	**58**	**Generic Plant**
INORG	Arsenic	AS	580	1300	68	91	8.17	**68**	**Earthworm**
INORG	Barium	BA	210000	330000	3200	1400	295	**1400**	**Generic Plant**
INORG	Beryllium	BE	2800	10000	400	25	1.83	**25**	**Generic Plant**
INORG	Boron	B	20000	10000		86	4.1	**86**	**Generic Plant**
INORG	Cadmium	CD	43	92	760	160	0.4	**43**	**Montane Shrew**
INORG	Chromium(+6)	CR(+6)	45000	150000	4.7	4.7		**4.7**	**Earthworm**
INORG	Chromium (total)	CR	7300	20000			19.3	**7300**	**Montane Shrew**
INORG	Cobalt	CO	26000	73000		130	8.64	**130**	**Generic Plant**

Group	COPC	Analyte Code	Montane Shrew	Deer Mouse	Earthworm	Generic Plant	Background value	Soil Final EcoPRG (mg/kg)	Soil Final EcoPRG Receptor
INORG	Copper	CU	2700	5100	530	490	14.7	**490**	**Generic Plant**
INORG	Cyanide (total)	CN(-1)	50000	61000			0.82	**36**	**A. Robin (plant diet)**
INORG	Lead	PB	10000	19000	8400	570	22.3	**570**	**Generic Plant**
INORG	Manganese	MN	250000	260000	4500	1500	671	**1500**	**Generic Plant**
INORG	Mercury (inorganic)	HGI	1900	2100	390	64	0.1	**38**	**A. Robin (plant diet)**
INORG	Mercury (methyl)	HGM	0.25	0.56	12			**0.15**	**A. Robin (invert diet)**
INORG	Nickel	NI	700	1600	1300	270	15.4	**270**	**Generic Plant**
INORG	Selenium	SE	32	45	41	15	1.52	**15**	**Generic Plant**
INORG	Silver	AG	2200	4400		2800	1	**1100**	**A. Robin (invert diet)**
INORG	Thallium	TL	36	130		3.2	0.73	**3.2**	**Generic Plant**
INORG	Uranium	U	8800	33000		250	1.82	**250**	**Generic Plant**
INORG	Vanadium	V	4600	17000		80	39.6	**80**	**Generic Plant**
INORG	Zinc	ZN	15000	32000	930	810	48.8	**810**	**Generic Plant**
PAH	Acenaphthene	83-32-9	20000	30000		2.5		**2.5**	**Generic Plant**
PAH	Acenaphthylene	208-96-8	19000	29000				**19000**	**Montane Shrew**
PAH	Anthracene	120-12-7	34000	55000		8.9		**8.9**	**Generic Plant**

Group	COPC	Analyte Code	Montane Shrew	Deer Mouse	Earthworm	Generic Plant	Background value	Soil Final EcoPRG (mg/kg)	Soil Final EcoPRG Receptor
PAH	Benzo(a)anthracene	56-55-3	480	620		180		**180**	**Generic Plant**
PAH	Benzo(a)pyrene	50-32-8	2700	4800				**2700**	**Montane Shrew**
PAH	Benzo(b)fluoranthene	205-99-2	6100	9400		180		**180**	**Generic Plant**
PAH	Benzo(g,h,i)perylene	191-24-2	3900	8500				**3900**	**Montane Shrew**
PAH	Benzo(k)fluoranthene	207-08-9	10000	18000				**10000**	**Montane Shrew**
PAH	Chrysene	218-01-9	400	560				**400**	**Montane Shrew**
PAH	Dibenzo(a,h)anthracene	53-70-3	2000	4000				**2000**	**Montane Shrew**
PAH	Fluoranthene	206-44-0	3500	6900	23			**23**	**Earthworm**
PAH	Fluorene	86-73-7	8000	12000	19			**19**	**Earthworm**
PAH	Indeno(1,2,3-cd)pyrene	193-39-5	10000	20000				**10000**	**Montane Shrew**
PAH	Methylnaphthalene[2-]	91-57-6	2600	4400				**2600**	**Montane Shrew**
PAH	Naphthalene	91-20-3	1200	490		10		**10**	**Generic Plant**
PAH	Phenanthrene	85-01-8	1700	2800	12			**12**	**Earthworm**
PAH	Pyrene	129-00-0	3500	5700	20			**20**	**Earthworm**
PCB	Aroclor-1016	12674-11-2	50	100				**50**	**Montane Shrew**
PCB	Aroclor-1242	53469-21-9	24	54				**17**	**A. Robin (invert diet)**
PCB	Aroclor-1248	12672-29-6	1.1	2.5				**1.1**	**Montane Shrew**
PCB	Aroclor-1254	11097-69-1	39	88		620		**25**	**A. Robin (invert**

Group	COPC	Analyte Code	Montane Shrew	Deer Mouse	Earthworm	Generic Plant	Background value	Soil Final EcoPRG (mg/kg)	Soil Final EcoPRG Receptor
									diet)
PCB	Aroclor-1260	11096-82-5	390	880				**54**	**A. Robin (invert diet)**
SVOC	Bis(2-ethylhexyl)phthalate	117-81-7	96	210				**8.7**	**A. Robin (invert diet)**
SVOC	Butyl benzyl phthalate	85-68-7	14000	30000				**14000**	**Montane Shrew**
SVOC	Di-n-Butyl Phthalate	84-74-2	7200	15000		600		**4.8**	**A. Robin (invert diet)**
SVOC	Di-n-octylphthalate	117-84-0	140	330				**140**	**Montane Shrew**
SVOC	Diethyl phthalate	84-66-2	580000	660000		1000		**1000**	**Generic Plant**
SVOC	Dimethyl Phthalate	131-11-3	12000	6900	100			**100**	**Earthworm**

Table 8a. Task 1.15b – New Perchlorate N- and L-TRVs and ESLs (September 2017)

	New N-TRV	New L-TRV	New N-ESL	New L-ESL
earthworm	3.5	35	3.5	35
birds	13	26.1		
American robin (invertebrate diet)			31	64
American robin (invertebrate/ plant diet)			0.24	0.49
American robin (plant diet)			0.12	0.24
American kestrel (flesh/ invertebrate diet)			3.9	8
American kestrel (flesh diet)			2	4
mammals	6.4	32		
Mountain cottontail			0.26	1.3
Deer mouse			0.21	1
Montane shrew			31	150

	New N-TRV	New L-TRV	New N-ESL	New L-ESL
Gray fox			3.3	16
plant	40	80	40	80

Table 8b. Task 1.15b – New Perchlorate TFs for ESLs (September 2017)

Receptor	Type	ESL Media	TF Value	Db REF ID	Units	Notes	Equation
American kestrel (Avian top carnivore)American kestrel (Avian top carnivore)	TF_beef_fw	SOIL	1	1	mg-COPC/kg-fresh beef per mg-COPC/d or d/kg-fresh beef	Default	None.
American kestrel (Avian top carnivore)	TF_flesh_dw	SOIL	43	1092	mg-COPC/kg-dry flesh per mg-COPC/kg-dry soil	The flesh to soil transfer factor (TF-flesh) is calculated as 43.0 based on the LANL SLERA document as revised December 2016 (REF ID 2042).	TF_flesh_dw =TF_beef_fw * [I_foodcomposite_fw * MAX(TF_plant_dw * {1 - MC_plant}, TF_invert_dw * {1 - MC_invert}) + I_soilcomposite_dw]/ (1-MC_flesh)
American kestrel (Avian top carnivore)	TF_invert_dw	SOIL	1	1	mg-COPC/kg-dry invertebrate per mg-COPC/kg-dry soil	Default	None.
American kestrel (Avian top carnivore)	TF_plant_dw	SOIL	300	2041	mg-COPC/kg-dry plant matter per mg-COPC/kg-dry soil	Based on field study with a continuous source of perchlorate in loamy sand exposing plants throughout the growing season.	None.
American kestrel (insectivore / carnivore)	TF_beef_fw	SOIL	1	1	mg-COPC/kg-fresh beef per mg-COPC/d or d/kg-fresh beef	Default	None.
American kestrel (insectivore /	TF_flesh_dw	SOIL	43	1092	mg-COPC/kg-dry flesh per	The flesh to soil transfer factor (TF-flesh) is	TF_flesh_dw =TF_beef_fw *

Receptor	Type	ESL Media	TF Value	Db REF ID	Units	Notes	Equation
carnivore)					mg-COPC/kg-dry soil	calculated as 43.0 based on the LANL SLERA document as revised December 2016 (REF ID 2042).	[I_foodcomposite_fw * MAX(TF_plant_dw * {1 - MC_plant}, TF_invert_dw * {1 - MC_invert}) + I_soilcomposite_dw]/ (1-MC_flesh)
American kestrel (insectivore / carnivore)	TF_invert_dw	SOIL	1	1	mg-COPC/kg-dry invertebrate per mg-COPC/kg-dry soil	Default	None.
American kestrel (insectivore / carnivore)	TF_plant_dw	SOIL	300	2041	mg-COPC/kg-dry plant matter per mg-COPC/kg-dry soil	Based on field study with a continuous source of perchlorate in loamy sand exposing plants throughout the growing season.	None.
American robin (Avian insectivore)	TF_invert_dw	SOIL	1	1	mg-COPC/kg-dry invertebrate per mg-COPC/kg-dry soil	Default	None.
American robin (Avian omnivore)	TF_invert_dw	SOIL	1	1	mg-COPC/kg-dry invertebrate per mg-COPC/kg-dry soil	Default	None.
American robin (Avian omnivore)	TF_plant_dw	SOIL	300	2041	mg-COPC/kg-dry plant matter per mg-COPC/kg-dry soil	Based on field study with a continuous source of perchlorate in loamy sand exposing plants throughout the growing season.	None.
American robin (Avian herbivore)American robin (Avian	TF_plant_dw	SOIL	300	2041	mg-COPC/kg-dry plant matter per mg-COPC/kg-dry	Based on field study with a continuous source of perchlorate in loamy sand exposing plants	None.

Receptor	Type	ESL Media	TF Value	Db REF ID	Units	Notes	Equation
herbivore)					soil	throughout the growing season.	
Mountain cottontail (Mammalian herbivore)	TF_plant_dw	SOIL	300	2041	mg-COPC/kg-dry plant matter per mg-COPC/kg-dry soil	Based on field study with a continuous source of perchlorate in loamy sand exposing plants throughout the growing season.	None.
Deer mouse (Mammalian omnivore)Deer mouse (Mammalian omnivore)	TF_invert_dw	SOIL	1	1	mg-COPC/kg-dry invertebrate per mg-COPC/kg-dry soil	Default	None.
Deer mouse (Mammalian omnivore)Deer mouse (Mammalian omnivore)	TF_plant_dw	SOIL	300	2041	mg-COPC/kg-dry plant matter per mg-COPC/kg-dry soil	Based on field study with a continuous source of perchlorate in loamy sand exposing plants throughout the growing season.	None.
Montane shrew (Mammalian insectivore)	TF_invert_dw	SOIL	1	1	mg-COPC/kg-dry invertebrate per mg-COPC/kg-dry soil	Default	None.
Gray fox (Mammalian top carnivore)	TF_beef_fw	SOIL	1	1	mg-COPC/kg-fresh beef per mg-COPC/d or d/kg-fresh beef	Default	None.
Gray fox (Mammalian top carnivore)	TF_flesh_dw	SOIL	43	1092	mg-COPC/kg-dry flesh per mg-COPC/kg-dry soil	The flesh to soil transfer factor (TF-flesh) is calculated as 43.0 based on the LANL SLERA document as revised December 2016 (REF ID 2042).	TF_flesh_dw =TF_beef_fw * [I_foodcomposite_fw * MAX(TF_plant_dw * {1 - MC_plant}, TF_invert_dw * {1 - MC_invert}) + I_soilcomposite_dw]/ (1-MC_flesh)

Receptor	Type	ESL Media	TF Value	Db REF ID	Units	Notes	Equation
Gray fox (Mammalian top carnivore)	TF_invert_dw	SOIL	1	1	mg-COPC/kg-dry invertebrate per mg-COPC/kg-dry soil	Default	None.
Gray fox (Mammalian top carnivore)	TF_plant_dw	SOIL	300	2041	mg-COPC/kg-dry plant matter per mg-COPC/kg-dry soil	Based on field study with a continuous source of perchlorate in loamy sand exposing plants throughout the growing season.	None.

Table 9. Task 1.6 – Updates to LOAEL/LOEC Tier 1 TRV Notes and Values for EcoPRGs (September 2017)

Chemical	Receptor	Previous Value	Previous Note for EcoPRG TRV table	New Value	New Note
Antimony	Mammal	13.3 mg/kg/d	EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that antimony TRVs have such a wide range and some relatively low values because more bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-61, page 5	55.7 mg/kg/d	The USEPA does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1386.
Antimony	Mammal/ carnivore		EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that		Same as Mammal.

Chemical	Receptor	Previous Value	Previous Note for EcoPRG TRV table	New Value	New Note
			antimony TRVs have such a wide range and some relatively low values because more bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-61, page 5		
Arsenic	Mammal	2.47 mg/kg/d	EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that arsenic TRVs have such a wide range and some relatively low values because more bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-62, page 13	9.7 mg/kg/d	The USEPA does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1542.
Arsenic	Mammal/ carnivore	2.47 mg/kg/d	EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that arsenic TRVs have such a wide range and some relatively low values because more bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-62, page 13	9.7 mg/kg/d	The USEPA does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1542.

Chemical	Receptor	Previous Value	Previous Note for EcoPRG TRV table	New Value	New Note
Barium	Plant	1414 mg/kg	The study summarized in the EcoPRG documentation is used as the basis for the EcoPRG. In the hierarchy of potential studies the EcoPRG is the highest tier. In this case EPA did not identify enough studies for the geometric mean, but the single study identified is used as the basis for the EcoPRG. Specifically, EPA calculated the MATC (Maximum acceptable toxicant concentration) that is the geometric mean of NOAEC and LOAEC. See OSWER Directive 9285.7- 63, Table 3.1	No change.	No change.
Copper	Bird	18.5 mg/kg/d	EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that copper TRVs have such a wide range and some relatively low values because more bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-68, page 9.	36.8 mg/kg/d	The USEPA does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 5.1 of REF ID 1621.
Copper	Mammal	25 mg/kg/d	EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that copper TRVs have such a wide range and some relatively low values because more	155.5 mg/kg/d	The USEPA does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1621.

Chemical	Receptor	Previous Value	Previous Note for EcoPRG TRV table	New Value	New Note
			bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-68, page 25		
Copper	Mammal/ carnivore	25 mg/kg/d	EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that copper TRVs have such a wide range and some relatively low values because more bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-68, page 25	155.5 mg/kg/d	The USEPA does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1621.
Lead	Bird	10.9 mg/kg/d	EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that lead TRVs have such a wide range and some relatively low values because more bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-70, page 9.	53.8 mg/kg/d	The USEPA does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 5.1 of REF ID 1392.

Chemical	Receptor	Previous Value	Previous Note for EcoPRG TRV table	New Value	New Note
Lead	Bird/ Mexican-spotted Owl	10.9 mg/kg/d	EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that lead TRVs have such a wide range and some relatively low values because more bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-70, page 9	No change	The EPA geometric mean of NOAELs is selected for the EcoPRG TRV rather than calculating a geometric mean of LOAELs because the Mexican-spotted owl is a Threatened and Endangered species and requires protection at the individual rather than population level. The geometric mean provides adequate protection for this receptor and is not overly protective as a critical study NOAEL would be.
Lead	Mammal	40.7 mg/kg/d	EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that lead TRVs have such a wide range and some relatively low values because more bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-70, page 11	137.8 mg/kg/d	The USEPA does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1392.
Lead	Mammal/ carnivore	40.7 mg/kg/d	EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that lead TRVs have such a wide range and some relatively low values because more	137.8 mg/kg/d	The USEPA does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1392.

Chemical	Receptor	Previous Value	Previous Note for EcoPRG TRV table	New Value	New Note
			bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-70, page 11		
Nickel	Mammal	7.7 mg/kg/d	EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that nickel TRVs have such a wide range and some relatively low values because more bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-76, page 14	37.8 mg/kg/d	The USEPA does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1617.
Nickel	Mammal/ carnivore	7.7 mg/kg/d	EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that nickel TRVs have such a wide range and some relatively low values because more bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-76, page 14	37.8 mg/kg/d	The USEPA does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1617.

Chemical	Receptor	Previous Value	Previous Note for EcoPRG TRV table	New Value	New Note
Selenium	Bird	0.606 mg/kg/d	EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that selenium TRVs have such a wide range and some relatively low values because more bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-72, page 8.	2.07 mg/kg/d	The USEPA does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 5.1 of REF ID 1618.
Selenium	Mammal	0.437 mg/kg/d	EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that selenium TRVs have such a wide range and some relatively low values because more bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-72, page 23	0.996 mg/kg/d	The USEPA does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1618.
Selenium	Mammal/ carnivore	0.437 mg/kg/d	EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that selenium TRVs have such a wide range and some relatively low values because more	0.996 mg/kg/d	The USEPA does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1618.

Chemical	Receptor	Previous Value	Previous Note for EcoPRG TRV table	New Value	New Note
			bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-72, page 23		
Vanadium	Bird	1.19 mg/kg/d	EPA calculated the GMM NOAEL but it was not used for the Eco-SSL (or ESL). The reason is that the GMM is larger than the lowest bounded LOAEL. However, to be more representative of potential adverse effects, the GMM of multiple studies is preferred over more conservative critical study NOAELs or LOAELs. It is likely that copper vanadium TRVs have such a wide range and some relatively low values because more bioavailable and more toxic soluble salts are evaluated. See OSWER Directive 9285.7-75, page 5.	3.19 mg/kg/d	The USEPA does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 5.1 of REF ID 1569.

Table 10a. Task 1.7 Updates – Updates to LOAEL/LOEC-based Tier 2 TRVs Notes for ESLs (September 2017)

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
Antimony	Plant	The LOEC-based GMM TRV is equal to the geometric mean of the L-ELs in the data set.	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC. The data set consisted of 3 values representing reproduction and development endpoints.

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
Aroclor-1016	Mammal	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL.	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL. The data set consisted of 9 values representing reproduction, survival, and adult body weight change endpoints.
Aroclor-1242	Mammal	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL.	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL. The data set consisted of 9 values representing reproduction, survival, and adult body weight change endpoints.
Aroclor-1254	Mammal	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL.	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL. The data set consisted of 22 values representing reproduction, development, survival, and adult body weight change endpoints.
Aroclor-1254	Plant	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC.	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL. The data set consisted of 8 values representing development and weight and size change of mature plant endpoints.

Analyte Name	**Test Organism Common Name**	**Old Note**	**Revised Low Effect TRV Derivation Notes**
Aroclor-1260	Bird	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL.	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL. The data set consisted of 5 values representing survival endpoint.
Aroclor-1260	Mammal	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL.	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL. The data set consisted of 5 values representing reproduction, survival, and adult body weight change endpoints.
Barium	Bird	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL.	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL. The data set consisted of 5 values representing development, weight or size change, and survival endpoints.
Barium	Plant	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC.	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC. The data set consisted of 5 values representing development, weight or size change, and survival endpoints.
Beryllium	Soybean	LOEC is taken directly from the literature. NOEC is extrapolated from the	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC. The

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
		LOEC by applying an uncertainty factor of 10.	data set consisted of 4 values that represent weight change (biomass) endpoints.
Boron	Bird	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL.	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL. The data set consisted of 3 values representing reproduction, development, and survival endpoints.
Boron	Plant	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC.	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC. The data set consisted of 3 values representing development and survival endpoints.
Chromium(+6)	Earthworm	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC.	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC. The data set consisted of 3 values representing reproduction and survival endpoints.
Di-n-Butyl Phthalate	Mammal	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL.	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL. The data set consisted of 3 values representing reproduction, survival, and adult body weight change endpoints.

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
Di-n-Butyl Phthalate	Plant	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC.	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL. The data set consisted of 4 values representing development endpoint.
Dinitrotoluene[2,6-]	soil & litter earthworms/invertebrates	GMM LOEC calculated from LOEC dataset.	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC. The data set consisted of 4 values representing reproduction, development and survival endpoints.
HMX	Plant	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC.	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC. The data set consisted of 3 values representing reproduction endpoints.
Lithium	Mammal	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL.	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL. The data set consisted of 13 values representing reproduction, development, survival, and adult body weight changes endpoints.

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
RDX	Bird	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL.	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL. The data set consisted of 6 values representing reproduction, survival, and adult body weight change endpoints.
RDX	Mammal	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL.	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL. The data set consisted of 4 values representing survival and adult body weight change endpoints.
Tetrachlorodibenzodioxin[2,3,7,8-]	Mammal	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL.	LOAEL is equal to a geometric mean LOAEL calculated from the same data set as the geometric mean NOAEL. The data set consisted of 4 values representing reproduction and adult body weight change endpoints.
Trinitrobenzene[1,3,5-]	soil & litter earthworms/invertebrates	GMM LOEC calculated from LOEC dataset.	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC. The data set consisted of 4 values representing reproduction and development and survival endpoints.

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
Trinitrotoluene[2,4,6-]	Plant	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC.	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC. The data set consisted of 12 values representing reproduction and development endpoints.

Table 10b. Task 1.7 Updates - Updates to LOAEL/LOEC-based Tier 3 TRVs Notes for ESLs (September 2017)

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
Aroclor-1242	Chicken, White Leghorn	LOAEL is taken directly from the literature.	LOAEL is taken directly from the literature and is based on 1 endpoint for hatchability. Percent response was 85% decrease in hatchability (N = 35) compared to control animals exposed for 9 weeks. The test organism was the White leghorn chicken. The exposure route was oral and the exposure medium was food. The exposure duration category and effect level was a chronic critical-life stage NOAEL and LOAEL pair.
Aroclor-1248	Chicken, White Leghorn	LOAEL is taken directly from the literature.	LOAEL is taken directly from the literature and is based on 1 endpoint for hatchability. Percent response was 85-90% decrease in hatchability (N = 35) compared to control animals exposed for 9 weeks. The test organism was the White leghorn chicken. The exposure route was oral and

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
			the exposure medium was food. The exposure duration category and effect level was a chronic critical-life stage NOAEL and LOAEL pair.
Aroclor-1248	Monkey, Rhesus	LOAEL is taken directly from the literature.	LOAEL is taken directly from the literature and is based on 1 endpoint for %normal births. Percent response was 37.5% decrease from control (N= 9) in animals exposed for >7 months. The test organism was the Rhesus monkey. The exposure route was oral and the exposure medium was food. The exposure duration category and effect level was a chronic critical-life stage LOAEL.
Aroclor-1254	Chicken, White Leghorn	LOAEL is taken directly from the literature.	LOAEL is taken directly from the literature and is based on 1 endpoint for hatchability. Percent response was 20-25% decrease from control (N=35) animals exposed for 9 weeks. The test organism was the White leghorn chicken. The exposure route was oral and the exposure medium was food. The exposure duration category and effect level was a chronic critical-life stage NOAEL and LOAEL pair.

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
Aroclor-1254	Mink	LOAEL is taken directly from the literature. NOAEL is extrapolated from the LOAEL by applying an uncertainty factor of 10.	LOAEL is taken directly from the literature and is based on 1 endpoint for reproduction (number of females whelped/ number mated). Percent response was 1 of 10 females whelping in the exposed group compared to 19 of 20 whelped in control group. The test organism was the mink. The exposure route was oral and the exposure medium was food. The exposure duration category and effect level was a chronic critical-life stage LOAEL.
Aroclor-1260	Mink	LOAEL is taken directly from the literature. NOAEL is extrapolated from the LOAEL by applying an uncertainty factor of 10.	LOAEL is taken directly from the literature and is based on 2 endpoints for reproduction (offspring survival, $p<0.025$; and litter size, $p<0.001$). The test organism was the Sherman rat. The exposure route was oral and the exposure medium was food. The exposure duration category and effect level was a chronic critical-life stage NOAEL and LOAEL pair.
Boron	Rat, Sprague-Dawley	LOAEL extrapolated from a chronic NOAEL by applying an uncertainty factor of 10.	The chronic LOAEL is extrapolated from the chronic NOAEL using a UF of 10 and is based on fertility index. The test organism used was the rat (Sprague-Dawley). The exposure route was oral and the exposure media was oral and exposure medium

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
			was food. The exposure duration category and effect level was chronic critical-life stage NOAEL. This NOAEL represents the highest of 3 doses tested.
Chromium(+6)	Chicken, Nichols 108	LOAEL extrapolated from a chronic NOAEL by applying an uncertainty factor of 10.	The chronic LOAEL is extrapolated from the chronic NOAEL using a UF of 10 and is based on mortality. The test organism used was the chicken (Nichols 108). The exposure route was oral and the exposure media was oral and exposure medium was food. The exposure duration category and effect level was subchronic NOAEL. This NOAEL was the highest of the two doses tested.
Di-n-Butyl Phthalate	Dove, Ringed turtle	LOAEL is taken directly from the literature. NOAEL is extrapolated from the LOAEL by applying an uncertainty factor of 10.	LOAEL is taken directly from the literature and is based on 1 endpoint for eggshell thickness index ($p<0.01$). The test organism was the Ringed turtle dove. The exposure route was oral and the exposure medium was food. The exposure duration category and effect level was a chronic critical-life stage LOAEL.

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
Dinitrotoluene[2,6-]	Quail, Bobwhite	LOAEL-Based EL is extrapolated from the NOAEL-based EL using a UF of 10.	The chronic LOAEL is extrapolated from the chronic NOAEL using a UF of 10 and is based on egg production. The test organism used was the bobwhite quail (Colinus virginianas). The exposure route was oral (gavage) and the exposure media available for consideration was corn oil. The exposure duration category and effect level was subchronic NOAEL. The NOAEL represented the highest of 4 doses tested.
Fluoride	Owl, Eastern Screech	LOAEL extrapolated from a chronic NOAEL by applying an uncertainty factor of 10.	The chronic LOAEL is extrapolated from the chronic NOAEL using a UF of 10 and is based on 2 endpoints for reproduction effects (percentage of eggs hatched and percent fertility). The test organism used was the owl (Eastern screech). The exposure route was oral and exposure medium was food. The exposure duration category and effect level was chronic critical-life stage NOAEL. The NOAEL represents the highest of two doses tested.

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
Fluoride	Mink	LOAEL is taken directly from the literature.	LOAEL is taken directly from the literature and is based on 1 endpoint for %kit survival. Percent response was 14% kit survival for animals exposed for 6 weeks following in utero exposure. The test organism was the mink. The exposure route was oral and the exposure medium was food. The exposure duration category and effect level was a chronic critical-life stage NOAEL and LOAEL pair.
HMX	Mouse, B6C3F1 strain	LOAEL is taken directly from the literature.	LOAEL is taken directly from the literature and is based on 1 endpoint for mortality. Percent response 13 deaths in 20 animals exposed for 13 weeks compared to 0% mortality in control group (P<0.001). The test organism was the mouse (B6C3F1 strain). The exposure route was oral and the exposure medium was food. The exposure duration category and effect level was a chronic NOAEL and LOAEL pair.

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
Mercury (inorganic)	Earthworm (Octochaetus pattoni)	LOEC is taken directly from the literature.	LOEC is taken directly from the literature and is based on 1 endpoint for number of cocoons. Percent response was estimated from Table 5 as a 40% decrease from the response of the control. The test organism was the earthworm (Earthworm (Octochaetus pattoni). The exposure route was oral/ dermal and the exposure medium was soil and manure. The exposure duration category and effect level was a chronic critical-life stage LOEC.
Mercury (inorganic)	Quail, Japanese	LOAEL is taken directly from the literature.	LOAEL is taken directly from the literature and is based on 1 endpoint for egg fertility (percent fertilized). Percent response was estimated from Table 4 as 54.9% fertilized ($p<0.10$). The test organism was the Japanese quail. The exposure route was oral and the exposure medium was food. The exposure duration category and effect level was a chronic critical-life stage LOAEL.

Analyte Name	**Test Organism Common Name**	**Old Note**	**Revised Low Effect TRV Derivation Notes**
Mercury (inorganic)	Mink	LOAEL extrapolated from a chronic NOAEL by applying an uncertainty factor of 10.	The chronic LOAEL is extrapolated from the chronic NOAEL using a UF of 10 and is based on 2 endpoints for reproduction effects (number of kits alive at 4 weeks and number of kits born alive). The test organism used was the mink. The exposure route was oral and the exposure medium was food. The exposure duration category and effect level was chronic critical-life stage NOAEL. The NOAEL represents the only dose tested.
Nitroglycerine	Mouse	LOAEL is taken directly from the literature.	LOEC is taken directly from the literature and is based on 1 endpoint for bodyweight. Percent response was estimated from Figure 5 as being 20% less than controls for animals exposed for 24 months. The test organism was the mouse. The exposure route was food. The exposure duration category and effect level was a chronic NOAEL and LOAEL pair.
RDX	Earthworm (Eisenia foetida)	LOEC is taken directly from the literature.	LOEC is taken directly from the literature and is based on 1 endpoint for juvenile production ($p<0.05$). The test organism was the earthworm (Eisenia foetida). The exposure route was oral/ dermal and exposure medium was in soil. The exposure

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
			duration category and effect level was a chronic-critical life stage NOEC and LOEC pair. *
Strontium (stable)	Rat, RVH hooded strain	LOAEL extrapolated from a chronic NOAEL by applying an uncertainty factor of 10.	The chronic LOAEL is extrapolated from the chronic NOAEL using a UF of 10 and is based on body weight. The test organism used was the rat (RVH hooded strain). The exposure route was oral and the exposure medium was drinking water. The exposure duration category and effect level was subchronic NOAEL. The NOAEL represents the highest of 3 doses tested.
Tetrachlorodibenzodioxin[2,3,7,8-]	Earthworm (Allolobophora caliginosa)	LOEC is taken directly from the literature.	LOEC of 10 mg/kg is taken directly from the literature and is based on 1 endpoint for survival. Percent response is 100% mortality for organisms exposed for 30 days 0% died in the control or 5 mg/kg, the lowest of 4 doses. The test organism was the Allolobophora caliginosa earthworm. The exposure route was oral/ dermal and the exposure medium was in Galestown sandy loam. The exposure duration category and effect levels available included a chronic NOEC and

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
			LOEC pair.
Thallium	Rat, Wistar	LOAEL is taken directly from the literature. NOAEL is extrapolated from the LOAEL by applying an uncertainty factor of 10.	LOAEL is taken directly from the literature and is based on 1 endpoint for spermatozoa motility. Percent response was 9 of 10 animals exposed for 60 days had less than 60% sperm motility. The test organism was the rat (Wistar). The exposure route was oral and the exposure medium was drinking water. The exposure duration category and effect level was a subchronic LOAEL.
Thallium	Rye grass	LOEC is taken directly from the literature.	LOEC is taken directly from the literature and is based on 1 endpoint for plant yield. Percent response was 10% decrease in plant yield. The test organism was the spring barley (Julia). The exposure route was seed coat and root uptake and the exposure medium was silver sand culture. The exposure duration category and effect level was a chronic critical-life stage LOAEL.

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
Trinitrobenzene[1,3,5-]	Rat, F344 strain	LOAEL extrapolated from a chronic NOAEL by applying an uncertainty factor of 10.	The chronic LOAEL is extrapolated from the chronic NOAEL using a UF of 10 and is based on survival. The test organism used was the rat (F344 strain). The exposure route was oral and the exposure media was oral and exposure medium was food. The exposure duration category and effect level was chronic NOAEL. This NOAEL represented the highest of 3 doses tested. Mortality was 7% in this group and less than or equal to 20% in the other groups and control, except for the low dose male group that was deemed not to be treatment related.
Trinitrotoluene[2,4,6-]	Quail, Bobwhite	LOAEL is taken directly from the literature.	LOAEL is taken directly from the literature and is based on 1 endpoint for moribundity/ mortality. Percent response was 4 of 10 birds became moribund (and were sacrificed) or died within 30 days of the 90-day experimental design. The test organism was the Bobwhite quail. The exposure route was oral and the exposure medium was food. The exposure duration category and effect level was a chronic-critical life stage NOAEL and LOAEL pair.

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
Trinitrotoluene[2,4,6-]	Plant	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC.	LOEC is equal to a geometric mean LOEC calculated from the same data set as the geometric mean NOEC. The data set consisted of 12 values representing reproduction and development endpoints.
Trinitrotoluene[2,4,6-]	Earthworm (Eisenia andrei)	LOEC is taken directly from the literature.	LOEC is taken directly from the literature and is based on 1 endpoint for juvenile production. Percent response is 20% decrease ($p<0.05$). The test organism was the earthworm (Eisenia andrei). The exposure route was oral/ dermal and the exposure medium was soil. The exposure duration category and effect level was a chronic-critical life stage NOEC and LOEC pair.
Trinitrotoluene[2,4,6-]	Rat, Sprague-Dawley	LOAEL is taken directly from the literature.	LOAEL is taken directly from the literature and is based on 1 endpoint for body weight for animals exposed for 13 weeks ($p<0.01$). The test organism was the rat (Sprague-Dawley). The exposure route was oral and the exposure medium was food. The exposure duration category and effect level was a chronic NOAEL and LOAEL pair.

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
Uranium	Duck, American Black	LOAEL extrapolated from a chronic NOAEL by applying an uncertainty factor of 10.	The chronic LOAEL is extrapolated from the chronic NOAEL using a UF of 10 and is based on body weight. The test organism used was the American black duck. The exposure route was oral and the exposure medium was food. The exposure duration category and effect level was chronic critical-life stage NOAEL. The NOAEL represents the highest of 4 doses tested.
Uranium	Mouse, Swiss	LOAEL is taken directly from the literature.	LOAEL is taken directly from the literature and is based on 4 endpoints for reproduction (number of total and late resorptions and number of live and dead fetuses) p<0.05, 0.05, 0.01 and, respectively. The test organism was the Swiss mouse. The exposure route was oral gavage and the exposure medium was not reported. The exposure duration category and effect level was a chronic critical-life stage NOAEL and LOAEL pair.
Uranium	Chard, Swiss	LOEC extrapolated from a chronic NOEC by applying an uncertainty factor of 10.	The chronic LOEC is extrapolated from the chronic NOEC using a UF of 10 and is based on seedling yield (root weight). The test organism used was the Swiss chard. The exposure route was root uptake and the

Analyte Name	Test Organism Common Name	Old Note	Revised Low Effect TRV Derivation Notes
			exposure medium was sand. The exposure duration category and effect level was chronic critical-life stage NOAEL. The NOEC represent the highest f 4 doses tested.
Vanadium	Collard	The chronic LOEC-Based ESL is derived from a chronic LOEC.	LOEC is taken directly from the literature and is based on 1 endpoint for biomass ($p<0.05$). The test organism was the collard. The exposure route was seed coat and root uptake and the exposure medium was soil. The exposure duration category and effect level was a chronic critical-life stage NOAEL and LOAEL pair.

Table 11. Task 1.8 Updates – Updates to LOAEL/LOEC-based Tier 1 TRV Notes for ESLs and Values for select ESLs and EcoPRGs (September 2017)

Analyte	Receptor	Previous Value	Previous Note in EcoPRG TRV table	New Value	New Note
Antimony	Invertebrate	780 mg/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL antimony document EC20 data were used to calculate the geometric mean NOEC, so the LOEC is estimated from the geometric mean of the no effect level data set reported in REF ID 1386, Table 4.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated values. An uncertainty factor of 10 is applied to EC20 values.

Analyte	Receptor	Previous Value	Previous Note in EcoPRG TRV table	New Value	New Note
Arsenic	Bird	22.4 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL	No change	The USEPA Eco-SSL arsenic document only reports a critical study NOAEL, which is the lower of the two values available for growth and reproduction (REF ID 1542). Therefore, the LOAEL is estimated from the critical study NOAEL with a UF of 10.
Arsenic	Plant	91 mg/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL arsenic document MATC data were used to calculate the geometric mean NOEC, so the LOEC is estimated from the geometric mean of the no effect level data set reported in REF ID 1542, Table 3.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated values. An uncertainty factor of 5 is applied to MATC values.
Barium	Invertebrate	3290 mg/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL barium document EC20 data were used to calculate the geometric mean NOEC, so the LOEC is estimated from the geometric mean of no effect level data set reported in REF ID 1387, Table 4.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated values. An uncertainty factor of 10 is applied to EC20 values.
Barium	Mammal & Mammal carnivore	518 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	246 mg/kg/d	The USEPA Eco-SSL barium document does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1387.
Beryllium	Invertebrate	403 mg/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL beryllium document EC20 data were used to calculate the geometric mean NOEC, so the LOEC is estimated from the geometric mean of no effect level data set reported in REF ID 1388, Table 4.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated values. An uncertainty factor of 10 is applied to EC20 values.

Analyte	Receptor	Previous Value	Previous Note in EcoPRG TRV table	New Value	New Note
Beryllium	Mammal/ Mammal-carnivore	5.32 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL beryllium document only reports a critical study NOAEL, which is the only value available for growth and reproduction (REF ID 1388). Therefore, the LOAEL is estimated from the critical study NOAEL with a UF of 10.
Cadmium	Bird	14.7 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	8.15 mg/kg/d	The USEPA Eco-SSL cadmium document does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 5.1 of REF ID 1389.
Cadmium	Invertebrate	760 mg/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL cadmium document MATC, EC10 and EC20 data were used to calculate the geometric mean NOEC, so the LOEC is estimated from the geometric mean of the no effect level data set reported in REF ID 1389, Table 4.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated values. An uncertainty factor of 5 is applied to MATC values and an uncertainty factor of 10 to EC20 and EC10 values.
Cadmium	Mammal/ Mammal-carnivore	7.7 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	10.3 mg/kg/d (for EcoPRG only)	The USEPA Eco-SSL cadmium document does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1389.
Cadmium	Plant	160 mg/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL cadmium document MATC data were used to calculate the geometric mean NOEC, so the LOEC is estimated from the geometric mean of the no effect level data set reported in REF ID 1389, Table 3.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated values. An uncertainty factor of 5 is applied to MATC values.

Analyte	Receptor	Previous Value	Previous Note in EcoPRG TRV table	New Value	New Note
Chromium (total)	Bird	26.6 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	8.35 mg/kg/d	The USEPA Eco-SSL chromium document does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 5.1 of REF ID 1778.
Chromium (total)	Mammal & Mammal carnivore	24 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	240 mg/kg/d	The USEPA Eco-SSL chromium document does not have a geometric mean of LOAELs, and no bounded LOAELs were available to calculate one (Table 6.1 of REF ID 1778). Therefore, the LOAEL is estimated from the geometric mean of NOAELs with a UF of 10.
Chromium (+6)	Mammal & Mammal carnivore	92.4 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	59.3 mg/kg/d	The USEPA Eco-SSL chromium document does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.2 of REF ID 1778.
Cobalt	Bird	76.1 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	17.1 mg/kg/d	The USEPA Eco-SSL cobalt document does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 5.1 of REF ID 1390.
Cobalt	Mammal & Mammal carnivore	73.3 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	19.3 mg/kg/d	The USEPA Eco-SSL cobalt document does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1390.
Cobalt	Plant	134 mg/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL cobalt document EC20 data were used to calculate the geometric mean, so the LOEC is estimated from the geometric mean of the no effect level data set reported in REF ID 1390, Table 3.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated values. An uncertainty factor of 10 is applied to EC20 values.

Analyte	Receptor	Previous Value	Previous Note in EcoPRG TRV table	New Value	New Note
Copper	Invertebrate	530 mg/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL copper document EC10 and MATC data were used to calculate the geometric mean NOEC, so the LOEC is estimated from the geometric mean of the no effect level data set reported in REF ID 1621, Table 4.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated values. An uncertainty factor of 5 is applied to MATC values and an uncertainty factor of 10 to EC10 values.
Copper	Plant	497 mg/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL copper document EC10 and MATC data were used to calculate the geometric mean NOEC, so the LOEC is estimated from the geometric mean of the no effect level data set reported in REF ID 1621, Table 3.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated values. An uncertainty factor of 5 is applied to MATC values and an uncertainty factor of 10 to EC10 values.
Lead	Invertebrate	8410 mg/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL lead document MATC data were used to calculate the geometric mean NOEC, so the LOEC is estimated from the geometric mean of the no effect level data set reported in REF ID 1392, Table 4.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated values. An uncertainty factor of 5 is applied to MATC values.
Lead	Plant	576 mg/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL lead document MATC data were used to calculate the geometric mean NOEC, so the LOEC is estimated from the geometric mean of the no effect level data set reported in REF ID 1392, Table 3.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated

Analyte	Receptor	Previous Value	Previous Note in EcoPRG TRV table	New Value	New Note
					values. An uncertainty factor of 5 is applied to MATC values.
Manganese	Bird	1790 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	377 mg/kg/d	The USEPA Eco-SSL manganese document does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 5.1 of REF ID 1616.
Manganese	Mammal & Mammal carnivore	515 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	192 mg/kg/d	The USEPA Eco-SSL manganese document does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1616.
Nickel	Bird	67.1 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	26.8 mg/kg/d	The USEPA Eco-SSL nickel document does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 5.1 of REF ID 1617.
Nickel	Invertebrate	1390 mg/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL nickel document MATC data were used to calculate the geometric mean NOEC, so the LOEC is estimated from the geometric mean of the no effect level data set reported in REF ID 1617, Table 4.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated values. An uncertainty factor of 5 is applied to MATC values.

Analyte	Receptor	Previous Value	Previous Note in EcoPRG TRV table	New Value	New Note
Nickel	Plant	276 mg/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL nickel document EC20 and MATC data were used to calculate the geometric mean NOEC, so the LOEC is estimated from the geometric mean of the no effect level data set reported in REF ID 1617, Table 3.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated values. An uncertainty factor of 5 is applied to MATC values and an uncertainty factor of 10 to EC20 values.
Selenium	Invertebrate	41 mg/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL selenium document EC20 data were used to calculate the geometric mean NOEC, so the LOEC is extrapolated from the geometric mean of the no effect level data set reported in REF ID 1618, Table 4.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated values. An uncertainty factor of 10 is applied to EC20 values.
Silver	Bird	20.2 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA silver document (REF ID 1619) reports many LOAELs none of which are bounded, so a GMM of LOEALs is not calculated. However, there were at least three LOAEL values within the reproduction and growth effect groups, so the TRV is equal to the lowest LOAEL for reproduction and growth.
Silver	Mammal/ Mammal-canivore	60.2 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA silver document (REF ID 1619) only reports many LOAELs none of which are bounded, so a GMM of LOEALs is not calculated. However, there were at least three LOAEL values within the reproduction and growth effect groups, so the TRV is equal to the lowest LOAEL for reproduction and growth.

Analyte	Receptor	Previous Value	Previous Note in EcoPRG TRV table	New Value	New Note
Silver	Plant	2810 mg/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL silver document MATC data were used to calculate the geometric mean NOEC, so the LOEC is extrapolated from the geometric mean of the other effect level data set reported in REF ID 1619, Table 3.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated values. An uncertainty factor of 5 is applied to MATC values.
Vanadium	Mammal/ Mammal-carnivore	8.31 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	8.76 mg/kg/d (for EcoPRG only)	The USEPA Eco-SSL vanadium document does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1569.
Zinc	Bird	661 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	174 mg/kg/d	The USEPA Eco-SSL zinc document does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 5.1 of REF ID 1620.
Zinc	Invertebrate	939 mg/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL zinc document EC10 and MATC data were used to calculate the geometric mean NOEC is presented, so the LOEC is estimated from the geometric mean of the no effect level data set reported in REF ID 1620, Table 4.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated values. An uncertainty factor of 5 is applied to MATC values and an uncertainty factor of 10 to EC10 values.
Zinc	Mammal & Mammal carnivore	754 mg/kg/d	See Ecorisk DB r3.3 for documentation for L-ESL.	741 mg/kg/d	The USEPA Eco-SSL zinc document does not have a geometric mean of LOAELs, therefore, one was calculated using the available bounded LOAELs for reproduction, growth and survival reported in Table 6.1 of REF ID 1620.

Analyte	Receptor	Previous Value	Previous Note in EcoPRG TRV table	New Value	New Note
Zinc	Plant	812 m/kg	See Ecorisk DB r3.3 for documentation for L-ESL.	No change	The USEPA Eco-SSL zinc document MATC data in were used to calculate the geometric mean NOEC, so the LOEC is extrapolated from the geometric mean of the no effect level data set reported in REF ID 1620, Table 3.1 by applying an appropriate uncertainty factor to each value in the data set and then calculating the geometric mean of these extrapolated values. An uncertainty factor of 5 is applied to MATC values.

Table 12a. Task 2.2 – ESL Receptor Parameter Updates (September 2017)

PARAMETER	UPDATED VALUE	UNITS	RECEPTOR ID	REFERENCE	NOTES	REF ID
food intake	0.148	kg-food dry wt/kg-body wt/d	AK	Nagy 2001, 253420	Estimated using Nagy (2001, 253420) allometric scaling formula for all birds.	2043
Fraction soil in diet	0.139	Unitless	American robin (Avian herbivore)American robin (Avian herbivore)	EPA 2007, xxxxxx, Attachment 4-1, Table 3	Used 90th percentile dove value for herbivore diet.	2044
Fraction soil in diet	0.152	Unitless	American robin (Avian omnivore)	EPA 2007, xxxxxx, Attachment 4-1, Table 3	Used average of 90th percentile dove and woodcock values for omnivore diet.	2044
Fraction soil in diet	0.164	Unitless	American robin (Avian insectivore)	EPA 2007, xxxxxx, Attachment 4-1, Table 3	Used 90th percentile woodcock value for insectivore diet.	2044

Body weight	0.02	kg	DM	EPA 1993, 059384, p. 2-295	For females that have lower body weights and therefore are used to provide a conservative ESL.	561
Body weight	0.56	kg	DC	Sowls 1957, xxxxxx	Minimum of range of reported values for Audubon cottontail in Arizona.	2045
Food intake	0.0816	kg-food dry wt/kg-body wt/d	DC	Nagy 2001, 253420	Estimated using Nagy (2001, 253420) allometric scaling formula for herbivores.	2043
Fraction soil in diet	0.063	Unitless	DC	Arthur and Gates 1988, xxxxxx	For black-tailed jackrabbit at Idaho National Laboratory	2046
Daily water ingestion rate	0.097	L/kg/d	DC	EPA 1993, 059384, p. 2-355	Estimated by EPA from allometric equations.	561
Body weight	0.0054	kg	MS	Bennett et al 1999, 82652	Average of 17 males and females from Sandia Canyon	2047
Fraction soil in diet	0.03	Unitless	MS	EPA 2007, xxxxxx, Attachment 4-1, Table 3	Used 90th of the calculated soil intake for the shrew	2044
Fraction soil in diet	0.028	Unitless	RF	Beyer et al. 1994,	For red fox 062785, Table 1	132
food intake	0.274	kg-food dry wt/kg-body wt/d	VGS	Nagy 2001, 253420	Estimated using Nagy reference allometric scaling formula for passerines	2043

food intake	0.179	kg-food dry wt/kg-body wt/d	BA	Nagy 2001, 253420	Estimated using Nagy reference allometric scaling formula for bats	2043

Table 12b. Task 2.2 – ESL TF_flesh_dw Updates (September 2017)

Analyte	Old Value	New Value
100-42-5	2.26E-02	1.76E-02
100-51-6	1.01E-03	7.92E-04
106-46-7	1.17E-01	8.96E-02
106-47-8	4.59E-03	3.59E-03
107-06-2	3.52E-03	2.72E-03
108-10-1	3.48E-03	2.68E-03
108-39-4	1.38E-03	1.19E-03
108-88-3	2.21E-02	1.71E-02
108-90-7	3.09E-02	2.38E-02
108-95-2	3.42E-03	2.65E-03
11096-82-5	2.10E-02	1.62E-02
11097-69-1	8.83E-02	6.81E-02
115-29-7	7.63E-03	7.00E-03
117-81-7	1.03E+00	7.79E-01
117-84-0	1.37E+00	1.03E+00
118-74-1	3.50E+00	2.65E+00
118-96-7	1.02E-03	8.47E-04
120-12-7	3.73E-02	2.99E-02
120-82-1	3.56E-01	2.70E-01
121-14-2	1.26E-03	1.10E-03
121-82-4	4.90E-04	3.90E-04
122-39-4	4.16E-03	3.26E-03
12672-29-6	1.12E-01	8.64E-02
12674-11-2	1.35E-01	1.04E-01
127-18-4	4.29E-01	3.25E-01
129-00-0	3.05E-02	2.51E-02
131-11-3	3.88E-03	3.01E-03
132-64-9	2.92E-02	2.35E-02
1330-20-7	4.43E-02	3.41E-02
143-50-0	3.67E-01	2.79E-01

Analyte	Old Value	New Value
1746-01-6	1.22E-01	9.37E-02
191-24-2	1.97E-02	1.65E-02
193-39-5	6.81E-03	6.64E-03
19406-51-0	4.94E-03	3.87E-03
205-99-2	8.49E-03	8.53E-03
206-44-0	5.42E-02	4.31E-02
207-08-9	8.92E-03	8.69E-03
208-96-8	3.41E-02	2.71E-02
218-01-9	4.98E-03	5.86E-03
2691-41-0	1.41E-04	1.25E-04
309-00-2	4.06E-01	3.08E-01
319-84-6	1.03E-01	7.91E-02
319-85-7	1.03E-01	7.91E-02
35572-78-2	4.82E-03	3.76E-03
479-45-8	2.58E-03	2.04E-03
50-29-3	1.87E-01	1.42E-01
50-32-8	7.78E-03	7.81E-03
5103-71-9	3.90E-01	2.97E-01
5103-74-2	4.17E-02	3.33E-02
53469-21-9	1.14E-01	8.83E-02
53-70-3	6.55E-03	6.58E-03
540-59-0	1.55E-02	1.19E-02
541-73-1	1.53E-01	1.16E-01
55-63-0	3.94E-03	1.16E-01
56-55-3	3.86E-03	5.04E-03
58-89-9	1.03E-01	7.91E-02
591-78-6	3.84E-03	2.95E-03
59-50-7	2.61E-02	2.03E-02
60-57-1	3.32E-01	2.53E-01
606-20-2	2.04E-03	1.72E-03
65-85-0	2.15E-02	1.64E-02
67-64-1	4.12E-04	3.12E-04
67-66-3	1.24E-02	9.54E-03
71-43-2	5.57E-03	4.39E-03
71-55-6	5.51E-02	4.19E-02
72-20-8	3.87E-01	2.95E-01
72-43-5	7.60E-02	5.95E-02

Analyte	Old Value	New Value
72-54-8	1.30E-01	1.00E-01
72-55-9	1.85E-01	1.42E-01
74-87-3	8.77E-04	6.84E-04
74-88-4	1.19E-02	9.13E-03
75-01-4	5.21E-03	4.02E-03
75-09-2	2.84E-03	2.19E-03
75-15-0	1.32E-03	1.14E-03
75-34-3	6.56E-03	5.06E-03
75-35-4	2.22E-02	1.69E-02
75-69-4	6.20E-02	4.72E-02
75-71-8	1.78E-02	1.37E-02
76-44-8	1.51E-01	1.16E-01
78-11-5	6.31E-03	5.04E-03
78-93-3	9.18E-04	6.98E-04
79-01-6	3.14E-02	2.40E-02
79-34-5	1.78E-02	1.37E-02
8001-35-2	1.31E-01	1.01E-01
82-68-8	5.01E-01	3.80E-01
83-32-9	3.21E-02	2.55E-02
84-66-2	1.67E-02	1.29E-02
84-74-2	5.93E-01	4.49E-01
85-01-8	3.76E-02	3.01E-02
85-68-7	1.59E-01	1.22E-01
86-73-7	3.45E-02	2.76E-02
86-74-8	1.03E-02	8.89E-03
87-86-5	1.03E+00	7.77E-01
88-72-2	6.04E-03	4.81E-03
88-74-4	2.60E-03	2.09E-03
91-20-3	3.43E-02	2.67E-02
91-57-6	5.63E-02	4.38E-02
95-48-7	1.55E-03	1.31E-03
95-50-1	1.13E-01	8.60E-02
95-57-8	5.62E-03	4.44E-03
98-95-3	4.66E-03	3.64E-03
99-08-1	7.54E-03	5.99E-03
99-35-4	1.41E-04	1.44E-04
99-35-4	1.31E-01	1.44E-04

Analyte	Old Value	New Value
99-65-0	3.53E-03	2.73E-03
99-99-0	6.29E-03	5.02E-03
AG	3.05E-03	2.46E-03
AL	2.50E-04	1.14E-04
AS	2.50E-04	2.96E-04
B	6.13E-04	5.06E-04
BA	8.04E-06	1.41E-05
BE	3.09E-05	7.70E-05
CD	3.87E-03	2.95E-03
ClO4(-1)	4.30E+01	4.30E+01
CN(-1)	5.01E-01	4.32E-01
CO	1.38E-03	2.11E-03
CR	4.83E-04	6.60E-04
CR(+6)	2.11E-04	4.54E-04
CU	3.22E-03	2.97E-03
F(-1)	1.05E-02	1.60E-02
FE	5.30E-04	1.47E-03
HGI	4.86E-01	3.81E-01
HGM	6.28E+00	4.75E+00
LI	3.14E-04	7.74E-04
MN	2.25E-05	3.84E-05
MO	2.45E-04	2.39E-04
NI	2.35E-03	2.10E-03
PB	3.59E-05	4.32E-05
SB	4.67E-05	8.89E-05
SE	7.44E-03	6.42E-03
SR	1.45E-04	1.25E-04
TI	1.50E-02	1.30E-02
TL	1.42E-03	3.22E-03
U	5.01E-06	1.45E-05
V	7.37E-05	1.90E-04
ZN	1.87E-01	1.47E-01

Table 13. Task 2.2 – EcoPRG Receptor Parameter Updates (September 2017)

parameter	value	units	receptor	reference	Database Reference ID	notes

parameter	value	units	receptor	reference	Database Reference ID	notes
Fraction soil in diet	0.061	Unitless	American robin (Avian herbivore)American robin (Avian herbivore)	EPA 2007, xxxxxx, Attachment 4-1, Table 3	2044	Used median dove value for herbivore diet.
Fraction soil in diet	0.063	Unitless	American robin (Avian omnivore)	EPA 2007, xxxxxx, Attachment 4-1, Table 4	2044	Used median woodcock value for insectivore diet.
Fraction soil in diet	0.064	Unitless	American robin (Avian insectivore)	EPA 2007, xxxxxx, Attachment 4-1, Table 5	2044	Used average of median dove and woodcock values for omnivore diet.
Body weight	0.792	kg	DC	Sowls 1957, xxxxxx	2046	Mean of reported values for Audubon cottontail in Arizona.
Food intake	0.0717	kg-food dry wt/kg-body wt/d	DC	Nagy 2001, 253420	2043	Estimated using 0.792 kg body weight and Nagy (2001, 253420) allometric scaling formula for herbivorous mammals (most appropriate diet and high r2 for model)
Fraction soil in diet	0.063	Unitless	DC	Arthur and Gates 1988, xxxxxx	2045	For black-tailed jackrabbit at Idaho National Laboratory
Fraction soil in diet	0.009	Unitless	MS	EPA 2007, xxxxxx, Attachment 4-1, Table 3	2044	Used median of the calculated soil intake for the shrew

Table 14a. ESL Updates – Non-Radionulcide both N- and L-ESL (September 2017)

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Acenaphthene	83-32-9	Mountain cottontail (Mammalian herbivore)	530	5300	mg/kg	PAH	Mammal
Acenaphthene	83-32-9	Montane shrew (Mammalian insectivore)	130	1300	mg/kg	PAH	Mammal
Acenaphthene	83-32-9	Occult little brown myotis bat (Mammalian aerial insectivore)	140	1400	mg/kg	PAH	Mammal
Acenaphthene	83-32-9	Gray fox (Mammalian top carnivore)	29000	290000	mg/kg	PAH	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Acenaphthylene	208-96-8	Mountain cottontail (Mammalian herbivore)	540	5400	mg/kg	PAH	Mammal
Acenaphthylene	208-96-8	Occult little brown myotis bat (Mammalian aerial insectivore)	140	1400	mg/kg	PAH	Mammal
Acenaphthylene	208-96-8	Gray fox (Mammalian top carnivore)	28000	280000	mg/kg	PAH	Mammal
Acetone	67-64-1	American kestrel (Avian top carnivore)	66000	660000	mg/kg	VOC	Mammal
Acetone	67-64-1	American kestrel (insectivore / carnivore)	840	8400	mg/kg	VOC	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Acetone	67-64-1	Mountain cottontail (Mammalian herbivore)	1.6	8	mg/kg	VOC	Mammal
Acetone	67-64-1	Occult little brown myotis bat (Mammalian aerial insectivore)	17	88	mg/kg	VOC	Mammal
Aldrin	309-00-2	Occult little brown myotis bat (Mammalian aerial insectivore)	0.042	0.21	mg/kg	PEST	Mammal
Aldrin	309-00-2	Gray fox (Mammalian top carnivore)	13	66	mg/kg	PEST	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Amino-2,6-dinitrotoluene[4-]	19406-51-0	Mountain cottontail (Mammalian herbivore)	320	3200	mg/kg	HE	Mammal
Amino-2,6-dinitrotoluene[4-]	19406-51-0	Occult little brown myotis bat (Mammalian aerial insectivore)	14	140	mg/kg	HE	Mammal
Amino-2,6-dinitrotoluene[4-]	19406-51-0	Gray fox (Mammalian top carnivore)	6700	67000	mg/kg	HE	Mammal
Amino-4,6-dinitrotoluene[2-]	35572-78-2	Deer mouse (Mammalian omnivore)	23	230	mg/kg	HE	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Amino-4,6-dinitrotoluene[2-]	35572-78-2	Mountain cottontail (Mammalian herbivore)	110	1100	mg/kg	HE	Mammal
Amino-4,6-dinitrotoluene[2-]	35572-78-2	Montane shrew (Mammalian insectivore)	16	160	mg/kg	HE	Mammal
Amino-4,6-dinitrotoluene[2-]	35572-78-2	Occult little brown myotis bat (Mammalian aerial insectivore)	17	170	mg/kg	HE	Mammal
Amino-4,6-dinitrotoluene[2-]	35572-78-2	Gray fox (Mammalian top carnivore)	9700	97000	mg/kg	HE	Mammal
Anthracene	120-12-7	Deer mouse (Mammalian omnivore)	300	3000	mg/kg	PAH	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Anthracene	120-12-7	Mountain cottontail (Mammalian herbivore)	1200	12000	mg/kg	PAH	Mammal
Anthracene	120-12-7	Occult little brown myotis bat (Mammalian aerial insectivore)	240	2400	mg/kg	PAH	Mammal
Anthracene	120-12-7	Gray fox (Mammalian top carnivore)	38000	380000	mg/kg	PAH	Mammal
Antimony	SB	Deer mouse (Mammalian omnivore)	2.3	23	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Antimony	SB	Mountain cottontail (Mammalian herbivore)	2.7	27	mg/kg	INORG	Mammal
Antimony	SB	Montane shrew (Mammalian insectivore)	7.9	79	mg/kg	INORG	Mammal
Antimony	SB	Occult little brown myotis bat (Mammalian aerial insectivore)	45	450	mg/kg	INORG	Mammal
Aroclor-1016	12674-11-2	Deer mouse (Mammalian omnivore)	2	5.9	mg/kg	PCB	Mammal
Aroclor-1016	12674-11-2	Mountain cottontail (Mammalian herbivore)	48	130	mg/kg	PCB	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Aroclor-1016	12674-11-2	Occult little brown myotis bat (Mammalian aerial insectivore)	1.2	3.4	mg/kg	PCB	Mammal
Aroclor-1016	12674-11-2	Gray fox (Mammalian top carnivore)	250	720	mg/kg	PCB	Mammal
Aroclor-1242	53469-21-9	American kestrel (Avian top carnivore)	6.2	62	mg/kg	PCB	Mammal
Aroclor-1242	53469-21-9	American kestrel (insectivore / carnivore)	0.19	1.9	mg/kg	PCB	Bird
Aroclor-1242	53469-21-9	American robin (Avian herbivore)	0.92	9.2	mg/kg	PCB	Bird
Aroclor-1242	53469-21-9	American robin (Avian omnivore)	0.078	0.78	mg/kg	PCB	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Aroclor-1242	53469-21-9	Occult little brown myotis bat (Mammalian aerial insectivore)	0.43	1.7	mg/kg	PCB	Mammal
Aroclor-1242	53469-21-9	Gray fox (Mammalian top carnivore)	100	400	mg/kg	PCB	Mammal
Aroclor-1242	53469-21-9	Violet-green Swallow (Avian aerial insectivore)	0.053	0.53	mg/kg	PCB	Bird
Aroclor-1248	12672-29-6	American kestrel (Avian top carnivore)	6.3	63	mg/kg	PCB	Mammal
Aroclor-1248	12672-29-6	American kestrel (insectivore / carnivore)	0.19	1.9	mg/kg	PCB	Bird
Aroclor-1248	12672-29-6	American robin (Avian herbivore)	0.94	9.4	mg/kg	PCB	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Aroclor-1248	12672-29-6	American robin (Avian omnivore)	0.078	0.78	mg/kg	PCB	Bird
Aroclor-1248	12672-29-6	Mountain cottontail (Mammalian herbivore)	0.53	5.3	mg/kg	PCB	Mammal
Aroclor-1248	12672-29-6	Montane shrew (Mammalian insectivore)	0.0073	0.073	mg/kg	PCB	Mammal
Aroclor-1248	12672-29-6	Occult little brown myotis bat (Mammalian aerial insectivore)	0.0081	0.081	mg/kg	PCB	Mammal
Aroclor-1248	12672-29-6	Gray fox (Mammalian top carnivore)	1.9	19	mg/kg	PCB	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Aroclor-1248	12672-29-6	Violet-green Swallow (Avian aerial insectivore)	0.053	0.53	mg/kg	PCB	Bird
Aroclor-1254	11097-69-1	American kestrel (Avian top carnivore)	7.6	76	mg/kg	PCB	Mammal
Aroclor-1254	11097-69-1	American kestrel (insectivore / carnivore)	0.19	1.9	mg/kg	PCB	Bird
Aroclor-1254	11097-69-1	American robin (Avian herbivore)	1.1	11	mg/kg	PCB	Bird
Aroclor-1254	11097-69-1	American robin (Avian omnivore)	0.079	0.79	mg/kg	PCB	Bird
Aroclor-1254	11097-69-1	Deer mouse (Mammalian omnivore)	0.87	4.8	mg/kg	PCB	Mammal
Aroclor-1254	11097-69-1	Mountain cottontail (Mammalian herbivore)	44	240	mg/kg	PCB	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Aroclor-1254	11097-69-1	Occult little brown myotis bat (Mammalian aerial insectivore)	0.5	2.7	mg/kg	PCB	Mammal
Aroclor-1254	11097-69-1	Gray fox (Mammalian top carnivore)	7.2	72	mg/kg	PCB	Mammal
Aroclor-1254	11097-69-1	Violet-green Swallow (Avian aerial insectivore)	0.053	0.53	mg/kg	PCB	Bird
Aroclor-1260	11096-82-5	American kestrel (insectivore / carnivore)	4.2	5.9	mg/kg	PCB	Bird
Aroclor-1260	11096-82-5	American robin (Avian herbivore)	37	52	mg/kg	PCB	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Aroclor-1260	11096-82-5	Mountain cottontail (Mammalian herbivore)	1800	4500	mg/kg	PCB	Mammal
Aroclor-1260	11096-82-5	Occult little brown myotis bat (Mammalian aerial insectivore)	11	27	mg/kg	PCB	Mammal
Aroclor-1260	11096-82-5	Gray fox (Mammalian top carnivore)	15	150	mg/kg	PCB	Mammal
Arsenic	AS	American kestrel (Avian top carnivore)	740	7400	mg/kg	INORG	Mammal
Arsenic	AS	American kestrel (insectivore / carnivore)	100	1000	mg/kg	INORG	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Arsenic	AS	American robin (Avian herbivore)	34	340	mg/kg	INORG	Bird
Arsenic	AS	American robin (Avian insectivore)	15	150	mg/kg	INORG	Bird
Arsenic	AS	American robin (Avian omnivore)	21	210	mg/kg	INORG	Bird
Arsenic	AS	Mountain cottontail (Mammalian herbivore)	110	180	mg/kg	INORG	Mammal
Arsenic	AS	Montane shrew (Mammalian insectivore)	19	31	mg/kg	INORG	Mammal
Arsenic	AS	Occult little brown myotis bat (Mammalian aerial insectivore)	24	39	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Arsenic	AS	Violet-green Swallow (Avian aerial insectivore)	34	340	mg/kg	INORG	Bird
Barium	BA	American kestrel (Avian top carnivore)	24000	44000	mg/kg	INORG	Mammal
Barium	BA	American kestrel (insectivore / carnivore)	7500	13000	mg/kg	INORG	Bird
Barium	BA	American robin (Avian herbivore)	720	1200	mg/kg	INORG	Bird
Barium	BA	American robin (Avian insectivore)	820	1400	mg/kg	INORG	Bird
Barium	BA	American robin (Avian omnivore)	770	1300	mg/kg	INORG	Bird
Barium	BA	Montane shrew (Mammalian insectivore)	2100	10000	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Barium	BA	Occult little brown myotis bat (Mammalian aerial insectivore)	3100	31000	mg/kg	INORG	Mammal
Barium	BA	Violet-green Swallow (Avian aerial insectivore)	2900	5200	mg/kg	INORG	Bird
Benzene	71-43-2	Mountain cottontail (Mammalian herbivore)	38	380	mg/kg	VOC	Mammal
Benzene	71-43-2	Montane shrew (Mammalian insectivore)	49	490	mg/kg	VOC	Mammal
Benzene	71-43-2	Occult little brown myotis bat (Mammalian aerial insectivore)	54	550	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Benzene	71-43-2	Gray fox (Mammalian top carnivore)	18000	180000	mg/kg	VOC	Mammal
Benzo(a)anthracene	56-55-3	American kestrel (Avian top carnivore)	28	280	mg/kg	PAH	Mammal
Benzo(a)anthracene	56-55-3	American kestrel (insectivore / carnivore)	6.4	64	mg/kg	PAH	Bird
Benzo(a)anthracene	56-55-3	American robin (Avian herbivore)	0.73	7.3	mg/kg	PAH	Bird
Benzo(a)anthracene	56-55-3	American robin (Avian insectivore)	0.88	8.8	mg/kg	PAH	Bird
Benzo(a)anthracene	56-55-3	American robin (Avian omnivore)	0.8	8	mg/kg	PAH	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Benzo(a)anthracene	56-55-3	Mountain cottontail (Mammalian herbivore)	6.1	61	mg/kg	PAH	Mammal
Benzo(a)anthracene	56-55-3	Montane shrew (Mammalian insectivore)	4	40	mg/kg	PAH	Mammal
Benzo(a)anthracene	56-55-3	Occult little brown myotis bat (Mammalian aerial insectivore)	5.2	52	mg/kg	PAH	Mammal
Benzo(a)anthracene	56-55-3	Violet-green Swallow (Avian aerial insectivore)	2.1	21	mg/kg	PAH	Bird
Benzo(a)pyrene	50-32-8	Deer mouse (Mammalian omnivore)	84	260	mg/kg	PAH	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Benzo(a)pyrene	50-32-8	Mountain cottontail (Mammalian herbivore)	260	830	mg/kg	PAH	Mammal
Benzo(a)pyrene	50-32-8	Montane shrew (Mammalian insectivore)	62	190	mg/kg	PAH	Mammal
Benzo(a)pyrene	50-32-8	Occult little brown myotis bat (Mammalian aerial insectivore)	74	230	mg/kg	PAH	Mammal
Benzo(b)fluoranthene	205-99-2	Deer mouse (Mammalian omnivore)	51	510	mg/kg	PAH	Mammal
Benzo(b)fluoranthene	205-99-2	Mountain cottontail (Mammalian herbivore)	130	1300	mg/kg	PAH	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Benzo(b)fluoranthene	205-99-2	Montane shrew (Mammalian insectivore)	44	440	mg/kg	PAH	Mammal
Benzo(b)fluoranthene	205-99-2	Occult little brown myotis bat (Mammalian aerial insectivore)	53	530	mg/kg	PAH	Mammal
Benzo(g,h,i)perylene	191-24-2	Deer mouse (Mammalian omnivore)	46	460	mg/kg	PAH	Mammal
Benzo(g,h,i)perylene	191-24-2	Mountain cottontail (Mammalian herbivore)	470	4700	mg/kg	PAH	Mammal
Benzo(g,h,i)perylene	191-24-2	Montane shrew (Mammalian insectivore)	25	250	mg/kg	PAH	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Benzo(g,h,i)perylene	191-24-2	Occult little brown myotis bat (Mammalian aerial insectivore)	29	290	mg/kg	PAH	Mammal
Benzo(g,h,i)perylene	191-24-2	Gray fox (Mammalian top carnivore)	3600	36000	mg/kg	PAH	Mammal
Benzo(k)fluoranthene	207-08-9	Deer mouse (Mammalian omnivore)	99	990	mg/kg	PAH	Mammal
Benzo(k)fluoranthene	207-08-9	Mountain cottontail (Mammalian herbivore)	330	3300	mg/kg	PAH	Mammal
Benzo(k)fluoranthene	207-08-9	Montane shrew (Mammalian insectivore)	71	710	mg/kg	PAH	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Benzo(k)fluoranthene	207-08-9	Occult little brown myotis bat (Mammalian aerial insectivore)	83	830	mg/kg	PAH	Mammal
Benzoic Acid	65-85-0	Mountain cottontail (Mammalian herbivore)	4.6	46	mg/kg	SVOC	Mammal
Benzoic Acid	65-85-0	Occult little brown myotis bat (Mammalian aerial insectivore)	1.2	12	mg/kg	SVOC	Mammal
Benzoic Acid	65-85-0	Gray fox (Mammalian top carnivore)	2000	20000	mg/kg	SVOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Benzyl Alcohol	100-51-6	Mountain cottontail (Mammalian herbivore)	190	1900	mg/kg	VOC	Mammal
Benzyl Alcohol	100-51-6	Montane shrew (Mammalian insectivore)	270	2700	mg/kg	VOC	Mammal
Benzyl Alcohol	100-51-6	Occult little brown myotis bat (Mammalian aerial insectivore)	300	3000	mg/kg	VOC	Mammal
Beryllium	BE	Mountain cottontail (Mammalian herbivore)	89	890	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Beryllium	BE	Montane shrew (Mammalian insectivore)	35	350	mg/kg	INORG	Mammal
Beryllium	BE	Occult little brown myotis bat (Mammalian aerial insectivore)	66	660	mg/kg	INORG	Mammal
BHC[alpha-]	319-84-6	Mountain cottontail (Mammalian herbivore)	800	8000	mg/kg	PEST	Mammal
BHC[alpha-]	319-84-6	Montane shrew (Mammalian insectivore)	59	590	mg/kg	PEST	Mammal
BHC[alpha-]	319-84-6	Occult little brown myotis bat (Mammalian aerial insectivore)	66	660	mg/kg	PEST	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
BHC[alpha-]	319-84-6	Gray fox (Mammalian top carnivore)	18000	180000	mg/kg	PEST	Mammal
BHC[beta-]	319-85-7	American kestrel (Avian top carnivore)	2600	26000	mg/kg	PEST	Mammal
BHC[beta-]	319-85-7	American kestrel (insectivore / carnivore)	69	690	mg/kg	PEST	Bird
BHC[beta-]	319-85-7	American robin (Avian herbivore)	78	780	mg/kg	PEST	Bird
BHC[beta-]	319-85-7	Mountain cottontail (Mammalian herbivore)	3.7	18	mg/kg	PEST	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
BHC[beta-]	319-85-7	Occult little brown myotis bat (Mammalian aerial insectivore)	0.3	1.5	mg/kg	PEST	Mammal
BHC[beta-]	319-85-7	Gray fox (Mammalian top carnivore)	83	410	mg/kg	PEST	Mammal
BHC[beta-]	319-85-7	Violet-green Swallow (Avian aerial insectivore)	18	180	mg/kg	PEST	Bird
BHC[gamma-]	58-89-9	American kestrel (Avian top carnivore)	38	150	mg/kg	PEST	Mammal
BHC[gamma-]	58-89-9	American kestrel (insectivore / carnivore)	1	4	mg/kg	PEST	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
BHC[gamma-]	58-89-9	Mountain cottontail (Mammalian herbivore)	0.12	1.2	mg/kg	PEST	Mammal
BHC[gamma-]	58-89-9	Montane shrew (Mammalian insectivore)	0.0095	0.095	mg/kg	PEST	Mammal
BHC[gamma-]	58-89-9	Occult little brown myotis bat (Mammalian aerial insectivore)	0.01	0.1	mg/kg	PEST	Mammal
BHC[gamma-]	58-89-9	Gray fox (Mammalian top carnivore)	2.9	29	mg/kg	PEST	Mammal
Bis(2-ethylhexyl)phthalate	117-81-7	American kestrel (Avian top carnivore)	9.3	93	mg/kg	SVOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Bis(2-ethylhexyl)phthalate	117-81-7	American kestrel (insectivore / carnivore)	0.096	0.96	mg/kg	SVOC	Bird
Bis(2-ethylhexyl)phthalate	117-81-7	American robin (Avian herbivore)	16	160	mg/kg	SVOC	Bird
Bis(2-ethylhexyl)phthalate	117-81-7	Mountain cottontail (Mammalian herbivore)	1900	19000	mg/kg	SVOC	Mammal
Bis(2-ethylhexyl)phthalate	117-81-7	Montane shrew (Mammalian insectivore)	0.6	6	mg/kg	SVOC	Mammal
Bis(2-ethylhexyl)phthalate	117-81-7	Occult little brown myotis bat (Mammalian aerial insectivore)	0.66	6.6	mg/kg	SVOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Bis(2-ethylhexyl)phthalate	117-81-7	Gray fox (Mammalian top carnivore)	500	5000	mg/kg	SVOC	Mammal
Boron	B	American kestrel (Avian top carnivore)	960	4700	mg/kg	INORG	Mammal
Boron	B	American kestrel (insectivore / carnivore)	37	180	mg/kg	INORG	Bird
Boron	B	American robin (Avian insectivore)	7.1	35	mg/kg	INORG	Bird
Boron	B	Deer mouse (Mammalian omnivore)	55	550	mg/kg	INORG	Mammal
Boron	B	Mountain cottontail (Mammalian herbivore)	84	840	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Boron	B	Montane shrew (Mammalian insectivore)	130	1300	mg/kg	INORG	Mammal
Boron	B	Occult little brown myotis bat (Mammalian aerial insectivore)	150	1500	mg/kg	INORG	Mammal
Butanone[2-]	78-93-3	Deer mouse (Mammalian omnivore)	350	920	mg/kg	VOC	Mammal
Butanone[2-]	78-93-3	Mountain cottontail (Mammalian herbivore)	470	1200	mg/kg	VOC	Mammal
Butanone[2-]	78-93-3	Montane shrew (Mammalian insectivore)	2700	6900	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Butanone[2-]	78-93-3	Occult little brown myotis bat (Mammalian aerial insectivore)	3000	7800	mg/kg	VOC	Mammal
Butyl Benzyl Phthalate	85-68-7	Mountain cottontail (Mammalian herbivore)	2400	24000	mg/kg	SVOC	Mammal
Butyl Benzyl Phthalate	85-68-7	Occult little brown myotis bat (Mammalian aerial insectivore)	100	1000	mg/kg	SVOC	Mammal
Butyl Benzyl Phthalate	85-68-7	Gray fox (Mammalian top carnivore)	23000	230000	mg/kg	SVOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Cadmium	CD	American kestrel (Avian top carnivore)	430	2300	mg/kg	INORG	Mammal
Cadmium	CD	American kestrel (insectivore / carnivore)	1.3	7.7	mg/kg	INORG	Bird
Cadmium	CD	American robin (Avian herbivore)	4.3	23	mg/kg	INORG	Bird
Cadmium	CD	Deer mouse (Mammalian omnivore)	0.5	6.8	mg/kg	INORG	Mammal
Cadmium	CD	Mountain cottontail (Mammalian herbivore)	10	140	mg/kg	INORG	Mammal
Cadmium	CD	Occult little brown myotis bat (Mammalian aerial insectivore)	0.3	3	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Cadmium	CD	Gray fox (Mammalian top carnivore)	550	7400	mg/kg	INORG	Mammal
Cadmium	CD	Violet-green Swallow (Avian aerial insectivore)	0.37	3.7	mg/kg	INORG	Bird
Carbazole	86-74-8	Deer mouse (Mammalian omnivore)	79	790	mg/kg	SVOC	Mammal
Carbazole	86-74-8	Mountain cottontail (Mammalian herbivore)	140	1400	mg/kg	SVOC	Mammal
Carbazole	86-74-8	Montane shrew (Mammalian insectivore)	110	1100	mg/kg	SVOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Carbazole	86-74-8	Occult little brown myotis bat (Mammalian aerial insectivore)	130	1300	mg/kg	SVOC	Mammal
Carbon Disulfide	75-15-0	Deer mouse (Mammalian omnivore)	0.81	8.1	mg/kg	VOC	Mammal
Carbon Disulfide	75-15-0	Mountain cottontail (Mammalian herbivore)	1.4	14	mg/kg	VOC	Mammal
Carbon Disulfide	75-15-0	Montane shrew (Mammalian insectivore)	1.2	12	mg/kg	VOC	Mammal
Carbon Disulfide	75-15-0	Occult little brown myotis bat (Mammalian aerial insectivore)	1.3	13	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Chlordane[alpha-]	5103-71-9	American kestrel (Avian top carnivore)	45	220	mg/kg	PEST	Mammal
Chlordane[alpha-]	5103-71-9	American kestrel (insectivore / carnivore)	1.3	6.5	mg/kg	PEST	Bird
Chlordane[alpha-]	5103-71-9	American robin (Avian herbivore)	17	89	mg/kg	PEST	Bird
Chlordane[alpha-]	5103-71-9	American robin (Avian insectivore)	0.27	1.3	mg/kg	PEST	Bird
Chlordane[alpha-]	5103-71-9	Deer mouse (Mammalian omnivore)	0.53	5.3	mg/kg	PEST	Mammal
Chlordane[alpha-]	5103-71-9	Mountain cottontail (Mammalian herbivore)	54	540	mg/kg	PEST	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Chlordane[alpha-]	5103-71-9	Occult little brown myotis bat (Mammalian aerial insectivore)	0.3	3	mg/kg	PEST	Mammal
Chlordane[alpha-]	5103-71-9	Gray fox (Mammalian top carnivore)	80	810	mg/kg	PEST	Mammal
Chlordane[alpha-]	5103-71-9	Violet-green Swallow (Avian aerial insectivore)	0.35	1.7	mg/kg	PEST	Bird
Chlordane[gamma-]	5103-74-2	American kestrel (insectivore / carnivore)	11	56	mg/kg	PEST	Bird
Chlordane[gamma-]	5103-74-2	American robin (Avian herbivore)	20	100	mg/kg	PEST	Bird
Chlordane[gamma-]	5103-74-2	American robin (Avian omnivore)	4.1	20	mg/kg	PEST	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Chlordane[gamma-]	5103-74-2	Mountain cottontail (Mammalian herbivore)	63	630	mg/kg	PEST	Mammal
Chlordane[gamma-]	5103-74-2	Montane shrew (Mammalian insectivore)	2.3	23	mg/kg	PEST	Mammal
Chlordane[gamma-]	5103-74-2	Occult little brown myotis bat (Mammalian aerial insectivore)	2.6	26	mg/kg	PEST	Mammal
Chlordane[gamma-]	5103-74-2	Gray fox (Mammalian top carnivore)	420	4200	mg/kg	PEST	Mammal
Chlorobenzene	108-90-7	Deer mouse (Mammalian omnivore)	53	530	mg/kg	SVOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Chlorobenzene	108-90-7	Mountain cottontail (Mammalian herbivore)	170	1700	mg/kg	SVOC	Mammal
Chlorobenzene	108-90-7	Occult little brown myotis bat (Mammalian aerial insectivore)	48	480	mg/kg	SVOC	Mammal
Chlorobenzene	108-90-7	Gray fox (Mammalian top carnivore)	25000	250000	mg/kg	SVOC	Mammal
Chloroform	67-66-3	Mountain cottontail (Mammalian herbivore)	19	52	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Chloroform	67-66-3	Occult little brown myotis bat (Mammalian aerial insectivore)	9.2	25	mg/kg	VOC	Mammal
Chloroform	67-66-3	Gray fox (Mammalian top carnivore)	8900	24000	mg/kg	VOC	Mammal
Chlorophenol[2-]	95-57-8	American kestrel (Avian top carnivore)	310	3100	mg/kg	SVOC	Mammal
Chlorophenol[2-]	95-57-8	American kestrel (insectivore / carnivore)	14	140	mg/kg	SVOC	Bird
Chlorophenol[2-]	95-57-8	American robin (Avian insectivore)	2.6	26	mg/kg	SVOC	Bird
Chlorophenol[2-]	95-57-8	American robin (Avian omnivore)	0.68	6.8	mg/kg	SVOC	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Chlorophenol[2-]	95-57-8	Mountain cottontail (Mammalian herbivore)	0.74	7.4	mg/kg	SVOC	Mammal
Chlorophenol[2-]	95-57-8	Montane shrew (Mammalian insectivore)	2.3	23	mg/kg	SVOC	Mammal
Chlorophenol[2-]	95-57-8	Occult little brown myotis bat (Mammalian aerial insectivore)	2.6	26	mg/kg	SVOC	Mammal
Chlorophenol[2-]	95-57-8	Gray fox (Mammalian top carnivore)	340	3400	mg/kg	SVOC	Mammal
Chlorophenol[2-]	95-57-8	Violet-green Swallow (Avian aerial insectivore)	3.9	39	mg/kg	SVOC	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Chromium (total)	CR	American kestrel (Avian top carnivore)	860	2700	mg/kg	INORG	Mammal
Chromium (total)	CR	American kestrel (insectivore / carnivore)	170	560	mg/kg	INORG	Bird
Chromium (total)	CR	American robin (Avian herbivore)	51	160	mg/kg	INORG	Bird
Chromium (total)	CR	American robin (Avian insectivore)	23	73	mg/kg	INORG	Bird
Chromium (total)	CR	American robin (Avian omnivore)	32	100	mg/kg	INORG	Bird
Chromium (total)	CR	Mountain cottontail (Mammalian herbivore)	410	41000	mg/kg	INORG	Mammal
Chromium (total)	CR	Montane shrew (Mammalian insectivore)	63	6300	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Chromium (total)	CR	Occult little brown myotis bat (Mammalian aerial insectivore)	83	830	mg/kg	INORG	Mammal
Chromium (total)	CR	Violet-green Swallow (Avian aerial insectivore)	60	600	mg/kg	INORG	Bird
Chromium(+6)	CR(+6)	American kestrel (Avian top carnivore)	3600	36000	mg/kg	INORG	Mammal
Chromium(+6)	CR(+6)	American kestrel (insectivore / carnivore)	1400	14000	mg/kg	INORG	Bird
Chromium(+6)	CR(+6)	American robin (Avian herbivore)	210	2100	mg/kg	INORG	Bird
Chromium(+6)	CR(+6)	American robin (Avian insectivore)	140	1400	mg/kg	INORG	Bird
Chromium(+6)	CR(+6)	American robin (Avian omnivore)	160	1600	mg/kg	INORG	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Chromium(+6)	CR(+6)	Deer mouse (Mammalian omnivore)	850	5500	mg/kg	INORG	Mammal
Chromium(+6)	CR(+6)	Mountain cottontail (Mammalian herbivore)	1600	10000	mg/kg	INORG	Mammal
Chromium(+6)	CR(+6)	Montane shrew (Mammalian insectivore)	510	3300	mg/kg	INORG	Mammal
Chromium(+6)	CR(+6)	Occult little brown myotis bat (Mammalian aerial insectivore)	860	8600	mg/kg	INORG	Mammal
Chromium(+6)	CR(+6)	Gray fox (Mammalian top carnivore)	7200	46000	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Chromium(+6)	CR(+6)	Violet-green Swallow (Avian aerial insectivore)	660	6600	mg/kg	INORG	Bird
Chrysene	218-01-9	Mountain cottontail (Mammalian herbivore)	6.3	63	mg/kg	PAH	Mammal
Chrysene	218-01-9	Montane shrew (Mammalian insectivore)	3.1	31	mg/kg	PAH	Mammal
Chrysene	218-01-9	Occult little brown myotis bat (Mammalian aerial insectivore)	3.9	39	mg/kg	PAH	Mammal
Cobalt	CO	American kestrel (Avian top carnivore)	2300	5200	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Cobalt	CO	American kestrel (insectivore / carnivore)	620	1400	mg/kg	INORG	Bird
Cobalt	CO	American robin (Avian herbivore)	130	300	mg/kg	INORG	Bird
Cobalt	CO	American robin (Avian insectivore)	76	170	mg/kg	INORG	Bird
Cobalt	CO	American robin (Avian omnivore)	97	210	mg/kg	INORG	Bird
Cobalt	CO	Mountain cottontail (Mammalian herbivore)	1000	2800	mg/kg	INORG	Mammal
Cobalt	CO	Montane shrew (Mammalian insectivore)	240	640	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Cobalt	CO	Occult little brown myotis bat (Mammalian aerial insectivore)	330	3300	mg/kg	INORG	Mammal
Cobalt	CO	Gray fox (Mammalian top carnivore)	5400	14000	mg/kg	INORG	Mammal
Cobalt	CO	Violet-green Swallow (Avian aerial insectivore)	220	2200	mg/kg	INORG	Bird
Copper	CU	American kestrel (Avian top carnivore)	1100	3500	mg/kg	INORG	Mammal
Copper	CU	American kestrel (insectivore / carnivore)	80	240	mg/kg	INORG	Bird
Copper	CU	American robin (Avian herbivore)	34	100	mg/kg	INORG	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Copper	CU	American robin (Avian insectivore)	14	43	mg/kg	INORG	Bird
Copper	CU	American robin (Avian omnivore)	20	60	mg/kg	INORG	Bird
Copper	CU	Mountain cottontail (Mammalian herbivore)	260	430	mg/kg	INORG	Mammal
Copper	CU	Montane shrew (Mammalian insectivore)	42	70	mg/kg	INORG	Mammal
Copper	CU	Occult little brown myotis bat (Mammalian aerial insectivore)	49	81	mg/kg	INORG	Mammal
Cyanide (total)	CN(-1)	American kestrel (insectivore / carnivore)	0.36	3.6	mg/kg	INORG	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Cyanide (total)	CN(-1)	American robin (Avian insectivore)	0.098	0.98	mg/kg	INORG	Bird
Cyanide (total)	CN(-1)	American robin (Avian omnivore)	0.099	0.99	mg/kg	INORG	Bird
Cyanide (total)	CN(-1)	Deer mouse (Mammalian omnivore)	330	3300	mg/kg	INORG	Mammal
Cyanide (total)	CN(-1)	Mountain cottontail (Mammalian herbivore)	790	7900	mg/kg	INORG	Mammal
Cyanide (total)	CN(-1)	Montane shrew (Mammalian insectivore)	330	3300	mg/kg	INORG	Mammal
Cyanide (total)	CN(-1)	Occult little brown myotis bat (Mammalian aerial insectivore)	380	3800	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Cyanide (total)	CN(-1)	Gray fox (Mammalian top carnivore)	3300	33000	mg/kg	INORG	Mammal
DDD[4,4'-]	72-54-8	American kestrel (Avian top carnivore)	0.9	4.6	mg/kg	PEST	Mammal
DDD[4,4'-]	72-54-8	American kestrel (insectivore / carnivore)	0.03	0.15	mg/kg	PEST	Bird
DDD[4,4'-]	72-54-8	American robin (Avian herbivore)	0.12	0.66	mg/kg	PEST	Bird
DDD[4,4'-]	72-54-8	Deer mouse (Mammalian omnivore)	7.9	15	mg/kg	PEST	Mammal
DDD[4,4'-]	72-54-8	Mountain cottontail (Mammalian herbivore)	250	510	mg/kg	PEST	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
DDD[4,4'-]	72-54-8	Occult little brown myotis bat (Mammalian aerial insectivore)	4.6	9.2	mg/kg	PEST	Mammal
DDD[4,4'-]	72-54-8	Gray fox (Mammalian top carnivore)	1000	2000	mg/kg	PEST	Mammal
DDD[4,4'-]	72-54-8	Violet-green Swallow (Avian aerial insectivore)	0.0082	0.042	mg/kg	PEST	Bird
DDE[4,4'-]	72-55-9	American kestrel (Avian top carnivore)	20	100	mg/kg	PEST	Mammal
DDE[4,4'-]	72-55-9	American kestrel (insectivore / carnivore)	0.52	2.6	mg/kg	PEST	Bird
DDE[4,4'-]	72-55-9	American robin (Avian herbivore)	4.9	24	mg/kg	PEST	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
DDE[4,4'-]	72-55-9	Occult little brown myotis bat (Mammalian aerial insectivore)	4.1	10	mg/kg	PEST	Mammal
DDE[4,4'-]	72-55-9	Gray fox (Mammalian top carnivore)	1100	2900	mg/kg	PEST	Mammal
DDT[4,4'-]	50-29-3	American kestrel (Avian top carnivore)	83	240	mg/kg	PEST	Mammal
DDT[4,4'-]	50-29-3	American kestrel (insectivore / carnivore)	1.7	5.1	mg/kg	PEST	Bird
DDT[4,4'-]	50-29-3	American robin (Avian herbivore)	24	72	mg/kg	PEST	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
DDT[4,4'-]	50-29-3	Mountain cottontail (Mammalian herbivore)	10	53	mg/kg	PEST	Mammal
DDT[4,4'-]	50-29-3	Occult little brown myotis bat (Mammalian aerial insectivore)	0.049	0.24	mg/kg	PEST	Mammal
DDT[4,4'-]	50-29-3	Gray fox (Mammalian top carnivore)	18	91	mg/kg	PEST	Mammal
DDT[4,4'-]	50-29-3	Violet-green Swallow (Avian aerial insectivore)	0.47	1.3	mg/kg	PEST	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Dibenzo(a,h)anthracene	53-70-3	Mountain cottontail (Mammalian herbivore)	84	840	mg/kg	PAH	Mammal
Dibenzo(a,h)anthracene	53-70-3	Montane shrew (Mammalian insectivore)	14	140	mg/kg	PAH	Mammal
Dibenzo(a,h)anthracene	53-70-3	Occult little brown myotis bat (Mammalian aerial insectivore)	17	170	mg/kg	PAH	Mammal
Dichlorobenzene[1,2-]	95-50-1	Mountain cottontail (Mammalian herbivore)	12	120	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Dichlorobenzene[1,2-]	95-50-1	Occult little brown myotis bat (Mammalian aerial insectivore)	1	10	mg/kg	VOC	Mammal
Dichlorobenzene[1,2-]	95-50-1	Gray fox (Mammalian top carnivore)	480	4800	mg/kg	VOC	Mammal
Dichlorobenzene[1,3-]	541-73-1	Deer mouse (Mammalian omnivore)	1.2	12	mg/kg	VOC	Mammal
Dichlorobenzene[1,3-]	541-73-1	Mountain cottontail (Mammalian herbivore)	13	130	mg/kg	VOC	Mammal
Dichlorobenzene[1,3-]	541-73-1	Montane shrew (Mammalian insectivore)	0.74	7.4	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Dichlorobenzene[1,3-]	541-73-1	Occult little brown myotis bat (Mammalian aerial insectivore)	0.82	8.2	mg/kg	VOC	Mammal
Dichlorobenzene[1,3-]	541-73-1	Gray fox (Mammalian top carnivore)	380	3800	mg/kg	VOC	Mammal
Dichlorobenzene[1,4-]	106-46-7	Mountain cottontail (Mammalian herbivore)	12	49	mg/kg	VOC	Mammal
Dichlorobenzene[1,4-]	106-46-7	Occult little brown myotis bat (Mammalian aerial insectivore)	0.99	3.9	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Dichlorobenzene[1,4-]	106-46-7	Gray fox (Mammalian top carnivore)	470	1800	mg/kg	VOC	Mammal
Dichloroethane[1,1-]	75-34-3	Mountain cottontail (Mammalian herbivore)	410	4100	mg/kg	VOC	Mammal
Dichloroethane[1,1-]	75-34-3	Occult little brown myotis bat (Mammalian aerial insectivore)	330	3300	mg/kg	VOC	Mammal
Dichloroethane[1,1-]	75-34-3	Gray fox (Mammalian top carnivore)	250000	2500000	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Dichloroethane[1,2-]	107-06-2	American kestrel (Avian top carnivore)	1300	2700	mg/kg	VOC	Mammal
Dichloroethane[1,2-]	107-06-2	American kestrel (insectivore / carnivore)	22	44	mg/kg	VOC	Bird
Dichloroethane[1,2-]	107-06-2	American robin (Avian insectivore)	4.5	9	mg/kg	VOC	Bird
Dichloroethane[1,2-]	107-06-2	Mountain cottontail (Mammalian herbivore)	39	390	mg/kg	VOC	Mammal
Dichloroethane[1,2-]	107-06-2	Montane shrew (Mammalian insectivore)	91	910	mg/kg	VOC	Mammal
Dichloroethane[1,2-]	107-06-2	Occult little brown myotis bat (Mammalian aerial insectivore)	100	1000	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Dichloroethane[1,2-]	107-06-2	Gray fox (Mammalian top carnivore)	36000	360000	mg/kg	VOC	Mammal
Dichloroethene[1,1-]	75-35-4	Mountain cottontail (Mammalian herbivore)	44	440	mg/kg	VOC	Mammal
Dichloroethene[1,1-]	75-35-4	Occult little brown myotis bat (Mammalian aerial insectivore)	13	130	mg/kg	VOC	Mammal
Dichloroethene[1,1-]	75-35-4	Gray fox (Mammalian top carnivore)	14000	140000	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Dichloroethene[cis/trans-1,2-]	540-59-0	Mountain cottontail (Mammalian herbivore)	64	640	mg/kg	VOC	Mammal
Dichloroethene[cis/trans-1,2-]	540-59-0	Montane shrew (Mammalian insectivore)	24	240	mg/kg	VOC	Mammal
Dichloroethene[cis/trans-1,2-]	540-59-0	Occult little brown myotis bat (Mammalian aerial insectivore)	26	260	mg/kg	VOC	Mammal
Dichloroethene[cis/trans-1,2-]	540-59-0	Gray fox (Mammalian top carnivore)	25000	250000	mg/kg	VOC	Mammal
Dieldrin	60-57-1	American kestrel (Avian top carnivore)	1.7	93	mg/kg	PEST	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Dieldrin	60-57-1	American kestrel (insectivore / carnivore)	0.056	3	mg/kg	PEST	Bird
Dieldrin	60-57-1	American robin (Avian herbivore)	0.33	17	mg/kg	PEST	Bird
Dieldrin	60-57-1	Mountain cottontail (Mammalian herbivore)	0.34	0.69	mg/kg	PEST	Mammal
Dieldrin	60-57-1	Occult little brown myotis bat (Mammalian aerial insectivore)	0.005	0.01	mg/kg	PEST	Mammal
Dieldrin	60-57-1	Gray fox (Mammalian top carnivore)	1.1	2.3	mg/kg	PEST	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Diethyl Phthalate	84-66-2	Mountain cottontail (Mammalian herbivore)	8800	88000	mg/kg	SVOC	Mammal
Diethyl Phthalate	84-66-2	Occult little brown myotis bat (Mammalian aerial insectivore)	4000	40000	mg/kg	SVOC	Mammal
Diethyl Phthalate	84-66-2	Gray fox (Mammalian top carnivore)	2500000	25000000	mg/kg	SVOC	Mammal
Dimethyl Phthalate	131-11-3	Mountain cottontail (Mammalian herbivore)	60	740	mg/kg	SVOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Dimethyl Phthalate	131-11-3	Montane shrew (Mammalian insectivore)	80	980	mg/kg	SVOC	Mammal
Dimethyl Phthalate	131-11-3	Occult little brown myotis bat (Mammalian aerial insectivore)	90	1100	mg/kg	SVOC	Mammal
Dimethyl Phthalate	131-11-3	Gray fox (Mammalian top carnivore)	48000	590000	mg/kg	SVOC	Mammal
Di-n-Butyl Phthalate	84-74-2	American kestrel (Avian top carnivore)	2	20	mg/kg	SVOC	Mammal
Di-n-Butyl Phthalate	84-74-2	American kestrel (insectivore / carnivore)	0.052	0.52	mg/kg	SVOC	Bird
Di-n-Butyl Phthalate	84-74-2	American robin (Avian herbivore)	0.38	3.8	mg/kg	SVOC	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Di-n-Butyl Phthalate	84-74-2	Deer mouse (Mammalian omnivore)	360	860	mg/kg	SVOC	Mammal
Di-n-Butyl Phthalate	84-74-2	Mountain cottontail (Mammalian herbivore)	17000	40000	mg/kg	SVOC	Mammal
Di-n-Butyl Phthalate	84-74-2	Occult little brown myotis bat (Mammalian aerial insectivore)	210	490	mg/kg	SVOC	Mammal
Di-n-Butyl Phthalate	84-74-2	Gray fox (Mammalian top carnivore)	62000	140000	mg/kg	SVOC	Mammal
Dinitrobenzene[1,3-]	99-65-0	American kestrel (Avian top carnivore)	120	1200	mg/kg	HE	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Dinitrobenzene[1,3-]	99-65-0	American kestrel (insectivore / carnivore)	9.3	93	mg/kg	HE	Bird
Dinitrobenzene[1,3-]	99-65-0	American robin (Avian insectivore)	1.6	16	mg/kg	HE	Bird
Dinitrobenzene[1,3-]	99-65-0	Deer mouse (Mammalian omnivore)	0.072	0.16	mg/kg	HE	Mammal
Dinitrobenzene[1,3-]	99-65-0	Mountain cottontail (Mammalian herbivore)	0.091	0.21	mg/kg	HE	Mammal
Dinitrobenzene[1,3-]	99-65-0	Montane shrew (Mammalian insectivore)	0.95	2.2	mg/kg	HE	Mammal
Dinitrobenzene[1,3-]	99-65-0	Occult little brown myotis bat (Mammalian aerial insectivore)	1.1	2.5	mg/kg	HE	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Dinitrobenzene[1,3-]	99-65-0	Gray fox (Mammalian top carnivore)	82	190	mg/kg	HE	Mammal
Dinitrotoluene[2,4-]	121-14-2	Mountain cottontail (Mammalian herbivore)	74	740	mg/kg	HE	Mammal
Dinitrotoluene[2,4-]	121-14-2	Montane shrew (Mammalian insectivore)	14	140	mg/kg	HE	Mammal
Dinitrotoluene[2,4-]	121-14-2	Occult little brown myotis bat (Mammalian aerial insectivore)	16	160	mg/kg	HE	Mammal
Dinitrotoluene[2,6-]	606-20-2	American kestrel (Avian top carnivore)	18000	180000	mg/kg	HE	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Dinitrotoluene[2,6-]	606-20-2	American kestrel (insectivore / carnivore)	680	6800	mg/kg	HE	Bird
Dinitrotoluene[2,6-]	606-20-2	American robin (Avian omnivore)	74	740	mg/kg	HE	Bird
Dinitrotoluene[2,6-]	606-20-2	Deer mouse (Mammalian omnivore)	4	40	mg/kg	HE	Mammal
Dinitrotoluene[2,6-]	606-20-2	Mountain cottontail (Mammalian herbivore)	6.7	67	mg/kg	HE	Mammal
Dinitrotoluene[2,6-]	606-20-2	Montane shrew (Mammalian insectivore)	7.6	76	mg/kg	HE	Mammal
Dinitrotoluene[2,6-]	606-20-2	Occult little brown myotis bat (Mammalian aerial insectivore)	8.6	86	mg/kg	HE	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Di-n-octylphthalate	117-84-0	Mountain cottontail (Mammalian herbivore)	8400	84000	mg/kg	SVOC	Mammal
Di-n-octylphthalate	117-84-0	Occult little brown myotis bat (Mammalian aerial insectivore)	1	10	mg/kg	SVOC	Mammal
Di-n-octylphthalate	117-84-0	Gray fox (Mammalian top carnivore)	1300	13000	mg/kg	SVOC	Mammal
Diphenylamine	122-39-4	American kestrel (Avian top carnivore)	3900	6500	mg/kg	VOC	Mammal
Diphenylamine	122-39-4	American kestrel (insectivore / carnivore)	49	81	mg/kg	VOC	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Diphenylamine	122-39-4	American robin (Avian herbivore)	78	130	mg/kg	VOC	Bird
Diphenylamine	122-39-4	American robin (Avian omnivore)	17	29	mg/kg	VOC	Bird
Endosulfan	115-29-7	American kestrel (Avian top carnivore)	2500	25000	mg/kg	PEST	Mammal
Endosulfan	115-29-7	American kestrel (insectivore / carnivore)	200	2000	mg/kg	PEST	Bird
Endosulfan	115-29-7	American robin (Avian insectivore)	37	370	mg/kg	PEST	Bird
Endosulfan	115-29-7	American robin (Avian omnivore)	21	210	mg/kg	PEST	Bird
Endosulfan	115-29-7	Mountain cottontail (Mammalian herbivore)	1	10	mg/kg	PEST	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Endosulfan	115-29-7	Montane shrew (Mammalian insectivore)	1.1	11	mg/kg	PEST	Mammal
Endosulfan	115-29-7	Occult little brown myotis bat (Mammalian aerial insectivore)	1.3	13	mg/kg	PEST	Mammal
Endosulfan	115-29-7	Gray fox (Mammalian top carnivore)	95	950	mg/kg	PEST	Mammal
Endosulfan	115-29-7	Violet-green Swallow (Avian aerial insectivore)	60	600	mg/kg	PEST	Bird
Endrin	72-20-8	American kestrel (Avian top carnivore)	0.21	2.1	mg/kg	PEST	Mammal
Endrin	72-20-8	American kestrel (insectivore / carnivore)	0.0068	0.068	mg/kg	PEST	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Endrin	72-20-8	American robin (Avian herbivore)	0.046	0.46	mg/kg	PEST	Bird
Endrin	72-20-8	Deer mouse (Mammalian omnivore)	0.045	0.45	mg/kg	PEST	Mammal
Endrin	72-20-8	Mountain cottontail (Mammalian herbivore)	2.1	21	mg/kg	PEST	Mammal
Endrin	72-20-8	Occult little brown myotis bat (Mammalian aerial insectivore)	0.026	0.26	mg/kg	PEST	Mammal
Endrin	72-20-8	Gray fox (Mammalian top carnivore)	6.3	63	mg/kg	PEST	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Endrin	72-20-8	Violet-green Swallow (Avian aerial insectivore)	0.0018	0.018	mg/kg	PEST	Bird
Fluoranthene	206-44-0	Mountain cottontail (Mammalian herbivore)	270	2700	mg/kg	PAH	Mammal
Fluoranthene	206-44-0	Occult little brown myotis bat (Mammalian aerial insectivore)	25	250	mg/kg	PAH	Mammal
Fluoranthene	206-44-0	Gray fox (Mammalian top carnivore)	3900	39000	mg/kg	PAH	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Fluorene	86-73-7	Mountain cottontail (Mammalian herbivore)	1100	2300	mg/kg	PAH	Mammal
Fluorene	86-73-7	Occult little brown myotis bat (Mammalian aerial insectivore)	280	570	mg/kg	PAH	Mammal
Fluorene	86-73-7	Gray fox (Mammalian top carnivore)	50000	100000	mg/kg	PAH	Mammal
Fluoride	F(-1)	American kestrel (Avian top carnivore)	2200	22000	mg/kg	INORG	Mammal
Fluoride	F(-1)	American kestrel (insectivore / carnivore)	910	9100	mg/kg	INORG	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Fluoride	F(-1)	American robin (Avian herbivore)	170	1700	mg/kg	INORG	Bird
Fluoride	F(-1)	American robin (Avian insectivore)	120	1200	mg/kg	INORG	Bird
Fluoride	F(-1)	American robin (Avian omnivore)	140	1400	mg/kg	INORG	Bird
Fluoride	F(-1)	Deer mouse (Mammalian omnivore)	1100	2100	mg/kg	INORG	Mammal
Fluoride	F(-1)	Mountain cottontail (Mammalian herbivore)	2600	4800	mg/kg	INORG	Mammal
Fluoride	F(-1)	Montane shrew (Mammalian insectivore)	870	1600	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Fluoride	F(-1)	Occult little brown myotis bat (Mammalian aerial insectivore)	1100	2200	mg/kg	INORG	Mammal
Fluoride	F(-1)	Gray fox (Mammalian top carnivore)	13000	24000	mg/kg	INORG	Mammal
Fluoride	F(-1)	Violet-green Swallow (Avian aerial insectivore)	350	3500	mg/kg	INORG	Bird
Heptachlor	76-44-8	American kestrel (Avian top carnivore)	45	450	mg/kg	PEST	Mammal
Heptachlor	76-44-8	American kestrel (insectivore / carnivore)	1.4	14	mg/kg	PEST	Bird
Heptachlor	76-44-8	American robin (Avian herbivore)	7.7	77	mg/kg	PEST	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Heptachlor	76-44-8	Mountain cottontail (Mammalian herbivore)	4.6	46	mg/kg	PEST	Mammal
Heptachlor	76-44-8	Occult little brown myotis bat (Mammalian aerial insectivore)	0.066	0.66	mg/kg	PEST	Mammal
Heptachlor	76-44-8	Gray fox (Mammalian top carnivore)	15	150	mg/kg	PEST	Mammal
Heptachlor	76-44-8	Violet-green Swallow (Avian aerial insectivore)	0.39	3.9	mg/kg	PEST	Bird
Hexachlorobenzene	118-74-1	American kestrel (Avian top carnivore)	12	120	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Hexachlorobenzene	118-74-1	American kestrel (insectivore / carnivore)	0.37	3.7	mg/kg	VOC	Bird
Hexachlorobenzene	118-74-1	American robin (Avian herbivore)	83	830	mg/kg	VOC	Bird
Hexachlorobenzene	118-74-1	Deer mouse (Mammalian omnivore)	0.39	3.9	mg/kg	VOC	Mammal
Hexachlorobenzene	118-74-1	Mountain cottontail (Mammalian herbivore)	910	9100	mg/kg	VOC	Mammal
Hexachlorobenzene	118-74-1	Occult little brown myotis bat (Mammalian aerial insectivore)	0.22	2.2	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Hexachlorobenzene	118-74-1	Gray fox (Mammalian top carnivore)	59	590	mg/kg	VOC	Mammal
Hexanone[2-]	591-78-6	American kestrel (Avian top carnivore)	290	2900	mg/kg	VOC	Mammal
Hexanone[2-]	591-78-6	American kestrel (insectivore / carnivore)	1.7	17	mg/kg	VOC	Bird
Hexanone[2-]	591-78-6	Mountain cottontail (Mammalian herbivore)	17	65	mg/kg	VOC	Mammal
Hexanone[2-]	591-78-6	Occult little brown myotis bat (Mammalian aerial insectivore)	6	23	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Hexanone[2-]	591-78-6	Violet-green Swallow (Avian aerial insectivore)	0.47	4.7	mg/kg	VOC	Bird
HMX	2691-41-0	Deer mouse (Mammalian omnivore)	290	790	mg/kg	HE	Mammal
HMX	2691-41-0	Mountain cottontail (Mammalian herbivore)	410	1100	mg/kg	HE	Mammal
HMX	2691-41-0	Montane shrew (Mammalian insectivore)	1100	2900	mg/kg	HE	Mammal
HMX	2691-41-0	Occult little brown myotis bat (Mammalian aerial insectivore)	1300	3500	mg/kg	HE	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Indeno(1,2,3-cd)pyrene	193-39-5	Mountain cottontail (Mammalian herbivore)	510	5100	mg/kg	PAH	Mammal
Indeno(1,2,3-cd)pyrene	193-39-5	Montane shrew (Mammalian insectivore)	71	710	mg/kg	PAH	Mammal
Indeno(1,2,3-cd)pyrene	193-39-5	Occult little brown myotis bat (Mammalian aerial insectivore)	83	830	mg/kg	PAH	Mammal
Iodomethane	74-88-4	American kestrel (Avian top carnivore)	46	92	mg/kg	VOC	Mammal
Iodomethane	74-88-4	American kestrel (insectivore / carnivore)	0.29	0.59	mg/kg	VOC	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Kepone	143-50-0	American kestrel (Avian top carnivore)	190	380	mg/kg	PEST	Mammal
Kepone	143-50-0	American kestrel (insectivore / carnivore)	6.1	12	mg/kg	PEST	Bird
Kepone	143-50-0	American robin (Avian herbivore)	46	92	mg/kg	PEST	Bird
Kepone	143-50-0	Mountain cottontail (Mammalian herbivore)	2.1	10	mg/kg	PEST	Mammal
Kepone	143-50-0	Montane shrew (Mammalian insectivore)	0.022	0.11	mg/kg	PEST	Mammal
Kepone	143-50-0	Occult little brown myotis bat (Mammalian aerial insectivore)	0.024	0.12	mg/kg	PEST	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Kepone	143-50-0	Gray fox (Mammalian top carnivore)	5.8	29	mg/kg	PEST	Mammal
Kepone	143-50-0	Violet-green Swallow (Avian aerial insectivore)	1.6	3.3	mg/kg	PEST	Bird
Lead	PB	American kestrel (Avian top carnivore)	540	1000	mg/kg	INORG	Mammal
Lead	PB	American kestrel (insectivore / carnivore)	83	160	mg/kg	INORG	Bird
Lead	PB	American robin (Avian herbivore)	18	36	mg/kg	INORG	Bird
Lead	PB	American robin (Avian insectivore)	11	23	mg/kg	INORG	Bird
Lead	PB	American robin (Avian omnivore)	14	28	mg/kg	INORG	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Lead	PB	Mountain cottontail (Mammalian herbivore)	310	600	mg/kg	INORG	Mammal
Lead	PB	Montane shrew (Mammalian insectivore)	93	170	mg/kg	INORG	Mammal
Lead	PB	Occult little brown myotis bat (Mammalian aerial insectivore)	110	220	mg/kg	INORG	Mammal
Lead	PB	Violet-green Swallow (Avian aerial insectivore)	26	52	mg/kg	INORG	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Lithium	LI	Mountain cottontail (Mammalian herbivore)	150	750	mg/kg	INORG	Mammal
Lithium	LI	Montane shrew (Mammalian insectivore)	75	350	mg/kg	INORG	Mammal
Lithium	LI	Occult little brown myotis bat (Mammalian aerial insectivore)	130	650	mg/kg	INORG	Mammal
Lithium	LI	Gray fox (Mammalian top carnivore)	870	4100	mg/kg	INORG	Mammal
Manganese	MN	American kestrel (Avian top carnivore)	60000	120000	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Manganese	MN	American kestrel (insectivore / carnivore)	24000	50000	mg/kg	INORG	Bird
Manganese	MN	American robin (Avian herbivore)	1300	2700	mg/kg	INORG	Bird
Manganese	MN	American robin (Avian insectivore)	2200	4700	mg/kg	INORG	Bird
Manganese	MN	American robin (Avian omnivore)	1600	3500	mg/kg	INORG	Bird
Manganese	MN	Mountain cottontail (Mammalian herbivore)	2000	7500	mg/kg	INORG	Mammal
Manganese	MN	Montane shrew (Mammalian insectivore)	2800	10000	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Manganese	MN	Occult little brown myotis bat (Mammalian aerial insectivore)	4700	47000	mg/kg	INORG	Mammal
Manganese	MN	Gray fox (Mammalian top carnivore)	40000	150000	mg/kg	INORG	Mammal
Manganese	MN	Violet-green Swallow (Avian aerial insectivore)	10000	100000	mg/kg	INORG	Bird
Mercury (inorganic)	HGI	American kestrel (Avian top carnivore)	0.32	3.2	mg/kg	INORG	Mammal
Mercury (inorganic)	HGI	American kestrel (insectivore / carnivore)	0.058	0.58	mg/kg	INORG	Bird
Mercury (inorganic)	HGI	American robin (Avian herbivore)	0.067	0.67	mg/kg	INORG	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Mercury (inorganic)	HGI	Mountain cottontail (Mammalian herbivore)	23	230	mg/kg	INORG	Mammal
Mercury (inorganic)	HGI	Occult little brown myotis bat (Mammalian aerial insectivore)	2	20	mg/kg	INORG	Mammal
Mercury (inorganic)	HGI	Gray fox (Mammalian top carnivore)	76	760	mg/kg	INORG	Mammal
Mercury (inorganic)	HGI	Violet-green Swallow (Avian aerial insectivore)	0.017	0.17	mg/kg	INORG	Bird
Mercury (methyl)	HGM	American kestrel (Avian top carnivore)	0.009	0.09	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Mercury (methyl)	HGM	American kestrel (insectivore / carnivore)	0.0015	0.015	mg/kg	INORG	Bird
Mercury (methyl)	HGM	American robin (Avian herbivore)	0.066	0.66	mg/kg	INORG	Bird
Mercury (methyl)	HGM	Occult little brown myotis bat (Mammalian aerial insectivore)	0.0035	0.017	mg/kg	INORG	Mammal
Mercury (methyl)	HGM	Gray fox (Mammalian top carnivore)	0.14	0.74	mg/kg	INORG	Mammal
Mercury (methyl)	HGM	Violet-green Swallow (Avian aerial insectivore)	0.00045	0.0045	mg/kg	INORG	Bird
Methoxychlor[4,4'-]	72-43-5	American kestrel (Avian top carnivore)	2100	21000	mg/kg	PEST	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Methoxychlor[4,4'-]	72-43-5	American kestrel (insectivore / carnivore)	87	880	mg/kg	PEST	Bird
Methoxychlor[4,4'-]	72-43-5	American robin (Avian omnivore)	31	310	mg/kg	PEST	Bird
Methoxychlor[4,4'-]	72-43-5	Mountain cottontail (Mammalian herbivore)	83	160	mg/kg	PEST	Mammal
Methoxychlor[4,4'-]	72-43-5	Occult little brown myotis bat (Mammalian aerial insectivore)	5.7	11	mg/kg	PEST	Mammal
Methoxychlor[4,4'-]	72-43-5	Gray fox (Mammalian top carnivore)	1000	2000	mg/kg	PEST	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Methyl-2-pentanone[4-]	108-10-1	Deer mouse (Mammalian omnivore)	9.7	97	mg/kg	VOC	Mammal
Methyl-2-pentanone[4-]	108-10-1	Mountain cottontail (Mammalian herbivore)	17	170	mg/kg	VOC	Mammal
Methyl-2-pentanone[4-]	108-10-1	Occult little brown myotis bat (Mammalian aerial insectivore)	17	170	mg/kg	VOC	Mammal
Methyl-2-pentanone[4-]	108-10-1	Gray fox (Mammalian top carnivore)	18000	180000	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Methylene Chloride	75-09-2	Mountain cottontail (Mammalian herbivore)	3.8	32	mg/kg	VOC	Mammal
Methylene Chloride	75-09-2	Montane shrew (Mammalian insectivore)	9.2	79	mg/kg	VOC	Mammal
Methylene Chloride	75-09-2	Occult little brown myotis bat (Mammalian aerial insectivore)	10	88	mg/kg	VOC	Mammal
Methylnaphthalene[2-]	91-57-6	Mountain cottontail (Mammalian herbivore)	110	1100	mg/kg	PAH	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Methylnaphthalene[2-]	91-57-6	Occult little brown myotis bat (Mammalian aerial insectivore)	18	180	mg/kg	PAH	Mammal
Methylnaphthalene[2-]	91-57-6	Gray fox (Mammalian top carnivore)	4900	49000	mg/kg	PAH	Mammal
Methylphenol[2-]	95-48-7	Deer mouse (Mammalian omnivore)	580	5800	mg/kg	SVOC	Mammal
Methylphenol[2-]	95-48-7	Mountain cottontail (Mammalian herbivore)	880	8800	mg/kg	SVOC	Mammal
Methylphenol[2-]	95-48-7	Montane shrew (Mammalian insectivore)	1500	15000	mg/kg	SVOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Methylphenol[2-]	95-48-7	Occult little brown myotis bat (Mammalian aerial insectivore)	1700	17000	mg/kg	SVOC	Mammal
Molybdenum	MO	American kestrel (Avian top carnivore)	1100	11000	mg/kg	INORG	Mammal
Molybdenum	MO	American kestrel (insectivore / carnivore)	90	900	mg/kg	INORG	Bird
Molybdenum	MO	American robin (Avian herbivore)	18	180	mg/kg	INORG	Bird
Molybdenum	MO	American robin (Avian insectivore)	15	150	mg/kg	INORG	Bird
Molybdenum	MO	American robin (Avian omnivore)	16	160	mg/kg	INORG	Bird
Molybdenum	MO	Violet-green Swallow (Avian aerial insectivore)	26	260	mg/kg	INORG	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Naphthalene	91-20-3	American kestrel (insectivore / carnivore)	78	780	mg/kg	PAH	Bird
Naphthalene	91-20-3	American robin (Avian insectivore)	15	150	mg/kg	PAH	Bird
Naphthalene	91-20-3	Mountain cottontail (Mammalian herbivore)	14	40	mg/kg	PAH	Mammal
Naphthalene	91-20-3	Montane shrew (Mammalian insectivore)	28	79	mg/kg	PAH	Mammal
Naphthalene	91-20-3	Occult little brown myotis bat (Mammalian aerial insectivore)	31	89	mg/kg	PAH	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Naphthalene	91-20-3	Gray fox (Mammalian top carnivore)	5800	16000	mg/kg	PAH	Mammal
Naphthalene	91-20-3	Violet-green Swallow (Avian aerial insectivore)	21	210	mg/kg	PAH	Bird
Nickel	NI	American kestrel (Avian top carnivore)	2000	8100	mg/kg	INORG	Mammal
Nickel	NI	American kestrel (insectivore / carnivore)	110	440	mg/kg	INORG	Bird
Nickel	NI	American robin (Avian herbivore)	120	500	mg/kg	INORG	Bird
Nickel	NI	American robin (Avian insectivore)	20	81	mg/kg	INORG	Bird
Nickel	NI	American robin (Avian omnivore)	35	130	mg/kg	INORG	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Nickel	NI	Mountain cottontail (Mammalian herbivore)	270	540	mg/kg	INORG	Mammal
Nickel	NI	Montane shrew (Mammalian insectivore)	10	21	mg/kg	INORG	Mammal
Nickel	NI	Occult little brown myotis bat (Mammalian aerial insectivore)	12	24	mg/kg	INORG	Mammal
Nickel	NI	Violet-green Swallow (Avian aerial insectivore)	31	310	mg/kg	INORG	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Nitroaniline[2-]	88-74-4	Mountain cottontail (Mammalian herbivore)	11	22	mg/kg	SVOC	Mammal
Nitroaniline[2-]	88-74-4	Montane shrew (Mammalian insectivore)	6.5	13	mg/kg	SVOC	Mammal
Nitroaniline[2-]	88-74-4	Occult little brown myotis bat (Mammalian aerial insectivore)	7.3	14	mg/kg	SVOC	Mammal
Nitroaniline[2-]	88-74-4	Gray fox (Mammalian top carnivore)	2200	4400	mg/kg	SVOC	Mammal
Nitrobenzene	98-95-3	Deer mouse (Mammalian omnivore)	4.8	48	mg/kg	SVOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Nitrobenzene	98-95-3	Mountain cottontail (Mammalian herbivore)	6.7	67	mg/kg	SVOC	Mammal
Nitrobenzene	98-95-3	Montane shrew (Mammalian insectivore)	21	210	mg/kg	SVOC	Mammal
Nitrobenzene	98-95-3	Occult little brown myotis bat (Mammalian aerial insectivore)	24	240	mg/kg	SVOC	Mammal
Nitrobenzene	98-95-3	Gray fox (Mammalian top carnivore)	4100	41000	mg/kg	SVOC	Mammal
Nitroglycerine	55-63-0	Deer mouse (Mammalian omnivore)	70	740	mg/kg	HE	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Nitroglycerine	55-63-0	Mountain cottontail (Mammalian herbivore)	88	930	mg/kg	HE	Mammal
Nitroglycerine	55-63-0	Montane shrew (Mammalian insectivore)	1200	13000	mg/kg	HE	Mammal
Nitroglycerine	55-63-0	Occult little brown myotis bat (Mammalian aerial insectivore)	1500	16000	mg/kg	HE	Mammal
Nitroglycerine	55-63-0	Gray fox (Mammalian top carnivore)	69000	730000	mg/kg	HE	Mammal
Nitrotoluene[2-]	88-72-2	Deer mouse (Mammalian omnivore)	9.8	98	mg/kg	HE	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Nitrotoluene[2-]	88-72-2	Mountain cottontail (Mammalian herbivore)	15	150	mg/kg	HE	Mammal
Nitrotoluene[2-]	88-72-2	Montane shrew (Mammalian insectivore)	22	220	mg/kg	HE	Mammal
Nitrotoluene[2-]	88-72-2	Occult little brown myotis bat (Mammalian aerial insectivore)	25	250	mg/kg	HE	Mammal
Nitrotoluene[2-]	88-72-2	Gray fox (Mammalian top carnivore)	6000	60000	mg/kg	HE	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Nitrotoluene[3-]	99-08-1	Mountain cottontail (Mammalian herbivore)	21	210	mg/kg	HE	Mammal
Nitrotoluene[3-]	99-08-1	Occult little brown myotis bat (Mammalian aerial insectivore)	21	210	mg/kg	HE	Mammal
Nitrotoluene[3-]	99-08-1	Gray fox (Mammalian top carnivore)	7000	70000	mg/kg	HE	Mammal
Nitrotoluene[4-]	99-99-0	Deer mouse (Mammalian omnivore)	21	210	mg/kg	HE	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Nitrotoluene[4-]	99-99-0	Mountain cottontail (Mammalian herbivore)	36	360	mg/kg	HE	Mammal
Nitrotoluene[4-]	99-99-0	Montane shrew (Mammalian insectivore)	41	410	mg/kg	HE	Mammal
Nitrotoluene[4-]	99-99-0	Occult little brown myotis bat (Mammalian aerial insectivore)	46	460	mg/kg	HE	Mammal
Nitrotoluene[4-]	99-99-0	Gray fox (Mammalian top carnivore)	13000	130000	mg/kg	HE	Mammal
Pentachloronitrobenzene	82-68-8	American kestrel (Avian top carnivore)	110	1100	mg/kg	SVOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Pentachloronitrobenzene	82-68-8	American kestrel (insectivore / carnivore)	3.3	33	mg/kg	SVOC	Bird
Pentachloronitrobenzene	82-68-8	American robin (Avian herbivore)	21	210	mg/kg	SVOC	Bird
Pentachloronitrobenzene	82-68-8	Mountain cottontail (Mammalian herbivore)	930	9300	mg/kg	SVOC	Mammal
Pentachloronitrobenzene	82-68-8	Occult little brown myotis bat (Mammalian aerial insectivore)	12	120	mg/kg	SVOC	Mammal
Pentachloronitrobenzene	82-68-8	Gray fox (Mammalian top carnivore)	3500	35000	mg/kg	SVOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Pentachloronitrobenzene	82-68-8	Violet-green Swallow (Avian aerial insectivore)	0.9	9	mg/kg	SVOC	Bird
Pentachlorophenol	87-86-5	American kestrel (Avian top carnivore)	57	570	mg/kg	SVOC	Mammal
Pentachlorophenol	87-86-5	American kestrel (insectivore / carnivore)	1.7	17	mg/kg	SVOC	Bird
Pentachlorophenol	87-86-5	American robin (Avian herbivore)	29	290	mg/kg	SVOC	Bird
Pentachlorophenol	87-86-5	Deer mouse (Mammalian omnivore)	1.5	15	mg/kg	SVOC	Mammal
Pentachlorophenol	87-86-5	Mountain cottontail (Mammalian herbivore)	180	1800	mg/kg	SVOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Pentachlorophenol	87-86-5	Occult little brown myotis bat (Mammalian aerial insectivore)	0.9	9	mg/kg	SVOC	Mammal
Pentachlorophenol	87-86-5	Gray fox (Mammalian top carnivore)	230	2300	mg/kg	SVOC	Mammal
Pentachlorophenol	87-86-5	Violet-green Swallow (Avian aerial insectivore)	0.47	4.7	mg/kg	SVOC	Bird
Perchlorate Ion	ClO4(-1)	American kestrel (Avian top carnivore)	2	4	mg/kg	INORG	Mammal
Perchlorate Ion	ClO4(-1)	American kestrel (insectivore / carnivore)	3.9	8	mg/kg	INORG	Bird
Perchlorate Ion	ClO4(-1)	American robin (Avian herbivore)	0.12	0.24	mg/kg	INORG	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Perchlorate Ion	ClO4(-1)	American robin (Avian insectivore)	31	64	mg/kg	INORG	Bird
Perchlorate Ion	ClO4(-1)	American robin (Avian omnivore)	0.24	0.49	mg/kg	INORG	Bird
Perchlorate Ion	ClO4(-1)	Deer mouse (Mammalian omnivore)	0.21	1	mg/kg	INORG	Mammal
Perchlorate Ion	ClO4(-1)	Mountain cottontail (Mammalian herbivore)	0.26	1.3	mg/kg	INORG	Mammal
Perchlorate Ion	ClO4(-1)	Earthworm (Soil-dwelling invertebrate)	3.5	35	mg/kg	INORG	Invertebrate
Perchlorate Ion	ClO4(-1)	Generic plant (Terrestrial autotroph - producer)	40	80	mg/kg	INORG	Plant

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Perchlorate Ion	ClO4(-1)	Montane shrew (Mammalian insectivore)	31	150	mg/kg	INORG	Mammal
Perchlorate Ion	ClO4(-1)	Gray fox (Mammalian top carnivore)	3.3	16	mg/kg	INORG	Mammal
PETN	78-11-5	Mountain cottontail (Mammalian herbivore)	120	1200	mg/kg	HE	Mammal
PETN	78-11-5	Montane shrew (Mammalian insectivore)	1000	10000	mg/kg	HE	Mammal
PETN	78-11-5	Occult little brown myotis bat (Mammalian aerial insectivore)	1300	13000	mg/kg	HE	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
PETN	78-11-5	Gray fox (Mammalian top carnivore)	47000	470000	mg/kg	HE	Mammal
Phenanthrene	85-01-8	Mountain cottontail (Mammalian herbivore)	62	620	mg/kg	PAH	Mammal
Phenanthrene	85-01-8	Montane shrew (Mammalian insectivore)	11	110	mg/kg	PAH	Mammal
Phenanthrene	85-01-8	Occult little brown myotis bat (Mammalian aerial insectivore)	12	120	mg/kg	PAH	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Phenanthrene	85-01-8	Gray fox (Mammalian top carnivore)	1900	19000	mg/kg	PAH	Mammal
Phenol	108-95-2	Deer mouse (Mammalian omnivore)	37	370	mg/kg	SVOC	Mammal
Phenol	108-95-2	Mountain cottontail (Mammalian herbivore)	47	470	mg/kg	SVOC	Mammal
Phenol	108-95-2	Montane shrew (Mammalian insectivore)	640	6400	mg/kg	SVOC	Mammal
Phenol	108-95-2	Occult little brown myotis bat (Mammalian aerial insectivore)	750	7500	mg/kg	SVOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Phenol	108-95-2	Gray fox (Mammalian top carnivore)	43000	430000	mg/kg	SVOC	Mammal
Pyrene	129-00-0	American kestrel (Avian top carnivore)	3000	30000	mg/kg	PAH	Mammal
Pyrene	129-00-0	American kestrel (insectivore / carnivore)	160	1600	mg/kg	PAH	Bird
Pyrene	129-00-0	American robin (Avian herbivore)	68	680	mg/kg	PAH	Bird
Pyrene	129-00-0	American robin (Avian insectivore)	33	330	mg/kg	PAH	Bird
Pyrene	129-00-0	American robin (Avian omnivore)	44	440	mg/kg	PAH	Bird
Pyrene	129-00-0	Deer mouse (Mammalian omnivore)	31	310	mg/kg	PAH	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Pyrene	129-00-0	Mountain cottontail (Mammalian herbivore)	110	1100	mg/kg	PAH	Mammal
Pyrene	129-00-0	Montane shrew (Mammalian insectivore)	23	230	mg/kg	PAH	Mammal
Pyrene	129-00-0	Occult little brown myotis bat (Mammalian aerial insectivore)	26	260	mg/kg	PAH	Mammal
Pyrene	129-00-0	Gray fox (Mammalian top carnivore)	3100	31000	mg/kg	PAH	Mammal
Pyrene	129-00-0	Violet-green Swallow (Avian aerial insectivore)	46	460	mg/kg	PAH	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
RDX	121-82-4	American kestrel (Avian top carnivore)	780	1400	mg/kg	HE	Mammal
RDX	121-82-4	American kestrel (insectivore / carnivore)	11	22	mg/kg	HE	Bird
RDX	121-82-4	American robin (Avian omnivore)	2.3	4.4	mg/kg	HE	Bird
RDX	121-82-4	Mountain cottontail (Mammalian herbivore)	38	120	mg/kg	HE	Mammal
RDX	121-82-4	Occult little brown myotis bat (Mammalian aerial insectivore)	18	60	mg/kg	HE	Mammal
RDX	121-82-4	Violet-green Swallow (Avian aerial insectivore)	3.2	6.2	mg/kg	HE	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Selenium	SE	American kestrel (Avian top carnivore)	74	140	mg/kg	INORG	Mammal
Selenium	SE	American kestrel (insectivore / carnivore)	3.7	7.5	mg/kg	INORG	Bird
Selenium	SE	American robin (Avian herbivore)	0.98	1.9	mg/kg	INORG	Bird
Selenium	SE	American robin (Avian insectivore)	0.71	1.4	mg/kg	INORG	Bird
Selenium	SE	American robin (Avian omnivore)	0.83	1.6	mg/kg	INORG	Bird
Selenium	SE	Mountain cottontail (Mammalian herbivore)	2.2	3.4	mg/kg	INORG	Mammal
Selenium	SE	Montane shrew (Mammalian insectivore)	0.7	1	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Selenium	SE	Occult little brown myotis bat (Mammalian aerial insectivore)	0.8	1.2	mg/kg	INORG	Mammal
Silver	AG	American kestrel (Avian top carnivore)	600	6000	mg/kg	INORG	Mammal
Silver	AG	American kestrel (insectivore / carnivore)	13	130	mg/kg	INORG	Bird
Silver	AG	American robin (Avian herbivore)	10	100	mg/kg	INORG	Bird
Silver	AG	American robin (Avian omnivore)	4.1	41	mg/kg	INORG	Bird
Silver	AG	Mountain cottontail (Mammalian herbivore)	150	1500	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Silver	AG	Occult little brown myotis bat (Mammalian aerial insectivore)	16	160	mg/kg	INORG	Mammal
Silver	AG	Gray fox (Mammalian top carnivore)	4400	44000	mg/kg	INORG	Mammal
Strontium (stable)	SR	Deer mouse (Mammalian omnivore)	95	950	mg/kg	INORG	Mammal
Strontium (stable)	SR	Mountain cottontail (Mammalian herbivore)	110	1100	mg/kg	INORG	Mammal
Strontium (stable)	SR	Montane shrew (Mammalian insectivore)	1000	10000	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Strontium (stable)	SR	Occult little brown myotis bat (Mammalian aerial insectivore)	1600	16000	mg/kg	INORG	Mammal
Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	Mountain cottontail (Mammalian herbivore)	0.00004	0.00027	mg/kg	D/F	Mammal
Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	Occult little brown myotis bat (Mammalian aerial insectivore)	0.00000033	0.0000022	mg/kg	D/F	Mammal
Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	Gray fox (Mammalian top carnivore)	0.0001	0.00068	mg/kg	D/F	Mammal
Tetrachloroethene	127-18-4	Deer mouse (Mammalian omnivore)	0.35	1.7	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Tetrachloroethene	127-18-4	Mountain cottontail (Mammalian herbivore)	9.5	47	mg/kg	VOC	Mammal
Tetrachloroethene	127-18-4	Occult little brown myotis bat (Mammalian aerial insectivore)	0.2	1	mg/kg	VOC	Mammal
Tetrachloroethene	127-18-4	Gray fox (Mammalian top carnivore)	120	630	mg/kg	VOC	Mammal
Tetryl	479-45-8	Mountain cottontail (Mammalian herbivore)	1.8	8.9	mg/kg	HE	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Tetryl	479-45-8	Montane shrew (Mammalian insectivore)	60	280	mg/kg	HE	Mammal
Tetryl	479-45-8	Occult little brown myotis bat (Mammalian aerial insectivore)	91	430	mg/kg	HE	Mammal
Tetryl	479-45-8	Gray fox (Mammalian top carnivore)	960	4600	mg/kg	HE	Mammal
Thallium	TL	American kestrel (Avian top carnivore)	100	1000	mg/kg	INORG	Mammal
Thallium	TL	American kestrel (insectivore / carnivore)	48	480	mg/kg	INORG	Bird
Thallium	TL	American robin (Avian herbivore)	6.9	69	mg/kg	INORG	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Thallium	TL	American robin (Avian insectivore)	4.5	45	mg/kg	INORG	Bird
Thallium	TL	American robin (Avian omnivore)	5.5	55	mg/kg	INORG	Bird
Thallium	TL	Deer mouse (Mammalian omnivore)	0.72	7.2	mg/kg	INORG	Mammal
Thallium	TL	Mountain cottontail (Mammalian herbivore)	1.2	12	mg/kg	INORG	Mammal
Thallium	TL	Montane shrew (Mammalian insectivore)	0.42	4.2	mg/kg	INORG	Mammal
Thallium	TL	Occult little brown myotis bat (Mammalian aerial insectivore)	0.73	7.3	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Thallium	TL	Gray fox (Mammalian top carnivore)	5	50	mg/kg	INORG	Mammal
Thallium	TL	Violet-green Swallow (Avian aerial insectivore)	23	230	mg/kg	INORG	Bird
Titanium	TI	Mountain cottontail (Mammalian herbivore)	2800	28000	mg/kg	INORG	Mammal
Titanium	TI	Montane shrew (Mammalian insectivore)	77	770	mg/kg	INORG	Mammal
Titanium	TI	Occult little brown myotis bat (Mammalian aerial insectivore)	88	880	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Titanium	TI	Gray fox (Mammalian top carnivore)	8600	86000	mg/kg	INORG	Mammal
Toluene	108-88-3	Mountain cottontail (Mammalian herbivore)	66	660	mg/kg	VOC	Mammal
Toluene	108-88-3	Occult little brown myotis bat (Mammalian aerial insectivore)	25	250	mg/kg	VOC	Mammal
Toluene	108-88-3	Gray fox (Mammalian top carnivore)	12000	120000	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Toxaphene (Technical Grade)	8001-35-2	American kestrel (Avian top carnivore)	550	5500	mg/kg	PEST	Mammal
Toxaphene (Technical Grade)	8001-35-2	American kestrel (insectivore / carnivore)	19	190	mg/kg	PEST	Bird
Toxaphene (Technical Grade)	8001-35-2	American robin (Avian herbivore)	69	690	mg/kg	PEST	Bird
Toxaphene (Technical Grade)	8001-35-2	American robin (Avian omnivore)	7.8	78	mg/kg	PEST	Bird
Toxaphene (Technical Grade)	8001-35-2	Mountain cottontail (Mammalian herbivore)	290	2900	mg/kg	PEST	Mammal
Toxaphene (Technical Grade)	8001-35-2	Occult little brown myotis bat (Mammalian aerial insectivore)	6.6	66	mg/kg	PEST	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Toxaphene (Technical Grade)	8001-35-2	Gray fox (Mammalian top carnivore)	1300	13000	mg/kg	PEST	Mammal
Toxaphene (Technical Grade)	8001-35-2	Violet-green Swallow (Avian aerial insectivore)	5.4	54	mg/kg	PEST	Bird
Trichlorobenzene[1,2,4-]	120-82-1	Mountain cottontail (Mammalian herbivore)	12	120	mg/kg	VOC	Mammal
Trichlorobenzene[1,2,4-]	120-82-1	Occult little brown myotis bat (Mammalian aerial insectivore)	0.3	3	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Trichlorobenzene[1,2,4-]	120-82-1	Gray fox (Mammalian top carnivore)	110	1100	mg/kg	VOC	Mammal
Trichloroethane[1,1,1-]	71-55-6	Mountain cottontail (Mammalian herbivore)	2000	20000	mg/kg	VOC	Mammal
Trichloroethane[1,1,1-]	71-55-6	Occult little brown myotis bat (Mammalian aerial insectivore)	290	2900	mg/kg	VOC	Mammal
Trichloroethane[1,1,1-]	71-55-6	Gray fox (Mammalian top carnivore)	310000	3100000	mg/kg	VOC	Mammal
Trichloroethene	79-01-6	Deer mouse (Mammalian omnivore)	54	540	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Trichloroethene	79-01-6	Mountain cottontail (Mammalian herbivore)	190	1900	mg/kg	VOC	Mammal
Trichloroethene	79-01-6	Occult little brown myotis bat (Mammalian aerial insectivore)	46	460	mg/kg	VOC	Mammal
Trichloroethene	79-01-6	Gray fox (Mammalian top carnivore)	42000	420000	mg/kg	VOC	Mammal
Trichlorofluoromethane	75-69-4	Deer mouse (Mammalian omnivore)	97	650	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Trichlorofluoromethane	75-69-4	Mountain cottontail (Mammalian herbivore)	1800	12000	mg/kg	VOC	Mammal
Trichlorofluoromethane	75-69-4	Occult little brown myotis bat (Mammalian aerial insectivore)	58	390	mg/kg	VOC	Mammal
Trichlorofluoromethane	75-69-4	Gray fox (Mammalian top carnivore)	62000	420000	mg/kg	VOC	Mammal
Trinitrobenzene[1,3,5-]	99-35-4	Deer mouse (Mammalian omnivore)	110	1100	mg/kg	HE	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Trinitrobenzene[1,3,5-]	99-35-4	Mountain cottontail (Mammalian herbivore)	150	1500	mg/kg	HE	Mammal
Trinitrobenzene[1,3,5-]	99-35-4	Montane shrew (Mammalian insectivore)	720	7200	mg/kg	HE	Mammal
Trinitrobenzene[1,3,5-]	99-35-4	Occult little brown myotis bat (Mammalian aerial insectivore)	1100	11000	mg/kg	HE	Mammal
Trinitrotoluene[2,4,6-]	118-96-7	American kestrel (Avian top carnivore)	3100	5700	mg/kg	HE	Mammal
Trinitrotoluene[2,4,6-]	118-96-7	American kestrel (insectivore / carnivore)	1300	2400	mg/kg	HE	Bird
Trinitrotoluene[2,4,6-]	118-96-7	American robin (Avian insectivore)	120	220	mg/kg	HE	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Trinitrotoluene[2,4,6-]	118-96-7	Mountain cottontail (Mammalian herbivore)	110	540	mg/kg	HE	Mammal
Trinitrotoluene[2,4,6-]	118-96-7	Montane shrew (Mammalian insectivore)	1900	9100	mg/kg	HE	Mammal
Trinitrotoluene[2,4,6-]	118-96-7	Occult little brown myotis bat (Mammalian aerial insectivore)	3300	15000	mg/kg	HE	Mammal
Uranium	U	American kestrel (Avian top carnivore)	26000	260000	mg/kg	INORG	Mammal
Uranium	U	American kestrel (insectivore / carnivore)	14000	140000	mg/kg	INORG	Bird
Uranium	U	American robin (Avian herbivore)	1500	15000	mg/kg	INORG	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Uranium	U	American robin (Avian insectivore)	1100	11000	mg/kg	INORG	Bird
Uranium	U	American robin (Avian omnivore)	1200	12000	mg/kg	INORG	Bird
Uranium	U	Mountain cottontail (Mammalian herbivore)	1000	2600	mg/kg	INORG	Mammal
Uranium	U	Montane shrew (Mammalian insectivore)	480	1200	mg/kg	INORG	Mammal
Uranium	U	Occult little brown myotis bat (Mammalian aerial insectivore)	1000	2500	mg/kg	INORG	Mammal
Uranium	U	Violet-green Swallow (Avian aerial insectivore)	8600	86000	mg/kg	INORG	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Vanadium	V	American kestrel (Avian top carnivore)	110	230	mg/kg	INORG	Mammal
Vanadium	V	American kestrel (insectivore / carnivore)	56	110	mg/kg	INORG	Bird
Vanadium	V	American robin (Avian herbivore)	6.8	13	mg/kg	INORG	Bird
Vanadium	V	American robin (Avian insectivore)	4.7	9.5	mg/kg	INORG	Bird
Vanadium	V	American robin (Avian omnivore)	5.5	11	mg/kg	INORG	Bird
Vanadium	V	Deer mouse (Mammalian omnivore)	470	1000	mg/kg	INORG	Mammal
Vanadium	V	Mountain cottontail (Mammalian herbivore)	740	1500	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Vanadium	V	Montane shrew (Mammalian insectivore)	290	610	mg/kg	INORG	Mammal
Vanadium	V	Occult little brown myotis bat (Mammalian aerial insectivore)	550	1100	mg/kg	INORG	Mammal
Vanadium	V	Gray fox (Mammalian top carnivore)	3200	6900	mg/kg	INORG	Mammal
Vanadium	V	Violet-green Swallow (Avian aerial insectivore)	29	59	mg/kg	INORG	Bird
Vinyl Chloride	75-01-4	Mountain cottontail (Mammalian herbivore)	0.34	3.4	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Vinyl Chloride	75-01-4	Occult little brown myotis bat (Mammalian aerial insectivore)	0.14	1.4	mg/kg	VOC	Mammal
Xylene (Total)	1330-20-7	American kestrel (Avian top carnivore)	13000	130000	mg/kg	VOC	Mammal
Xylene (Total)	1330-20-7	American kestrel (insectivore / carnivore)	190	1900	mg/kg	VOC	Bird
Xylene (Total)	1330-20-7	American robin (Avian herbivore)	89	890	mg/kg	VOC	Bird
Xylene (Total)	1330-20-7	Mountain cottontail (Mammalian herbivore)	7.6	9.5	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Xylene (Total)	1330-20-7	Occult little brown myotis bat (Mammalian aerial insectivore)	1.6	2	mg/kg	VOC	Mammal
Xylene (Total)	1330-20-7	Gray fox (Mammalian top carnivore)	750	930	mg/kg	VOC	Mammal
Xylene (Total)	1330-20-7	Violet-green Swallow (Avian aerial insectivore)	53	530	mg/kg	VOC	Bird
Zinc	ZN	American kestrel (Avian top carnivore)	2600	7000	mg/kg	INORG	Mammal
Zinc	ZN	American kestrel (insectivore / carnivore)	220	590	mg/kg	INORG	Bird
Zinc	ZN	American robin (Avian herbivore)	330	120	mg/kg	INORG	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Zinc	ZN	American robin (Avian insectivore)	47	120	mg/kg	INORG	Bird
Zinc	ZN	American robin (Avian omnivore)	83	220	mg/kg	INORG	Bird
Zinc	ZN	Mountain cottontail (Mammalian herbivore)	1800	18000	mg/kg	INORG	Mammal
Zinc	ZN	Montane shrew (Mammalian insectivore)	99	980	mg/kg	INORG	Mammal
Zinc	ZN	Occult little brown myotis bat (Mammalian aerial insectivore)	110	1100	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Zinc	ZN	Gray fox (Mammalian top carnivore)	9600	94000	mg/kg	INORG	Mammal
Zinc	ZN	Violet-green Swallow (Avian aerial insectivore)	63	630	mg/kg	INORG	Bird
Aldrin	309-00-2	Deer mouse (Mammalian omnivore)	0.074	0.37	mg/kg	PEST	Mammal
Aroclor-1016	12674-11-2	Montane shrew (Mammalian insectivore)	1.1	3.1	mg/kg	PCB	Mammal
Aroclor-1242	53469-21-9	Deer mouse (Mammalian omnivore)	0.75	3	mg/kg	PCB	Mammal
Aroclor-1242	53469-21-9	Montane shrew (Mammalian insectivore)	0.39	1.5	mg/kg	PCB	Mammal
Aroclor-1254	11097-69-1	Montane shrew (Mammalian insectivore)	0.45	2.4	mg/kg	PCB	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
BHC[gamma-]	58-89-9	American robin (Avian omnivore)	0.35	1.4	mg/kg	PEST	Bird
BHC[gamma-]	58-89-9	Violet-green Swallow (Avian aerial insectivore)	0.27	1.1	mg/kg	PEST	Bird
Boron	B	American robin (Avian omnivore)	3.1	15	mg/kg	INORG	Bird
Chlordane[gamma-]	5103-74-2	American kestrel (Avian top carnivore)	270	1300	mg/kg	PEST	Mammal
Chlordane[gamma-]	5103-74-2	American robin (Avian insectivore)	2.2	11	mg/kg	PEST	Bird
Copper	CU	Deer mouse (Mammalian omnivore)	63	100	mg/kg	INORG	Mammal
DDE[4,4'-]	72-55-9	Deer mouse (Mammalian omnivore)	7.2	18	mg/kg	PEST	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
DDE[4,4'-]	72-55-9	Mountain cottontail (Mammalian herbivore)	540	1300	mg/kg	PEST	Mammal
DDT[4,4'-]	50-29-3	American robin (Avian omnivore)	0.71	2.1	mg/kg	PEST	Bird
DDT[4,4'-]	50-29-3	Deer mouse (Mammalian omnivore)	0.088	0.44	mg/kg	PEST	Mammal
Dichlorobenzene[1,4-]	106-46-7	Montane shrew (Mammalian insectivore)	0.89	3.5	mg/kg	VOC	Mammal
Dichloroethane[1,2-]	107-06-2	Violet-green Swallow (Avian aerial insectivore)	6.1	12	mg/kg	VOC	Bird
Dieldrin	60-57-1	Deer mouse (Mammalian omnivore)	0.0087	0.017	mg/kg	PEST	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Hexanone[2-]	591-78-6	Gray fox (Mammalian top carnivore)	5900	22000	mg/kg	VOC	Mammal
Iodomethane	74-88-4	Violet-green Swallow (Avian aerial insectivore)	0.081	0.16	mg/kg	VOC	Bird
Kepone	143-50-0	Deer mouse (Mammalian omnivore)	0.042	0.21	mg/kg	PEST	Mammal
Mercury (methyl)	HGM	Deer mouse (Mammalian omnivore)	0.0062	0.031	mg/kg	INORG	Mammal
Methoxychlor[4,4'-]	72-43-5	Deer mouse (Mammalian omnivore)	9	18	mg/kg	PEST	Mammal
Methoxychlor[4,4'-]	72-43-5	Montane shrew (Mammalian insectivore)	5.1	10	mg/kg	PEST	Mammal
Methylene Chloride	75-09-2	Gray fox (Mammalian top carnivore)	4300	36000	mg/kg	VOC	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Naphthalene	91-20-3	Deer mouse (Mammalian omnivore)	9.6	27	mg/kg	PAH	Mammal
Nitroaniline[2-]	88-74-4	Deer mouse (Mammalian omnivore)	5.3	10	mg/kg	SVOC	Mammal
Selenium	SE	Deer mouse (Mammalian omnivore)	0.82	1.2	mg/kg	INORG	Mammal
Selenium	SE	Gray fox (Mammalian top carnivore)	92	130	mg/kg	INORG	Mammal
Trinitrotoluene[2,4,6-]	118-96-7	American robin (Avian herbivore)	7.5	13	mg/kg	HE	Bird
Trinitrotoluene[2,4,6-]	118-96-7	Deer mouse (Mammalian omnivore)	95	440	mg/kg	HE	Mammal
Trinitrotoluene[2,4,6-]	118-96-7	Violet-green Swallow (Avian aerial insectivore)	610	1100	mg/kg	HE	Bird
Uranium	U	Deer mouse (Mammalian omnivore)	740	1800	mg/kg	INORG	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Xylene (Total)	1330-20-7	Deer mouse (Mammalian omnivore)	1.9	2.4	mg/kg	VOC	Mammal

Table 14b. ESL Updates – Non-Radionulcide N-ESL Only (September 2017)

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Aldrin	309-00-2	Deer mouse (Mammalian omnivore)	0.074	0.37	mg/kg	PEST	Mammal
Aroclor-1016	12674-11-2	Montane shrew (Mammalian insectivore)	1.1	3.1	mg/kg	PCB	Mammal
Aroclor-1242	53469-21-9	Deer mouse (Mammalian omnivore)	0.75	3	mg/kg	PCB	Mammal
Aroclor-1242	53469-21-9	Montane shrew (Mammalian insectivore)	0.39	1.5	mg/kg	PCB	Mammal
Aroclor-1254	11097-69-1	Montane shrew (Mammalian insectivore)	0.45	2.4	mg/kg	PCB	Mammal
BHC[gamma-]	58-89-9	American robin (Avian omnivore)	0.35	1.4	mg/kg	PEST	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
BHC[gamma-]	58-89-9	Violet-green Swallow (Avian aerial insectivore)	0.27	1.1	mg/kg	PEST	Bird
Boron	B	American robin (Avian omnivore)	3.1	15	mg/kg	INORG	Bird
Chlordane[gamma-]	5103-74-2	American kestrel (Avian top carnivore)	270	1300	mg/kg	PEST	Mammal
Chlordane[gamma-]	5103-74-2	American robin (Avian insectivore)	2.2	11	mg/kg	PEST	Bird
Copper	CU	Deer mouse (Mammalian omnivore)	63	100	mg/kg	INORG	Mammal
DDE[4,4'-]	72-55-9	Deer mouse (Mammalian omnivore)	7.2	18	mg/kg	PEST	Mammal
DDE[4,4'-]	72-55-9	Mountain cottontail (Mammalian herbivore)	540	1300	mg/kg	PEST	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
DDT[4,4'-]	50-29-3	American robin (Avian omnivore)	0.71	2.1	mg/kg	PEST	Bird
DDT[4,4'-]	50-29-3	Deer mouse (Mammalian omnivore)	0.088	0.44	mg/kg	PEST	Mammal
Dichlorobenzene[1,4-]	106-46-7	Montane shrew (Mammalian insectivore)	0.89	3.5	mg/kg	VOC	Mammal
Dichloroethane[1,2-]	107-06-2	Violet-green Swallow (Avian aerial insectivore)	6.1	12	mg/kg	VOC	Bird
Dieldrin	60-57-1	Deer mouse (Mammalian omnivore)	0.0087	0.017	mg/kg	PEST	Mammal
Hexanone[2-]	591-78-6	Gray fox (Mammalian top carnivore)	5900	22000	mg/kg	VOC	Mammal
Iodomethane	74-88-4	Violet-green Swallow (Avian aerial insectivore)	0.081	0.16	mg/kg	VOC	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Kepone	143-50-0	Deer mouse (Mammalian omnivore)	0.042	0.21	mg/kg	PEST	Mammal
Mercury (methyl)	HGM	Deer mouse (Mammalian omnivore)	0.0062	0.031	mg/kg	INORG	Mammal
Methoxychlor[4,4'-]	72-43-5	Deer mouse (Mammalian omnivore)	9	18	mg/kg	PEST	Mammal
Methoxychlor[4,4'-]	72-43-5	Montane shrew (Mammalian insectivore)	5.1	10	mg/kg	PEST	Mammal
Methylene Chloride	75-09-2	Gray fox (Mammalian top carnivore)	4300	36000	mg/kg	VOC	Mammal
Naphthalene	91-20-3	Deer mouse (Mammalian omnivore)	9.6	27	mg/kg	PAH	Mammal
Nitroaniline[2-]	88-74-4	Deer mouse (Mammalian omnivore)	5.3	10	mg/kg	SVOC	Mammal
Selenium	SE	Deer mouse (Mammalian omnivore)	0.82	1.2	mg/kg	INORG	Mammal

Analyte Name	**Analyte Code**	**ESL Receptor**	**No Effect ESL**	**Low Effect ESL**	**Units**	**Analyte Group**	**ESL Receptor Class**
Selenium	SE	Gray fox (Mammalian top carnivore)	92	130	mg/kg	INORG	Mammal
Trinitrotoluene[2,4,6-]	118-96-7	American robin (Avian herbivore)	7.5	13	mg/kg	HE	Bird
Trinitrotoluene[2,4,6-]	118-96-7	Deer mouse (Mammalian omnivore)	95	440	mg/kg	HE	Mammal
Trinitrotoluene[2,4,6-]	118-96-7	Violet-green Swallow (Avian aerial insectivore)	610	1100	mg/kg	HE	Bird
Uranium	U	Deer mouse (Mammalian omnivore)	740	1800	mg/kg	INORG	Mammal
Xylene (Total)	1330-20-7	Deer mouse (Mammalian omnivore)	1.9	2.4	mg/kg	VOC	Mammal

Table 14c. ESL Updates – Non-Radionulcide L-ESL Only (September 2017)

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class

Acetone	67-64-1	Montane shrew (Mammalian insectivore)	15	79	mg/kg	VOC	Mammal
Aroclor-1242	53469-21-9	Mountain cottontail (Mammalian herbivore)	27	110	mg/kg	PCB	Mammal
Aroclor-1260	11096-82-5	American kestrel (Avian top carnivore)	400	560	mg/kg	PCB	Mammal
Barium	BA	Deer mouse (Mammalian omnivore)	1800	8700	mg/kg	INORG	Mammal
Barium	BA	Mountain cottontail (Mammalian herbivore)	2900	14000	mg/kg	INORG	Mammal

Barium	BA	Gray fox (Mammalian top carnivore)	41000	190000	mg/kg	INORG	Mammal
BHC[gamma-]	58-89-9	American robin (Avian herbivore)	1.1	4.5	mg/kg	PEST	Bird
BHC[gamma-]	58-89-9	American robin (Avian insectivore)	0.21	0.85	mg/kg	PEST	Bird
Boron	B	Violet-green Swallow (Avian aerial insectivore)	10	52	mg/kg	INORG	Bird
Cadmium	CD	American robin (Avian insectivore)	0.29	1.6	mg/kg	INORG	Bird
Cadmium	CD	American robin (Avian omnivore)	0.54	3	mg/kg	INORG	Bird
Cadmium	CD	Montane shrew (Mammalian insectivore)	0.27	3.6	mg/kg	INORG	Mammal
Chlordane[gamma-]	5103-74-2	Deer mouse (Mammalian omnivore)	4.3	43	mg/kg	PEST	Mammal

Chloroform	67-66-3	Deer mouse (Mammalian omnivore)	8	21	mg/kg	VOC	Mammal
Chromium (total)	CR	Deer mouse (Mammalian omnivore)	110	11000	mg/kg	INORG	Mammal
Chromium (total)	CR	Gray fox (Mammalian top carnivore)	1800	180000	mg/kg	INORG	Mammal
Cobalt	CO	Deer mouse (Mammalian omnivore)	400	1000	mg/kg	INORG	Mammal
Copper	CU	Gray fox (Mammalian top carnivore)	4000	6700	mg/kg	INORG	Mammal
Copper	CU	Violet-green Swallow (Avian aerial insectivore)	23	69	mg/kg	INORG	Bird
DDD[4,4'-]	72-54-8	American robin (Avian insectivore)	0.0063	0.032	mg/kg	PEST	Bird

DDD[4,4'-]	72-54-8	American robin (Avian omnivore)	0.012	0.062	mg/kg	PEST	Bird
DDD[4,4'-]	72-54-8	Montane shrew (Mammalian insectivore)	4.1	8.3	mg/kg	PEST	Mammal
DDE[4,4'-]	72-55-9	Violet-green Swallow (Avian aerial insectivore)	0.14	0.71	mg/kg	PEST	Bird
Dieldrin	60-57-1	Violet-green Swallow (Avian aerial insectivore)	0.015	0.82	mg/kg	PEST	Bird
Di-n-Butyl Phthalate	84-74-2	Montane shrew (Mammalian insectivore)	180	450	mg/kg	SVOC	Mammal
Diphenylamine	122-39-4	American robin (Avian insectivore)	10	16	mg/kg	VOC	Bird
Fluorene	86-73-7	Montane shrew (Mammalian insectivore)	250	510	mg/kg	PAH	Mammal
Iodomethane	74-88-4	American robin (Avian herbivore)	0.038	0.076	mg/kg	VOC	Bird

Lithium	LI	Deer mouse (Mammalian omnivore)	100	480	mg/kg	INORG	Mammal
Manganese	MN	Deer mouse (Mammalian omnivore)	1400	5400	mg/kg	INORG	Mammal
Methoxychlor[4,4'-]	72-43-5	Violet-green Swallow (Avian aerial insectivore)	24	240	mg/kg	PEST	Bird
Nickel	NI	Deer mouse (Mammalian omnivore)	20	40	mg/kg	INORG	Mammal
RDX	121-82-4	American robin (Avian herbivore)	2.3	4.3	mg/kg	HE	Bird
RDX	121-82-4	American robin (Avian insectivore)	2.4	4.5	mg/kg	HE	Bird
RDX	121-82-4	Deer mouse (Mammalian omnivore)	16	51	mg/kg	HE	Mammal
RDX	121-82-4	Montane shrew (Mammalian insectivore)	16	53	mg/kg	HE	Mammal
Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	Deer mouse (Mammalian omnivore)	0.00000058	0.0000038	mg/kg	D/F	Mammal

Tetryl	479-45-8	Deer mouse (Mammalian omnivore)	1.5	7.2	mg/kg	HE	Mammal
Xylene (Total)	1330-20-7	Montane shrew (Mammalian insectivore)	1.4	1.8	mg/kg	VOC	Mammal
Zinc	ZN	Deer mouse (Mammalian omnivore)	170	1700	mg/kg	INORG	Mammal

Table 15. ESL Updates – Radionuclide (September 2017)

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Americium-241	AM-241	American kestrel (Avian top carnivore)	57000	570000	pCi/g	RAD	Mammal
Americium-241	AM-241	American kestrel (insectivore / carnivore)	43000	430000	pCi/g	RAD	Bird
Americium-241	AM-241	American robin (Avian herbivore)	4600	46000	pCi/g	RAD	Bird
Americium-241	AM-241	American robin (Avian insectivore)	10000	100000	pCi/g	RAD	Bird
Americium-241	AM-241	American robin (Avian omnivore)	6100	61000	pCi/g	RAD	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Americium-241	AM-241	Mountain cottontail (Mammalian herbivore)	26000	260000	pCi/g	RAD	Mammal
Americium-241	AM-241	Montane shrew (Mammalian insectivore)	34000	340000	pCi/g	RAD	Mammal
Americium-241	AM-241	Occult little brown myotis bat (Mammalian aerial insectivore)	3500	35000	pCi/g	RAD	Mammal
Americium-241	AM-241	Violet-green Swallow (Avian aerial insectivore)	1000	10000	pCi/g	RAD	Bird
Cesium-134	CS-134	American kestrel (Avian top carnivore)	980	9800	pCi/g	RAD	Mammal
Cesium-134	CS-134	American robin (Avian herbivore)	680	6800	pCi/g	RAD	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Cesium-134	CS-134	Mountain cottontail (Mammalian herbivore)	790	7900	pCi/g	RAD	Mammal
Cesium-134	CS-134	Occult little brown myotis bat (Mammalian aerial insectivore)	1200	12000	pCi/g	RAD	Mammal
Cesium-134	CS-134	Violet-green Swallow (Avian aerial insectivore)	320	3200	pCi/g	RAD	Bird
Cesium-137 + Barium-137	CS-137/ BA-137	American kestrel (Avian top carnivore)	3700	37000	pCi/g	RAD	Mammal
Cesium-137 + Barium-137	CS-137/ BA-137	American kestrel (insectivore / carnivore)	4200	42000	pCi/g	RAD	Bird
Cesium-137 + Barium-137	CS-137/ BA-137	American robin (Avian insectivore)	4500	45000	pCi/g	RAD	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Cesium-137 + Barium-137	CS-137/ BA-137	Mountain cottontail (Mammalian herbivore)	1700	17000	pCi/g	RAD	Mammal
Cesium-137 + Barium-137	CS-137/ BA-137	Occult little brown myotis bat (Mammalian aerial insectivore)	2600	26000	pCi/g	RAD	Mammal
Cobalt-60	CO-60	American kestrel (Avian top carnivore)	1500	15000	pCi/g	RAD	Mammal
Cobalt-60	CO-60	Mountain cottontail (Mammalian herbivore)	760	7600	pCi/g	RAD	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Cobalt-60	CO-60	Occult little brown myotis bat (Mammalian aerial insectivore)	760	7600	pCi/g	RAD	Mammal
Cobalt-60	CO-60	Violet-green Swallow (Avian aerial insectivore)	200	2000	pCi/g	RAD	Bird
Europium-152	EU-152	American kestrel (Avian top carnivore)	1000	10000	pCi/g	RAD	Mammal
Europium-152	EU-152	Mountain cottontail (Mammalian herbivore)	520	5200	pCi/g	RAD	Mammal
Europium-152	EU-152	Occult little brown myotis bat (Mammalian aerial insectivore)	120	1200	pCi/g	RAD	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Europium-152	EU-152	Violet-green Swallow (Avian aerial insectivore)	34	340	pCi/g	RAD	Bird
Lead-210	PB-210	American kestrel (Avian top carnivore)	8900	88000	pCi/g	RAD	Mammal
Lead-210	PB-210	American kestrel (insectivore / carnivore)	8500	85000	pCi/g	RAD	Bird
Lead-210	PB-210	American robin (Avian herbivore)	6000	60000	pCi/g	RAD	Bird
Lead-210	PB-210	American robin (Avian insectivore)	6200	61000	pCi/g	RAD	Bird
Lead-210	PB-210	American robin (Avian omnivore)	5600	56000	pCi/g	RAD	Bird
Lead-210	PB-210	Mountain cottontail (Mammalian herbivore)	4400	44000	pCi/g	RAD	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Lead-210	PB-210	Occult little brown myotis bat (Mammalian aerial insectivore)	7400	74000	pCi/g	RAD	Mammal
Lead-210	PB-210	Violet-green Swallow (Avian aerial insectivore)	2100	21000	pCi/g	RAD	Bird
Neptunium-237	NP-237	American kestrel (Avian top carnivore)	1700	17000	pCi/g	RAD	Mammal
Neptunium-237	NP-237	American kestrel (insectivore / carnivore)	1100	11000	pCi/g	RAD	Bird
Neptunium-237	NP-237	American robin (Avian herbivore)	590	5900	pCi/g	RAD	Bird
Neptunium-237	NP-237	American robin (Avian insectivore)	210	2100	pCi/g	RAD	Bird
Neptunium-237	NP-237	American robin (Avian omnivore)	200	2000	pCi/g	RAD	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Neptunium-237	NP-237	Mountain cottontail (Mammalian herbivore)	3200	32000	pCi/g	RAD	Mammal
Neptunium-237	NP-237	Montane shrew (Mammalian insectivore)	3600	36000	pCi/g	RAD	Mammal
Neptunium-237	NP-237	Occult little brown myotis bat (Mammalian aerial insectivore)	190	1900	pCi/g	RAD	Mammal
Neptunium-237	NP-237	Gray fox (Mammalian top carnivore)	740	7400	pCi/g	RAD	Mammal
Neptunium-237	NP-237	Violet-green Swallow (Avian aerial insectivore)	56	560	pCi/g	RAD	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Plutonium-238	PU-238	American kestrel (Avian top carnivore)	110000	1100000	pCi/g	RAD	Mammal
Plutonium-238	PU-238	American kestrel (insectivore / carnivore)	100000	1000000	pCi/g	RAD	Bird
Plutonium-238	PU-238	American robin (Avian herbivore)	4300	43000	pCi/g	RAD	Bird
Plutonium-238	PU-238	American robin (Avian insectivore)	10000	100000	pCi/g	RAD	Bird
Plutonium-238	PU-238	American robin (Avian omnivore)	5900	59000	pCi/g	RAD	Bird
Plutonium-238	PU-238	Mountain cottontail (Mammalian herbivore)	75000	750000	pCi/g	RAD	Mammal
Plutonium-238	PU-238	Montane shrew (Mammalian insectivore)	190000	1900000	pCi/g	RAD	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Plutonium-238	PU-238	Occult little brown myotis bat (Mammalian aerial insectivore)	1700	17000	pCi/g	RAD	Mammal
Plutonium-238	PU-238	Violet-green Swallow (Avian aerial insectivore)	500	5000	pCi/g	RAD	Bird
Plutonium-239, 240	PU-239/240	American kestrel (Avian top carnivore)	130000	1300000	pCi/g	RAD	Mammal
Plutonium-239, 240	PU-239/240	American kestrel (insectivore / carnivore)	120000	1200000	pCi/g	RAD	Bird
Plutonium-239, 240	PU-239/240	American robin (Avian herbivore)	4400	44000	pCi/g	RAD	Bird
Plutonium-239, 240	PU-239/240	American robin (Avian insectivore)	10000	100000	pCi/g	RAD	Bird
Plutonium-239, 240	PU-239/240	American robin (Avian omnivore)	6100	61000	pCi/g	RAD	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Plutonium-239, 240	PU-239/240	Mountain cottontail (Mammalian herbivore)	94000	930000	pCi/g	RAD	Mammal
Plutonium-239, 240	PU-239/240	Montane shrew (Mammalian insectivore)	320000	3200000	pCi/g	RAD	Mammal
Plutonium-239, 240	PU-239/240	Occult little brown myotis bat (Mammalian aerial insectivore)	1800	18000	pCi/g	RAD	Mammal
Plutonium-239, 240	PU-239/240	Violet-green Swallow (Avian aerial insectivore)	520	5200	pCi/g	RAD	Bird
Plutonium-241	PU-241	American kestrel (Avian top carnivore)	730000	7300000	pCi/g	RAD	Mammal
Plutonium-241	PU-241	American robin (Avian herbivore)	700000	7000000	pCi/g	RAD	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Plutonium-241	PU-241	American robin (Avian omnivore)	710000	7100000	pCi/g	RAD	Bird
Plutonium-241	PU-241	Mountain cottontail (Mammalian herbivore)	360000	3600000	pCi/g	RAD	Mammal
Plutonium-241	PU-241	Occult little brown myotis bat (Mammalian aerial insectivore)	1000000	10000000	pCi/g	RAD	Mammal
Plutonium-241	PU-241	Violet-green Swallow (Avian aerial insectivore)	270000	2700000	pCi/g	RAD	Bird
Radium-226	RA-226	American kestrel (Avian top carnivore)	870	8700	pCi/g	RAD	Mammal
Radium-226	RA-226	American kestrel (insectivore / carnivore)	61	610	pCi/g	RAD	Bird

Analyte Name	**Analyte Code**	**ESL Receptor**	**No Effect ESL**	**Low Effect ESL**	**Units**	**Analyte Group**	**ESL Receptor Class**
Radium-226	RA-226	American robin (Avian herbivore)	34	340	pCi/g	RAD	Bird
Radium-226	RA-226	American robin (Avian insectivore)	8.2	82	pCi/g	RAD	Bird
Radium-226	RA-226	American robin (Avian omnivore)	8.4	84	pCi/g	RAD	Bird
Radium-226	RA-226	Mountain cottontail (Mammalian herbivore)	340	3400	pCi/g	RAD	Mammal
Radium-226	RA-226	Montane shrew (Mammalian insectivore)	510	5100	pCi/g	RAD	Mammal
Radium-226	RA-226	Occult little brown myotis bat (Mammalian aerial insectivore)	3.2	32	pCi/g	RAD	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Radium-226	RA-226	Violet-green Swallow (Avian aerial insectivore)	0.94	9.4	pCi/g	RAD	Bird
Radium-228	RA-228	American kestrel (Avian top carnivore)	1400	14000	pCi/g	RAD	Mammal
Radium-228	RA-228	American kestrel (insectivore / carnivore)	83	830	pCi/g	RAD	Bird
Radium-228	RA-228	American robin (Avian herbivore)	46	460	pCi/g	RAD	Bird
Radium-228	RA-228	Mountain cottontail (Mammalian herbivore)	420	4200	pCi/g	RAD	Mammal
Radium-228	RA-228	Montane shrew (Mammalian insectivore)	770	7700	pCi/g	RAD	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Radium-228	RA-228	Occult little brown myotis bat (Mammalian aerial insectivore)	2.9	29	pCi/g	RAD	Mammal
Radium-228	RA-228	Violet-green Swallow (Avian aerial insectivore)	0.85	8.5	pCi/g	RAD	Bird
Sodium-22	NA-22	American kestrel (Avian top carnivore)	11000	110000	pCi/g	RAD	Mammal
Sodium-22	NA-22	Mountain cottontail (Mammalian herbivore)	9000	90000	pCi/g	RAD	Mammal
Sodium-22	NA-22	Occult little brown myotis bat (Mammalian aerial insectivore)	38000	380000	pCi/g	RAD	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Sodium-22	NA-22	Gray fox (Mammalian top carnivore)	4600	46000	pCi/g	RAD	Mammal
Sodium-22	NA-22	Violet-green Swallow (Avian aerial insectivore)	10000	100000	pCi/g	RAD	Bird
Strontium-90 + Yittrium-90	SR-90/ Y-90	American kestrel (Avian top carnivore)	1700	17000	pCi/g	RAD	Mammal
Strontium-90 + Yittrium-90	SR-90/ Y-90	American kestrel (insectivore / carnivore)	2400	24000	pCi/g	RAD	Bird
Strontium-90 + Yittrium-90	SR-90/ Y-90	American robin (Avian insectivore)	2800	28000	pCi/g	RAD	Bird
Strontium-90 + Yittrium-90	SR-90/ Y-90	American robin (Avian omnivore)	790	7900	pCi/g	RAD	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Strontium-90 + Yittrium-90	SR-90/ Y-90	Mountain cottontail (Mammalian herbivore)	1300	13000	pCi/g	RAD	Mammal
Strontium-90 + Yittrium-90	SR-90/ Y-90	Occult little brown myotis bat (Mammalian aerial insectivore)	2100	21000	pCi/g	RAD	Mammal
Strontium-90 + Yittrium-90	SR-90/ Y-90	Violet-green Swallow (Avian aerial insectivore)	630	6300	pCi/g	RAD	Bird
Thorium-228	TH-228	American kestrel (Avian top carnivore)	1600	16000	pCi/g	RAD	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Thorium-228	TH-228	Mountain cottontail (Mammalian herbivore)	800	8000	pCi/g	RAD	Mammal
Thorium-228	TH-228	Occult little brown myotis bat (Mammalian aerial insectivore)	2200	22000	pCi/g	RAD	Mammal
Thorium-228	TH-228	Violet-green Swallow (Avian aerial insectivore)	640	6400	pCi/g	RAD	Bird
Thorium-229	TH-229	American kestrel (Avian top carnivore)	3100	31000	pCi/g	RAD	Mammal
Thorium-229	TH-229	American kestrel (insectivore / carnivore)	2600	26000	pCi/g	RAD	Bird
Thorium-229	TH-229	American robin (Avian herbivore)	850	8500	pCi/g	RAD	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Thorium-229	TH-229	American robin (Avian insectivore)	1200	12000	pCi/g	RAD	Bird
Thorium-229	TH-229	American robin (Avian omnivore)	950	9500	pCi/g	RAD	Bird
Thorium-229	TH-229	Mountain cottontail (Mammalian herbivore)	1400	14000	pCi/g	RAD	Mammal
Thorium-229	TH-229	Occult little brown myotis bat (Mammalian aerial insectivore)	1800	18000	pCi/g	RAD	Mammal
Thorium-229	TH-229	Violet-green Swallow (Avian aerial insectivore)	540	5400	pCi/g	RAD	Bird
Thorium-230	TH-230	American kestrel (Avian top carnivore)	170000	1700000	pCi/g	RAD	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Thorium-230	TH-230	American kestrel (insectivore / carnivore)	17000	170000	pCi/g	RAD	Bird
Thorium-230	TH-230	American robin (Avian herbivore)	1200	12000	pCi/g	RAD	Bird
Thorium-230	TH-230	American robin (Avian insectivore)	2200	22000	pCi/g	RAD	Bird
Thorium-230	TH-230	American robin (Avian omnivore)	1400	14000	pCi/g	RAD	Bird
Thorium-230	TH-230	Mountain cottontail (Mammalian herbivore)	21000	210000	pCi/g	RAD	Mammal
Thorium-230	TH-230	Montane shrew (Mammalian insectivore)	110000	1100000	pCi/g	RAD	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Thorium-230	TH-230	Occult little brown myotis bat (Mammalian aerial insectivore)	2000	20000	pCi/g	RAD	Mammal
Thorium-230	TH-230	Violet-green Swallow (Avian aerial insectivore)	580	5800	pCi/g	RAD	Bird
Thorium-232	TH-232	American kestrel (Avian top carnivore)	50000	500000	pCi/g	RAD	Mammal
Thorium-232	TH-232	American kestrel (insectivore / carnivore)	2200	22000	pCi/g	RAD	Bird
Thorium-232	TH-232	American robin (Avian insectivore)	260	2600	pCi/g	RAD	Bird
Thorium-232	TH-232	American robin (Avian omnivore)	170	1700	pCi/g	RAD	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Thorium-232	TH-232	Mountain cottontail (Mammalian herbivore)	2900	29000	pCi/g	RAD	Mammal
Thorium-232	TH-232	Montane shrew (Mammalian insectivore)	49000	490000	pCi/g	RAD	Mammal
Thorium-232	TH-232	Occult little brown myotis bat (Mammalian aerial insectivore)	240	2400	pCi/g	RAD	Mammal
Thorium-232	TH-232	Violet-green Swallow (Avian aerial insectivore)	69	690	pCi/g	RAD	Bird
Tritium	H-3	American kestrel (Avian top carnivore)	550000	5500000	pCi/g	RAD	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Tritium	H-3	Mountain cottontail (Mammalian herbivore)	270000	2700000	pCi/g	RAD	Mammal
Tritium	H-3	Occult little brown myotis bat (Mammalian aerial insectivore)	1000000000	10000000000	pCi/g	RAD	Mammal
Tritium	H-3	Gray fox (Mammalian top carnivore)	240000	2400000	pCi/g	RAD	Mammal
Tritium	H-3	Violet-green Swallow (Avian aerial insectivore)	290000000	2900000000	pCi/g	RAD	Bird
Uranium-233	U-233	American kestrel (Avian top carnivore)	680000	6800000	pCi/g	RAD	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Uranium-233	U-233	American kestrel (insectivore / carnivore)	660000	6600000	pCi/g	RAD	Bird
Uranium-233	U-233	American robin (Avian herbivore)	14000	140000	pCi/g	RAD	Bird
Uranium-233	U-233	American robin (Avian insectivore)	82000	820000	pCi/g	RAD	Bird
Uranium-233	U-233	American robin (Avian omnivore)	28000	280000	pCi/g	RAD	Bird
Uranium-233	U-233	Mountain cottontail (Mammalian herbivore)	43000	430000	pCi/g	RAD	Mammal
Uranium-233	U-233	Montane shrew (Mammalian insectivore)	500000	5000000	pCi/g	RAD	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Uranium-233	U-233	Occult little brown myotis bat (Mammalian aerial insectivore)	2200	22000	pCi/g	RAD	Mammal
Uranium-233	U-233	Violet-green Swallow (Avian aerial insectivore)	610	6100	pCi/g	RAD	Bird
Uranium-234	U-234	American kestrel (Avian top carnivore)	260000	2600000	pCi/g	RAD	Mammal
Uranium-234	U-234	American robin (Avian herbivore)	14000	140000	pCi/g	RAD	Bird
Uranium-234	U-234	American robin (Avian insectivore)	69000	690000	pCi/g	RAD	Bird
Uranium-234	U-234	American robin (Avian omnivore)	27000	270000	pCi/g	RAD	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Uranium-234	U-234	Mountain cottontail (Mammalian herbivore)	36000	360000	pCi/g	RAD	Mammal
Uranium-234	U-234	Occult little brown myotis bat (Mammalian aerial insectivore)	2200	22000	pCi/g	RAD	Mammal
Uranium-234	U-234	Violet-green Swallow (Avian aerial insectivore)	610	6100	pCi/g	RAD	Bird
Uranium-235	U-235	American kestrel (Avian top carnivore)	10000	100000	pCi/g	RAD	Mammal
Uranium-235	U-235	American robin (Avian herbivore)	6300	63000	pCi/g	RAD	Bird
Uranium-235	U-235	American robin (Avian insectivore)	9500	95000	pCi/g	RAD	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Uranium-235	U-235	American robin (Avian omnivore)	7900	79000	pCi/g	RAD	Bird
Uranium-235	U-235	Mountain cottontail (Mammalian herbivore)	4700	47000	pCi/g	RAD	Mammal
Uranium-235	U-235	Occult little brown myotis bat (Mammalian aerial insectivore)	2400	24000	pCi/g	RAD	Mammal
Uranium-235	U-235	Violet-green Swallow (Avian aerial insectivore)	660	6600	pCi/g	RAD	Bird
Uranium-236	U-236	American kestrel (Avian top carnivore)	2100000	21000000	pCi/g	RAD	Mammal
Uranium-236	U-236	American kestrel (insectivore / carnivore)	1900000	19000000	pCi/g	RAD	Bird

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Uranium-236	U-236	American robin (Avian herbivore)	15000	150000	pCi/g	RAD	Bird
Uranium-236	U-236	American robin (Avian insectivore)	96000	950000	pCi/g	RAD	Bird
Uranium-236	U-236	American robin (Avian omnivore)	31000	310000	pCi/g	RAD	Bird
Uranium-236	U-236	Mountain cottontail (Mammalian herbivore)	50000	500000	pCi/g	RAD	Mammal
Uranium-236	U-236	Montane shrew (Mammalian insectivore)	15000000	150000000	pCi/g	RAD	Mammal
Uranium-236	U-236	Occult little brown myotis bat (Mammalian aerial insectivore)	2400	24000	pCi/g	RAD	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Uranium-238	U-238	American kestrel (Avian top carnivore)	4200	42000	pCi/g	RAD	Mammal
Uranium-238	U-238	American robin (Avian herbivore)	3300	33000	pCi/g	RAD	Bird
Uranium-238	U-238	American robin (Avian insectivore)	4000	40000	pCi/g	RAD	Bird
Uranium-238	U-238	American robin (Avian omnivore)	3700	37000	pCi/g	RAD	Bird
Uranium-238	U-238	Mountain cottontail (Mammalian herbivore)	2000	20000	pCi/g	RAD	Mammal
Uranium-238	U-238	Occult little brown myotis bat (Mammalian aerial insectivore)	2500	25000	pCi/g	RAD	Mammal

Analyte Name	Analyte Code	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Analyte Group	ESL Receptor Class
Uranium-238	U-238	Violet-green Swallow (Avian aerial insectivore)	670	6700	pCi/g	RAD	Bird

Table 16a. Final (Minimum) ESL Updates – Non-radionucludes (September 2017)

		Updated		Previous	
Analyte	**Medium**	**Final ESL (mg/kg)**	**Final ESL Receptor**	**Final ESL (mg/kg)**	**Final ESL Screening Receptor**
Benzyl alcohol	Soil	0.27	American robin (Avian omnivore)	2.3	Montane shrew (Mammalian insectivore)
Styrene	Soil	1.5	Deer mouse (Mammalian omnivore)	1.8	Mountain cottontail (Mammalian herbivore)
Chloroaniline[4-]	Soil	120	Mountain cottontail (Mammalian herbivore)	100	No change.
Dichlorobenzene[1,4-]	Soil	2.3	American robin (Avian omnivore)	2.4	No change.
Dichloroethane[1,2-]	Soil	0.098	American robin (Avian insectivore)	0.1	No change.
Methyl-2-pentanone[4-]	Soil	0.099	American robin (Avian omnivore)	0.1	No change.

Table 16b. Final (Minimum) ESL Updates – Radionuclides, Soil (September 2017)

		Updated		Previous	
Analyte	**Medium**	**Final ESL (pCi/g)**	**Final ESL Receptor**	**Final ESL (pCi/g)**	**Final ESL Screening Receptor**
Cesium-134	Soil	680	American robin (Avian herbivore)	790	Mountain cottontail (Mammalian herbivore)
Cesium-137 + Barium-137	Soil	1400	American robin (Avian herbivore)	1700	Mountain cottontail (Mammalian herbivore)
Benzyl Alcohol	Sediment	300	No change	330	Occult Little Brown Myotis Bat (invert diet)

		Updated		Previous	
Analyte	**Medium**	**Final ESL (pCi/g)**	**Final ESL Receptor**	**Final ESL (pCi/g)**	**Final ESL Screening Receptor**
Dichloroethane[1,2-]	Sediment	6.1	No change	6.3	Violet Green Swallow (invert diet)
Methyl-2-pentanone[4-]	Sediment	17	No change	19	Occult Little Brown Myotis Bat (invert diet)
Phenol	Sediment	750	No change	840	Occult Little Brown Myotis Bat (invert diet)
Aroclor-1254	Sediment	0.053	No change	0.054	Violet Green Swallow (invert diet)
Di-n-octylphthalate	Sediment	1	No change	1.1	Occult Little Brown Myotis Bat (invert diet)
Hexachlorobenzene	Sediment	0.1	No change	0.1	Violet Green Swallow (invert diet)
Hexachlorobenzene	Sediment	REMOVED	REMOVED	0.24	Occult Little Brown Myotis Bat (invert diet)
RDX	Sediment	3.2	No change	3.3	Violet Green Swallow (invert diet)
Aroclor-1248	Sediment	0.0081	No change	0.009	Occult Little Brown Myotis Bat (invert diet)
Dimethyl Phthalate	Sediment	90	No change	100	Occult Little Brown Myotis Bat (invert diet)
Kepone	Sediment	0.024	No change	0.027	Occult Little Brown Myotis Bat (invert diet)
Tetrachlorodibenzodioxin[2,3,7,8-]	Sediment	0.00000033	No change	0.00000036	Occult Little Brown Myotis Bat (invert diet)
Amino-2,6-dinitrotoluene[4-]	Sediment	14	No change	15	Occult Little Brown Myotis Bat (invert diet)
Aldrin	Sediment	0.042	No change	0.046	Occult Little Brown Myotis Bat (invert diet)
BHC[alpha-]	Sediment	66	No change	73	Occult Little Brown Myotis Bat (invert diet)
Amino-4,6-dinitrotoluene[2-]	Sediment	17	No change	20	Occult Little Brown Myotis Bat (invert diet)

		Updated		Previous	
Analyte	**Medium**	**Final ESL (pCi/g)**	**Final ESL Receptor**	**Final ESL (pCi/g)**	**Final ESL Screening Receptor**
Tetryl	Sediment	91	No change	100	Occult Little Brown Myotis Bat (invert diet)
Aroclor-1242	Sediment	0.053	No change	0.054	Violet Green Swallow (invert diet)
Dichlorobenzene[1,3-]	Sediment	0.82	No change	0.92	Occult Little Brown Myotis Bat (invert diet)
Nitroglycerine	Sediment	1500	No change	1700	Occult Little Brown Myotis Bat (invert diet)
Hexanone[2-]	Sediment	0.47	No change	0.48	Violet Green Swallow (invert diet)
Hexanone[2-]	Sediment	REMOVED	REMOVED	6.7	Occult Little Brown Myotis Bat (invert diet)
Dinitrotoluene[2,6-]	Sediment	8.6	No change	9.7	Occult Little Brown Myotis Bat (invert diet)
Benzoic Acid	Sediment	1.2	No change	1.3	Occult Little Brown Myotis Bat (invert diet)
Chloroform	Sediment	9.2	No change	10	Occult Little Brown Myotis Bat (invert diet)
Endrin	Sediment	0.0018	No change	0.0019	Violet Green Swallow (invert diet)
DDD[4,4'-]	Sediment	0.0082	No change	0.0084	Violet Green Swallow (invert diet)
DDD[4,4'-]	Sediment	REMOVED	REMOVED	5.1	Occult Little Brown Myotis Bat (invert diet)
Iodomethane	Sediment	0.081	No change	0.082	Violet Green Swallow (invert diet)
Vinyl Chloride	Sediment	0.14	No change	0.15	Occult Little Brown Myotis Bat (invert diet)
Carbon Disulfide	Sediment	1.3	No change	1.5	Occult Little Brown Myotis Bat (invert diet)
Trichlorofluoromethane	Sediment	58	No change	65	Occult Little Brown Myotis Bat (invert diet)

		Updated		Previous	
Analyte	**Medium**	**Final ESL (pCi/g)**	**Final ESL Receptor**	**Final ESL (pCi/g)**	**Final ESL Screening Receptor**
PETN	Sediment	1300	No change	1400	Occult Little Brown Myotis Bat (invert diet)
Butanone[2-]	Sediment	3000	No change	3300	Occult Little Brown Myotis Bat (invert diet)
Pentachloronitrobenzene	Sediment	0.9	No change	0.92	Violet Green Swallow (invert diet)
Diethyl Phthalate	Sediment	4000	No change	4500	Occult Little Brown Myotis Bat (invert diet)
Carbazole	Sediment	130	No change	140	Occult Little Brown Myotis Bat (invert diet)
Nitrotoluene[2-]	Sediment	25	No change	28	Occult Little Brown Myotis Bat (invert diet)
Nitroaniline[2-]	Sediment	7.3	No change	8.1	Occult Little Brown Myotis Bat (invert diet)
Methylphenol[2-]	Sediment	1700	No change	1900	Occult Little Brown Myotis Bat (invert diet)
Dichlorobenzene[1,2-]	Sediment	1	No change	1.1	Occult Little Brown Myotis Bat (invert diet)
Nitrobenzene	Sediment	24	No change	27	Occult Little Brown Myotis Bat (invert diet)
Nitrotoluene[3-]	Sediment	21	No change	24	Occult Little Brown Myotis Bat (invert diet)
Trinitrobenzene[1,3,5-]	Sediment	1.1	Aquatic (sediment)	1.1	Aquatic (sediment)
Trinitrobenzene[1,3,5-]	Sediment	REMOVED	REMOVED	1300	Occult Little Brown Myotis Bat (invert diet)
Dinitrobenzene[1,3-]	Sediment	1.1	No change	1.2	Occult Little Brown Myotis Bat (invert diet)
Nitrotoluene[4-]	Sediment	46	No change	52	Occult Little Brown Myotis Bat (invert diet)
Aluminum	Sediment	25000	Aquatic (sediment)		Occult Little Brown Myotis Bat (invert diet)

		Updated		Previous	
Analyte	**Medium**	**Final ESL (pCi/g)**	**Final ESL Receptor**	**Final ESL (pCi/g)**	**Final ESL Screening Receptor**
Aluminum	Sediment	REMOVED	REMOVED		Violet Green Swallow (invert diet)
Beryllium	Sediment	66	No change	73	Occult Little Brown Myotis Bat (invert diet)
Cadmium	Sediment	0.3	No change	0.33	Occult Little Brown Myotis Bat (invert diet)
Cobalt	Sediment	220	No change	230	Violet Green Swallow (invert diet)
Chromium(+6)	Sediment	660	No change	680	Violet Green Swallow (invert diet)
Fluoride	Sediment	350	No change	360	Violet Green Swallow (invert diet)
Mercury (inorganic)	Sediment	0.017	No change	0.018	Violet Green Swallow (invert diet)
Mercury (methyl)	Sediment	0.00045	No change	0.00046	Violet Green Swallow (invert diet)
Lithium	Sediment	130	No change	150	Occult Little Brown Myotis Bat (invert diet)
Molybdenum	Sediment	26	No change	27	Violet Green Swallow (invert diet)
Nickel	Sediment	12	No change	13	Occult Little Brown Myotis Bat (invert diet)
Lead	Sediment	26	No change	27	Violet Green Swallow (invert diet)
Antimony	Sediment	45	No change	50	Occult Little Brown Myotis Bat (invert diet)
Strontium (stable)	Sediment	1600	No change	1700	Occult Little Brown Myotis Bat (invert diet)
Titanium	Sediment	88	No change	98	Occult Little Brown Myotis Bat (invert diet)
Thallium	Sediment	0.73	No change	0.82	Occult Little Brown Myotis Bat (invert diet)

		Updated		Previous	
Analyte	**Medium**	**Final ESL (pCi/g)**	**Final ESL Receptor**	**Final ESL (pCi/g)**	**Final ESL Screening Receptor**
Vanadium	Sediment	29	No change	30	Violet Green Swallow (invert diet)
Zinc	Sediment	63	No change	65	Violet Green Swallow (invert diet)

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BACK TO TOP

Analyte Class	Analyte Group	Analyte Name	Analyte Code	ESL Medium	ESL Receptor	No Effect ESL	Low Effect ESL	Units	Minimum ESL	ESL ID
NONRAD	Dioxin/ Furan	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	SEDIMENT	Aquatic community organisms - sediment	0.00000085	0.0000085	mg/kg		SEDIMENT_AQ(s)_1746-01-6
NONRAD	Dioxin/ Furan	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.00000033	0.0000022	mg/kg	MINIMUM	SEDIMENT_BA(i)_1746-01-6
NONRAD	Dioxin/ Furan	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	SOIL	Deer mouse (Mammalian omnivore)	0.00000058	0.0000038	mg/kg		SOIL_DM(ip)_1746-01-6
NONRAD	Dioxin/ Furan	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	SOIL	Earthworm (Soil-dwelling invertebrate)	5	10	mg/kg		SOIL_EW_1746-01-6
NONRAD	Dioxin/ Furan	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	SOIL	Gray fox (Mammalian top carnivore)	0.0001	0.00068	mg/kg		SOIL_RF(f)_1746-01-6
NONRAD	Dioxin/ Furan	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	SOIL	Montane shrew (Mammalian insectivore)	0.00000029	0.0000019	mg/kg	MINIMUM	SOIL_MS(i)_1746-01-6
NONRAD	Dioxin/ Furan	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	SOIL	Mountain cottontail (Mammalian herbivore)	0.00004	0.00027	mg/kg		SOIL_DC(p)_1746-01-6
NONRAD	Dioxin/ Furan	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	WATER	Aquatic community organisms - water	0.000002	0.00002	µg/L	MINIMUM	WATER_AQ(w)_1746-01-6
NONRAD	Dioxin/ Furan	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	WATER	Deer mouse (water)	0.0052	0.052	µg/L		WATER_DM(w)_1746-01-6
NONRAD	Dioxin/ Furan	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	WATER	Gray fox (water)	0.011	0.11	µg/L		WATER_RF(w)_1746-01-6
NONRAD	Dioxin/ Furan	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	WATER	Montane shrew (water)	0.0044	0.044	µg/L		WATER_MS(w)_1746-01-6
NONRAD	Dioxin/ Furan	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	WATER	Mountain cottontail (water)	0.01	0.1	µg/L		WATER_DC(w)_1746-01-6
NONRAD	Dioxin/ Furan	Tetrachlorodibenzodioxin[2,3,7,8-]	1746-01-6	WATER	Occult little brown myotis bat (water)	0.0062	0.062	µg/L		WATER_BA(w)_1746-01-6
NONRAD	High Explosive	Amino-2,6-dinitrotoluene[4-]	19406-51-0	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	14	140	mg/kg	MINIMUM	SEDIMENT_BA(i)_19406-51-0
NONRAD	High Explosive	Amino-2,6-dinitrotoluene[4-]	19406-51-0	SOIL	Deer mouse (Mammalian omnivore)	23	230	mg/kg		SOIL_DM(ip)_19406-51-0
NONRAD	High Explosive	Amino-2,6-dinitrotoluene[4-]	19406-51-0	SOIL	Earthworm (Soil-dwelling invertebrate)	18	180	mg/kg		SOIL_EW_19406-51-0
NONRAD	High Explosive	Amino-2,6-dinitrotoluene[4-]	19406-51-0	SOIL	Generic plant (Terrestrial autotroph - producer)	33	330	mg/kg		SOIL_GP_19406-51-0
NONRAD	High Explosive	Amino-2,6-dinitrotoluene[4-]	19406-51-0	SOIL	Gray fox (Mammalian top carnivore)	6700	67000	mg/kg		SOIL_RF(f)_19406-51-0
NONRAD	High Explosive	Amino-2,6-dinitrotoluene[4-]	19406-51-0	SOIL	Montane shrew (Mammalian insectivore)	12	120	mg/kg	MINIMUM	SOIL_MS(i)_19406-51-0
NONRAD	High Explosive	Amino-2,6-dinitrotoluene[4-]	19406-51-0	SOIL	Mountain cottontail (Mammalian herbivore)	320	3200	mg/kg		SOIL_DC(p)_19406-51-0
NONRAD	High Explosive	Amino-2,6-dinitrotoluene[4-]	19406-51-0	WATER	Deer mouse (water)	50000	500000	µg/L		WATER_DM(w)_19406-51-0
NONRAD	High Explosive	Amino-2,6-dinitrotoluene[4-]	19406-51-0	WATER	Gray fox (water)	110000	1100000	µg/L		WATER_RF(w)_19406-51-0
NONRAD	High Explosive	Amino-2,6-dinitrotoluene[4-]	19406-51-0	WATER	Montane shrew (water)	43000	430000	µg/L	MINIMUM	WATER_MS(w)_19406-51-0
NONRAD	High Explosive	Amino-2,6-dinitrotoluene[4-]	19406-51-0	WATER	Mountain cottontail (water)	98000	980000	µg/L		WATER_DC(w)_19406-51-0
NONRAD	High Explosive	Amino-2,6-dinitrotoluene[4-]	19406-51-0	WATER	Occult little brown myotis bat (water)	60000	600000	µg/L		WATER_BA(w)_19406-51-0
NONRAD	High Explosive	Amino-4,6-dinitrotoluene[2-]	35572-78-2	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	17	170	mg/kg	MINIMUM	SEDIMENT_BA(i)_35572-78-2
NONRAD	High Explosive	Amino-4,6-dinitrotoluene[2-]	35572-78-2	SOIL	Deer mouse (Mammalian omnivore)	23	230	mg/kg		SOIL_DM(ip)_35572-78-2
NONRAD	High Explosive	Amino-4,6-dinitrotoluene[2-]	35572-78-2	SOIL	Earthworm (Soil-dwelling invertebrate)	43	430	mg/kg		SOIL_EW_35572-78-2
NONRAD	High Explosive	Amino-4,6-dinitrotoluene[2-]	35572-78-2	SOIL	Generic plant (Terrestrial autotroph - producer)	14	140	mg/kg	MINIMUM	SOIL_GP_35572-78-2
NONRAD	High Explosive	Amino-4,6-dinitrotoluene[2-]	35572-78-2	SOIL	Gray fox (Mammalian top carnivore)	9700	97000	mg/kg		SOIL_RF(f)_35572-78-2
NONRAD	High Explosive	Amino-4,6-dinitrotoluene[2-]	35572-78-2	SOIL	Montane shrew (Mammalian insectivore)	16	160	mg/kg		SOIL_MS(i)_35572-78-2
NONRAD	High Explosive	Amino-4,6-dinitrotoluene[2-]	35572-78-2	SOIL	Mountain cottontail (Mammalian herbivore)	110	1100	mg/kg		SOIL_DC(p)_35572-78-2
NONRAD	High Explosive	Amino-4,6-dinitrotoluene[2-]	35572-78-2	WATER	Deer mouse (water)	73000	730000	µg/L		WATER_DM(w)_35572-78-2
NONRAD	High Explosive	Amino-4,6-dinitrotoluene[2-]	35572-78-2	WATER	Gray fox (water)	160000	1600000	µg/L		WATER_RF(w)_35572-78-2
NONRAD	High Explosive	Amino-4,6-dinitrotoluene[2-]	35572-78-2	WATER	Montane shrew (water)	62000	620000	µg/L	MINIMUM	WATER_MS(w)_35572-78-2
NONRAD	High Explosive	Amino-4,6-dinitrotoluene[2-]	35572-78-2	WATER	Mountain cottontail (water)	140000	1400000	µg/L		WATER_DC(w)_35572-78-2
NONRAD	High Explosive	Amino-4,6-dinitrotoluene[2-]	35572-78-2	WATER	Occult little brown myotis bat (water)	87000	870000	µg/L		WATER_BA(w)_35572-78-2
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1.1	2.5	mg/kg	MINIMUM	SEDIMENT_BA(i)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	2.7	27	mg/kg		SEDIMENT_VGS(i)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	SOIL	American kestrel (Avian top carnivore)	120	1200	mg/kg		SOIL_AK(f)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	SOIL	American kestrel (insectivore / carnivore)	9.3	93	mg/kg		SOIL_AK(fi)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	SOIL	American robin (Avian herbivore)	0.079	0.79	mg/kg		SOIL_AR(p)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	SOIL	American robin (Avian insectivore)	1.6	16	mg/kg		SOIL_AR(i)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	SOIL	American robin (Avian omnivore)	0.15	1.5	mg/kg		SOIL_AR(ip)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	SOIL	Deer mouse (Mammalian omnivore)	0.072	0.16	mg/kg	MINIMUM	SOIL_DM(ip)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	SOIL	Gray fox (Mammalian top carnivore)	82	190	mg/kg		SOIL_RF(f)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	SOIL	Montane shrew (Mammalian insectivore)	0.95	2.2	mg/kg		SOIL_MS(i)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	SOIL	Mountain cottontail (Mammalian herbivore)	0.091	0.21	mg/kg		SOIL_DC(p)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	WATER	American kestrel (water)	3500	35000	µg/L		WATER_AK(w)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	WATER	American robin (water)	3000	30000	µg/L		WATER_AR(w)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	WATER	Aquatic community organisms - water	16	160	µg/L	MINIMUM	WATER_AQ(w)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	WATER	Deer mouse (water)	590	1300	µg/L		WATER_DM(w)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	WATER	Gray fox (water)	1300	3000	µg/L		WATER_RF(w)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	WATER	Montane shrew (water)	500	1100	µg/L		WATER_MS(w)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	WATER	Mountain cottontail (water)	1100	2700	µg/L		WATER_DC(w)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	WATER	Occult little brown myotis bat (water)	710	1600	µg/L		WATER_BA(w)_99-65-0
NONRAD	High Explosive	Dinitrobenzene[1,3-]	99-65-0	WATER	Violet-green Swallow (water)	1700	17000	µg/L		WATER_VGS(w)_99-65-0
NONRAD	High Explosive	Dinitrotoluene[2,4-]	121-14-2	SEDIMENT	Aquatic community organisms - sediment	0.29	2.9	mg/kg	MINIMUM	SEDIMENT_AQ(s)_121-14-2
NONRAD	High Explosive	Dinitrotoluene[2,4-]	121-14-2	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	16	160	mg/kg		SEDIMENT_BA(i)_121-14-2
NONRAD	High Explosive	Dinitrotoluene[2,4-]	121-14-2	SOIL	Deer mouse (Mammalian omnivore)	20	200	mg/kg		SOIL_DM(ip)_121-14-2
NONRAD	High Explosive	Dinitrotoluene[2,4-]	121-14-2	SOIL	Earthworm (Soil-dwelling invertebrate)	18	180	mg/kg		SOIL_EW_121-14-2
NONRAD	High Explosive	Dinitrotoluene[2,4-]	121-14-2	SOIL	Generic plant (Terrestrial autotroph - producer)	6	60	mg/kg	MINIMUM	SOIL_GP_121-14-2
NONRAD	High Explosive	Dinitrotoluene[2,4-]	121-14-2	SOIL	Gray fox (Mammalian top carnivore)	2000	20000	mg/kg		SOIL_RF(f)_121-14-2
NONRAD	High Explosive	Dinitrotoluene[2,4-]	121-14-2	SOIL	Montane shrew (Mammalian insectivore)	14	140	mg/kg		SOIL_MS(i)_121-14-2
NONRAD	High Explosive	Dinitrotoluene[2,4-]	121-14-2	SOIL	Mountain cottontail (Mammalian herbivore)	74	740	mg/kg		SOIL_DC(p)_121-14-2
NONRAD	High Explosive	Dinitrotoluene[2,4-]	121-14-2	WATER	Aquatic community organisms - water	65	330	µg/L	MINIMUM	WATER_AQ(w)_121-14-2
NONRAD	High Explosive	Dinitrotoluene[2,4-]	121-14-2	WATER	Deer mouse (water)	14000	140000	µg/L		WATER_DM(w)_121-14-2
NONRAD	High Explosive	Dinitrotoluene[2,4-]	121-14-2	WATER	Gray fox (water)	31000	310000	µg/L		WATER_RF(w)_121-14-2
NONRAD	High Explosive	Dinitrotoluene[2,4-]	121-14-2	WATER	Montane shrew (water)	12000	120000	µg/L		WATER_MS(w)_121-14-2
NONRAD	High Explosive	Dinitrotoluene[2,4-]	121-14-2	WATER	Mountain cottontail (water)	27000	270000	µg/L		WATER_DC(w)_121-14-2
NONRAD	High Explosive	Dinitrotoluene[2,4-]	121-14-2	WATER	Occult little brown myotis bat (water)	16000	160000	µg/L		WATER_BA(w)_121-14-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	8.6	86	mg/kg	MINIMUM	SEDIMENT_BA(i)_606-20-2

NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	190	1900	mg/kg		SEDIMENT_VGS(i)_606-20-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	SOIL	American kestrel (Avian top carnivore)	18000	180000	mg/kg		SOIL_AK(f)_606-20-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	SOIL	American kestrel (insectivore / carnivore)	680	6800	mg/kg		SOIL_AK(fi)_606-20-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	SOIL	American robin (Avian herbivore)	52	520	mg/kg		SOIL_AR(p)_606-20-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	SOIL	American robin (Avian insectivore)	130	1300	mg/kg		SOIL_AR(i)_606-20-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	SOIL	American robin (Avian omnivore)	74	740	mg/kg		SOIL_AR(ip)_606-20-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	SOIL	Deer mouse (Mammalian omnivore)	4	40	mg/kg	MINIMUM	SOIL_DM(ip)_606-20-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	SOIL	Earthworm (Soil-dwelling invertebrate)	30	44	mg/kg		SOIL_EW_606-20-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	SOIL	Gray fox (Mammalian top carnivore)	1300	13000	mg/kg		SOIL_RF(f)_606-20-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	SOIL	Montane shrew (Mammalian insectivore)	7.6	76	mg/kg		SOIL_MS(i)_606-20-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	SOIL	Mountain cottontail (Mammalian herbivore)	6.7	67	mg/kg		SOIL_DC(p)_606-20-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	WATER	Aquatic community organisms - water	230	330	µg/L	MINIMUM	WATER_AQ(w)_606-20-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	WATER	Deer mouse (water)	9300	93000	µg/L		WATER_DM(w)_606-20-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	WATER	Gray fox (water)	20000	200000	µg/L		WATER_RF(w)_606-20-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	WATER	Montane shrew (water)	7900	79000	µg/L		WATER_MS(w)_606-20-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	WATER	Mountain cottontail (water)	18000	180000	µg/L		WATER_DC(w)_606-20-2
NONRAD	High Explosive	Dinitrotoluene[2,6-]	606-20-2	WATER	Occult little brown myotis bat (water)	11000	110000	µg/L		WATER_BA(w)_606-20-2
NONRAD	High Explosive	HMX	2691-41-0	SEDIMENT	Aquatic community organisms - sediment	130	170	mg/kg	MINIMUM	SEDIMENT_AQ(s)_2691-41-0
NONRAD	High Explosive	HMX	2691-41-0	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1300	3500	mg/kg		SEDIMENT_BA(i)_2691-41-0
NONRAD	High Explosive	HMX	2691-41-0	SOIL	Deer mouse (Mammalian omnivore)	290	790	mg/kg		SOIL_DM(ip)_2691-41-0
NONRAD	High Explosive	HMX	2691-41-0	SOIL	Earthworm (Soil-dwelling invertebrate)	16	160	mg/kg	MINIMUM	SOIL_EW_2691-41-0
NONRAD	High Explosive	HMX	2691-41-0	SOIL	Generic plant (Terrestrial autotroph - producer)	2700	3500	mg/kg		SOIL_GP_2691-41-0
NONRAD	High Explosive	HMX	2691-41-0	SOIL	Gray fox (Mammalian top carnivore)	59000	150000	mg/kg		SOIL_RF(f)_2691-41-0
NONRAD	High Explosive	HMX	2691-41-0	SOIL	Montane shrew (Mammalian insectivore)	1100	2900	mg/kg		SOIL_MS(i)_2691-41-0
NONRAD	High Explosive	HMX	2691-41-0	SOIL	Mountain cottontail (Mammalian herbivore)	410	1100	mg/kg		SOIL_DC(p)_2691-41-0
NONRAD	High Explosive	HMX	2691-41-0	WATER	Deer mouse (water)	390000	1000000	µg/L		WATER_DM(w)_2691-41-0
NONRAD	High Explosive	HMX	2691-41-0	WATER	Gray fox (water)	870000	2300000	µg/L		WATER_RF(w)_2691-41-0
NONRAD	High Explosive	HMX	2691-41-0	WATER	Montane shrew (water)	330000	890000	µg/L	MINIMUM	WATER_MS(w)_2691-41-0
NONRAD	High Explosive	HMX	2691-41-0	WATER	Mountain cottontail (water)	770000	2000000	µg/L		WATER_DC(w)_2691-41-0
NONRAD	High Explosive	HMX	2691-41-0	WATER	Occult little brown myotis bat (water)	470000	1200000	µg/L		WATER_BA(w)_2691-41-0
NONRAD	High Explosive	Nitroglycerine	55-63-0	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1500	16000	mg/kg	MINIMUM	SEDIMENT_BA(i)_55-63-0
NONRAD	High Explosive	Nitroglycerine	55-63-0	SOIL	Deer mouse (Mammalian omnivore)	70	740	mg/kg		SOIL_DM(ip)_55-63-0
NONRAD	High Explosive	Nitroglycerine	55-63-0	SOIL	Earthworm (Soil-dwelling invertebrate)	13	130	mg/kg	MINIMUM	SOIL_EW_55-63-0
NONRAD	High Explosive	Nitroglycerine	55-63-0	SOIL	Generic plant (Terrestrial autotroph - producer)	21	210	mg/kg		SOIL_GP_55-63-0
NONRAD	High Explosive	Nitroglycerine	55-63-0	SOIL	Gray fox (Mammalian top carnivore)	69000	730000	mg/kg		SOIL_RF(f)_55-63-0
NONRAD	High Explosive	Nitroglycerine	55-63-0	SOIL	Montane shrew (Mammalian insectivore)	1200	13000	mg/kg		SOIL_MS(i)_55-63-0
NONRAD	High Explosive	Nitroglycerine	55-63-0	SOIL	Mountain cottontail (Mammalian herbivore)	88	930	mg/kg		SOIL_DC(p)_55-63-0
NONRAD	High Explosive	Nitroglycerine	55-63-0	WATER	Deer mouse (water)	500000	5300000	µg/L		WATER_DM(w)_55-63-0
NONRAD	High Explosive	Nitroglycerine	55-63-0	WATER	Gray fox (water)	1100000	11000000	µg/L		WATER_RF(w)_55-63-0
NONRAD	High Explosive	Nitroglycerine	55-63-0	WATER	Montane shrew (water)	430000	4500000	µg/L	MINIMUM	WATER_MS(w)_55-63-0
NONRAD	High Explosive	Nitroglycerine	55-63-0	WATER	Mountain cottontail (water)	990000	10000000	µg/L		WATER_DC(w)_55-63-0
NONRAD	High Explosive	Nitroglycerine	55-63-0	WATER	Occult little brown myotis bat (water)	600000	6400000	µg/L		WATER_BA(w)_55-63-0
NONRAD	High Explosive	Nitrotoluene[2-]	88-72-2	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	25	250	mg/kg	MINIMUM	SEDIMENT_BA(i)_88-72-2
NONRAD	High Explosive	Nitrotoluene[2-]	88-72-2	SOIL	Deer mouse (Mammalian omnivore)	9.8	98	mg/kg	MINIMUM	SOIL_DM(ip)_88-72-2
NONRAD	High Explosive	Nitrotoluene[2-]	88-72-2	SOIL	Gray fox (Mammalian top carnivore)	6000	60000	mg/kg		SOIL_RF(f)_88-72-2
NONRAD	High Explosive	Nitrotoluene[2-]	88-72-2	SOIL	Montane shrew (Mammalian insectivore)	22	220	mg/kg		SOIL_MS(i)_88-72-2
NONRAD	High Explosive	Nitrotoluene[2-]	88-72-2	SOIL	Mountain cottontail (Mammalian herbivore)	15	150	mg/kg		SOIL_DC(p)_88-72-2
NONRAD	High Explosive	Nitrotoluene[2-]	88-72-2	WATER	Deer mouse (water)	46000	460000	µg/L		WATER_DM(w)_88-72-2
NONRAD	High Explosive	Nitrotoluene[2-]	88-72-2	WATER	Gray fox (water)	100000	1000000	µg/L		WATER_RF(w)_88-72-2
NONRAD	High Explosive	Nitrotoluene[2-]	88-72-2	WATER	Montane shrew (water)	39000	390000	µg/L	MINIMUM	WATER_MS(w)_88-72-2
NONRAD	High Explosive	Nitrotoluene[2-]	88-72-2	WATER	Mountain cottontail (water)	91000	910000	µg/L		WATER_DC(w)_88-72-2
NONRAD	High Explosive	Nitrotoluene[2-]	88-72-2	WATER	Occult little brown myotis bat (water)	56000	560000	µg/L		WATER_BA(w)_88-72-2
NONRAD	High Explosive	Nitrotoluene[3-]	99-08-1	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	21	210	mg/kg	MINIMUM	SEDIMENT_BA(i)_99-08-1
NONRAD	High Explosive	Nitrotoluene[3-]	99-08-1	SOIL	Deer mouse (Mammalian omnivore)	12	120	mg/kg	MINIMUM	SOIL_DM(ip)_99-08-1
NONRAD	High Explosive	Nitrotoluene[3-]	99-08-1	SOIL	Gray fox (Mammalian top carnivore)	7000	70000	mg/kg		SOIL_RF(f)_99-08-1
NONRAD	High Explosive	Nitrotoluene[3-]	99-08-1	SOIL	Montane shrew (Mammalian insectivore)	19	190	mg/kg		SOIL_MS(i)_99-08-1
NONRAD	High Explosive	Nitrotoluene[3-]	99-08-1	SOIL	Mountain cottontail (Mammalian herbivore)	21	210	mg/kg		SOIL_DC(p)_99-08-1
NONRAD	High Explosive	Nitrotoluene[3-]	99-08-1	WATER	Deer mouse (water)	56000	560000	µg/L		WATER_DM(w)_99-08-1
NONRAD	High Explosive	Nitrotoluene[3-]	99-08-1	WATER	Gray fox (water)	120000	1200000	µg/L		WATER_RF(w)_99-08-1
NONRAD	High Explosive	Nitrotoluene[3-]	99-08-1	WATER	Montane shrew (water)	47000	470000	µg/L	MINIMUM	WATER_MS(w)_99-08-1
NONRAD	High Explosive	Nitrotoluene[3-]	99-08-1	WATER	Mountain cottontail (water)	110000	1100000	µg/L		WATER_DC(w)_99-08-1
NONRAD	High Explosive	Nitrotoluene[3-]	99-08-1	WATER	Occult little brown myotis bat (water)	67000	670000	µg/L		WATER_BA(w)_99-08-1
NONRAD	High Explosive	Nitrotoluene[4-]	99-99-0	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	46	460	mg/kg	MINIMUM	SEDIMENT_BA(i)_99-99-0
NONRAD	High Explosive	Nitrotoluene[4-]	99-99-0	SOIL	Deer mouse (Mammalian omnivore)	21	210	mg/kg	MINIMUM	SOIL_DM(ip)_99-99-0
NONRAD	High Explosive	Nitrotoluene[4-]	99-99-0	SOIL	Gray fox (Mammalian top carnivore)	13000	130000	mg/kg		SOIL_RF(f)_99-99-0
NONRAD	High Explosive	Nitrotoluene[4-]	99-99-0	SOIL	Montane shrew (Mammalian insectivore)	41	410	mg/kg		SOIL_MS(i)_99-99-0
NONRAD	High Explosive	Nitrotoluene[4-]	99-99-0	SOIL	Mountain cottontail (Mammalian herbivore)	36	360	mg/kg		SOIL_DC(p)_99-99-0
NONRAD	High Explosive	Nitrotoluene[4-]	99-99-0	WATER	Deer mouse (water)	100000	1000000	µg/L		WATER_DM(w)_99-99-0
NONRAD	High Explosive	Nitrotoluene[4-]	99-99-0	WATER	Gray fox (water)	220000	2200000	µg/L		WATER_RF(w)_99-99-0
NONRAD	High Explosive	Nitrotoluene[4-]	99-99-0	WATER	Montane shrew (water)	87000	870000	µg/L	MINIMUM	WATER_MS(w)_99-99-0
NONRAD	High Explosive	Nitrotoluene[4-]	99-99-0	WATER	Mountain cottontail (water)	200000	2000000	µg/L		WATER_DC(w)_99-99-0
NONRAD	High Explosive	Nitrotoluene[4-]	99-99-0	WATER	Occult little brown myotis bat (water)	120000	1200000	µg/L		WATER_BA(w)_99-99-0
NONRAD	High Explosive	PETN	78-11-5	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1300	13000	mg/kg	MINIMUM	SEDIMENT_BA(i)_78-11-5

NONRAD	High Explosive	PETN	78-11-5	SOIL	Deer mouse (Mammalian omnivore)	100	1000	mg/kg	MINIMUM	SOIL_DM(ip)_78-11-5
NONRAD	High Explosive	PETN	78-11-5	SOIL	Gray fox (Mammalian top carnivore)	47000	470000	mg/kg		SOIL_RF(f)_78-11-5
NONRAD	High Explosive	PETN	78-11-5	SOIL	Montane shrew (Mammalian insectivore)	1000	10000	mg/kg		SOIL_MS(i)_78-11-5
NONRAD	High Explosive	PETN	78-11-5	SOIL	Mountain cottontail (Mammalian herbivore)	120	1200	mg/kg		SOIL_DC(p)_78-11-5
NONRAD	High Explosive	PETN	78-11-5	WATER	Deer mouse (water)	360000	3600000	µg/L		WATER_DM(w)_78-11-5
NONRAD	High Explosive	PETN	78-11-5	WATER	Gray fox (water)	810000	8100000	µg/L		WATER_RF(w)_78-11-5
NONRAD	High Explosive	PETN	78-11-5	WATER	Montane shrew (water)	310000	3100000	µg/L	MINIMUM	WATER_MS(w)_78-11-5
NONRAD	High Explosive	PETN	78-11-5	WATER	Mountain cottontail (water)	720000	7200000	µg/L		WATER_DC(w)_78-11-5
NONRAD	High Explosive	PETN	78-11-5	WATER	Occult little brown myotis bat (water)	440000	4400000	µg/L		WATER_BA(w)_78-11-5
NONRAD	High Explosive	RDX	121-82-4	SEDIMENT	Aquatic community organisms - sediment	260	350	mg/kg		SEDIMENT_AQ(s)_121-82-4
NONRAD	High Explosive	RDX	121-82-4	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	18	60	mg/kg		SEDIMENT_BA(i)_121-82-4
NONRAD	High Explosive	RDX	121-82-4	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	3.2	6.2	mg/kg	MINIMUM	SEDIMENT_VGS(i)_121-82-4
NONRAD	High Explosive	RDX	121-82-4	SOIL	American kestrel (Avian top carnivore)	780	1400	mg/kg		SOIL_AK(f)_121-82-4
NONRAD	High Explosive	RDX	121-82-4	SOIL	American kestrel (insectivore / carnivore)	11	22	mg/kg		SOIL_AK(fi)_121-82-4
NONRAD	High Explosive	RDX	121-82-4	SOIL	American robin (Avian herbivore)	2.3	4.3	mg/kg	MINIMUM	SOIL_AR(p)_121-82-4
NONRAD	High Explosive	RDX	121-82-4	SOIL	American robin (Avian insectivore)	2.4	4.5	mg/kg		SOIL_AR(i)_121-82-4
NONRAD	High Explosive	RDX	121-82-4	SOIL	American robin (Avian omnivore)	2.3	4.4	mg/kg	MINIMUM	SOIL_AR(ip)_121-82-4
NONRAD	High Explosive	RDX	121-82-4	SOIL	Deer mouse (Mammalian omnivore)	16	51	mg/kg		SOIL_DM(ip)_121-82-4
NONRAD	High Explosive	RDX	121-82-4	SOIL	Earthworm (Soil-dwelling invertebrate)	8.4	15	mg/kg		SOIL_EW_121-82-4
NONRAD	High Explosive	RDX	121-82-4	SOIL	Gray fox (Mammalian top carnivore)	7000	22000	mg/kg		SOIL_RF(f)_121-82-4
NONRAD	High Explosive	RDX	121-82-4	SOIL	Montane shrew (Mammalian insectivore)	16	53	mg/kg		SOIL_MS(i)_121-82-4
NONRAD	High Explosive	RDX	121-82-4	SOIL	Mountain cottontail (Mammalian herbivore)	38	120	mg/kg		SOIL_DC(p)_121-82-4
NONRAD	High Explosive	RDX	121-82-4	WATER	Deer mouse (water)	52000	520000	µg/L		WATER_DM(w)_121-82-4
NONRAD	High Explosive	RDX	121-82-4	WATER	Gray fox (water)	110000	1100000	µg/L		WATER_RF(w)_121-82-4
NONRAD	High Explosive	RDX	121-82-4	WATER	Montane shrew (water)	44000	440000	µg/L	MINIMUM	WATER_MS(w)_121-82-4
NONRAD	High Explosive	RDX	121-82-4	WATER	Mountain cottontail (water)	100000	1000000	µg/L		WATER_DC(w)_121-82-4
NONRAD	High Explosive	RDX	121-82-4	WATER	Occult little brown myotis bat (water)	62000	620000	µg/L		WATER_BA(w)_121-82-4
NONRAD	High Explosive	Tetryl	479-45-8	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	91	430	mg/kg	MINIMUM	SEDIMENT_BA(i)_479-45-8
NONRAD	High Explosive	Tetryl	479-45-8	SOIL	Deer mouse (Mammalian omnivore)	1.5	7.2	mg/kg	MINIMUM	SOIL_DM(ip)_479-45-8
NONRAD	High Explosive	Tetryl	479-45-8	SOIL	Gray fox (Mammalian top carnivore)	960	4600	mg/kg		SOIL_RF(f)_479-45-8
NONRAD	High Explosive	Tetryl	479-45-8	SOIL	Montane shrew (Mammalian insectivore)	60	280	mg/kg		SOIL_MS(i)_479-45-8
NONRAD	High Explosive	Tetryl	479-45-8	SOIL	Mountain cottontail (Mammalian herbivore)	1.8	8.9	mg/kg		SOIL_DC(p)_479-45-8
NONRAD	High Explosive	Tetryl	479-45-8	WATER	Deer mouse (water)	6800	32000	µg/L		WATER_DM(w)_479-45-8
NONRAD	High Explosive	Tetryl	479-45-8	WATER	Gray fox (water)	15000	72000	µg/L		WATER_RF(w)_479-45-8
NONRAD	High Explosive	Tetryl	479-45-8	WATER	Montane shrew (water)	5800	27000	µg/L	MINIMUM	WATER_MS(w)_479-45-8
NONRAD	High Explosive	Tetryl	479-45-8	WATER	Mountain cottontail (water)	13000	63000	µg/L		WATER_DC(w)_479-45-8
NONRAD	High Explosive	Tetryl	479-45-8	WATER	Occult little brown myotis bat (water)	8100	38000	µg/L		WATER_BA(w)_479-45-8
NONRAD	High Explosive	Trinitrobenzene[1,3,5-]	99-35-4	SEDIMENT	Aquatic community organisms - sediment	1.1	1.5	mg/kg	MINIMUM	SEDIMENT_AQ(s)_99-35-4
NONRAD	High Explosive	Trinitrobenzene[1,3,5-]	99-35-4	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1100	11000	mg/kg		SEDIMENT_BA(i)_99-35-4
NONRAD	High Explosive	Trinitrobenzene[1,3,5-]	99-35-4	SOIL	Deer mouse (Mammalian omnivore)	110	1100	mg/kg		SOIL_DM(ip)_99-35-4
NONRAD	High Explosive	Trinitrobenzene[1,3,5-]	99-35-4	SOIL	Earthworm (Soil-dwelling invertebrate)	10	28	mg/kg	MINIMUM	SOIL_EW_99-35-4
NONRAD	High Explosive	Trinitrobenzene[1,3,5-]	99-35-4	SOIL	Gray fox (Mammalian top carnivore)	10000	100000	mg/kg		SOIL_RF(f)_99-35-4
NONRAD	High Explosive	Trinitrobenzene[1,3,5-]	99-35-4	SOIL	Montane shrew (Mammalian insectivore)	720	7200	mg/kg		SOIL_MS(i)_99-35-4
NONRAD	High Explosive	Trinitrobenzene[1,3,5-]	99-35-4	SOIL	Mountain cottontail (Mammalian herbivore)	150	1500	mg/kg		SOIL_DC(p)_99-35-4
NONRAD	High Explosive	Trinitrobenzene[1,3,5-]	99-35-4	WATER	Deer mouse (water)	70000	700000	µg/L		WATER_DM(w)_99-35-4
NONRAD	High Explosive	Trinitrobenzene[1,3,5-]	99-35-4	WATER	Gray fox (water)	150000	1500000	µg/L		WATER_RF(w)_99-35-4
NONRAD	High Explosive	Trinitrobenzene[1,3,5-]	99-35-4	WATER	Montane shrew (water)	60000	600000	µg/L	MINIMUM	WATER_MS(w)_99-35-4
NONRAD	High Explosive	Trinitrobenzene[1,3,5-]	99-35-4	WATER	Mountain cottontail (water)	130000	1300000	µg/L		WATER_DC(w)_99-35-4
NONRAD	High Explosive	Trinitrobenzene[1,3,5-]	99-35-4	WATER	Occult little brown myotis bat (water)	84000	840000	µg/L		WATER_BA(w)_99-35-4
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	SEDIMENT	Aquatic community organisms - sediment	25	32	mg/kg	MINIMUM	SEDIMENT_AQ(s)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	3300	15000	mg/kg		SEDIMENT_BA(i)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	610	1100	mg/kg		SEDIMENT_VGS(i)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	SOIL	American kestrel (Avian top carnivore)	3100	5700	mg/kg		SOIL_AK(f)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	SOIL	American kestrel (insectivore / carnivore)	1300	2400	mg/kg		SOIL_AK(fi)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	SOIL	American robin (Avian herbivore)	7.5	13	mg/kg	MINIMUM	SOIL_AR(p)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	SOIL	American robin (Avian insectivore)	120	220	mg/kg		SOIL_AR(i)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	SOIL	American robin (Avian omnivore)	14	26	mg/kg		SOIL_AR(ip)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	SOIL	Deer mouse (Mammalian omnivore)	95	440	mg/kg		SOIL_DM(ip)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	SOIL	Earthworm (Soil-dwelling invertebrate)	32	58	mg/kg		SOIL_EW_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	SOIL	Generic plant (Terrestrial autotroph - producer)	62	120	mg/kg		SOIL_GP_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	SOIL	Gray fox (Mammalian top carnivore)	26000	120000	mg/kg		SOIL_RF(f)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	SOIL	Montane shrew (Mammalian insectivore)	1900	9100	mg/kg		SOIL_MS(i)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	SOIL	Mountain cottontail (Mammalian herbivore)	110	540	mg/kg		SOIL_DC(p)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	WATER	American kestrel (water)	81000	140000	µg/L		WATER_AK(w)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	WATER	American robin (water)	69000	120000	µg/L		WATER_AR(w)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	WATER	Deer mouse (water)	180000	840000	µg/L		WATER_DM(w)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	WATER	Gray fox (water)	400000	1800000	µg/L		WATER_RF(w)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	WATER	Montane shrew (water)	150000	710000	µg/L		WATER_MS(w)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	WATER	Mountain cottontail (water)	350000	1600000	µg/L		WATER_DC(w)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	WATER	Occult little brown myotis bat (water)	210000	1000000	µg/L		WATER_BA(w)_118-96-7
NONRAD	High Explosive	Trinitrotoluene[2,4,6-]	118-96-7	WATER	Violet-green Swallow (water)	40000	73000	µg/L	MINIMUM	WATER_VGS(w)_118-96-7
NONRAD	Inorganic Compound	Aluminum	AL	SEDIMENT	Aquatic community organisms - sediment	25000	58000	mg/kg	MINIMUM	SEDIMENT_AQ(s)_AL
NONRAD	Inorganic Compound	Aluminum	AL	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)			mg/kg		SEDIMENT_BA(i)_AL

NONRAD	Inorganic Compound	Aluminum	AL	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)			mg/kg		SEDIMENT_VGS(i)_AL
NONRAD	Inorganic Compound	Aluminum	AL	SOIL	American kestrel (Avian top carnivore)					SOIL_AK(f)_AL
NONRAD	Inorganic Compound	Aluminum	AL	SOIL	American kestrel (insectivore / carnivore)					SOIL_AK(fi)_AL
NONRAD	Inorganic Compound	Aluminum	AL	SOIL	American robin (Avian herbivore)					SOIL_AR(p)_AL
NONRAD	Inorganic Compound	Aluminum	AL	SOIL	American robin (Avian insectivore)					SOIL_AR(i)_AL
NONRAD	Inorganic Compound	Aluminum	AL	SOIL	American robin (Avian omnivore)					SOIL_AR(ip)_AL
NONRAD	Inorganic Compound	Aluminum	AL	SOIL	Deer mouse (Mammalian omnivore)					SOIL_DM(ip)_AL
NONRAD	Inorganic Compound	Aluminum	AL	SOIL	Earthworm (Soil-dwelling invertebrate)					SOIL_EW_AL
NONRAD	Inorganic Compound	Aluminum	AL	SOIL	Generic plant (Terrestrial autotroph - producer)					SOIL_GP_AL
NONRAD	Inorganic Compound	Aluminum	AL	SOIL	Gray fox (Mammalian top carnivore)					SOIL_RF(f)_AL
NONRAD	Inorganic Compound	Aluminum	AL	SOIL	Montane shrew (Mammalian insectivore)					SOIL_MS(i)_AL
NONRAD	Inorganic Compound	Aluminum	AL	SOIL	Mountain cottontail (Mammalian herbivore)					SOIL_DC(p)_AL
NONRAD	Inorganic Compound	Aluminum	AL	WATER	American kestrel (water)	910000	9100000	µg/L		WATER_AK(w)_AL
NONRAD	Inorganic Compound	Aluminum	AL	WATER	American robin (water)	780000	7800000	µg/L		WATER_AR(w)_AL
NONRAD	Inorganic Compound	Aluminum	AL	WATER	Aquatic community organisms - water	530	1300	µg/L	MINIMUM	WATER_AQ(w)_AL
NONRAD	Inorganic Compound	Aluminum	AL	WATER	Deer mouse (water)	10000	100000	µg/L		WATER_DM(w)_AL
NONRAD	Inorganic Compound	Aluminum	AL	WATER	Gray fox (water)	22000	220000	µg/L		WATER_RF(w)_AL
NONRAD	Inorganic Compound	Aluminum	AL	WATER	Montane shrew (water)	8600	86000	µg/L		WATER_MS(w)_AL
NONRAD	Inorganic Compound	Aluminum	AL	WATER	Mountain cottontail (water)	19000	190000	µg/L		WATER_DC(w)_AL
NONRAD	Inorganic Compound	Aluminum	AL	WATER	Occult little brown myotis bat (water)	12000	120000	µg/L		WATER_BA(w)_AL
NONRAD	Inorganic Compound	Aluminum	AL	WATER	Violet-green Swallow (water)	450000	4500000	µg/L		WATER_VGS(w)_AL
NONRAD	Inorganic Compound	Antimony	SB	SEDIMENT	Aquatic community organisms - sediment			mg/kg		SEDIMENT_AQ(s)_SB
NONRAD	Inorganic Compound	Antimony	SB	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	45	450	mg/kg	MINIMUM	SEDIMENT_BA(i)_SB
NONRAD	Inorganic Compound	Antimony	SB	SOIL	Deer mouse (Mammalian omnivore)	2.3	23	mg/kg	MINIMUM	SOIL_DM(ip)_SB
NONRAD	Inorganic Compound	Antimony	SB	SOIL	Earthworm (Soil-dwelling invertebrate)	78	780	mg/kg		SOIL_EW_SB
NONRAD	Inorganic Compound	Antimony	SB	SOIL	Generic plant (Terrestrial autotroph - producer)	11	58	mg/kg		SOIL_GP_SB
NONRAD	Inorganic Compound	Antimony	SB	SOIL	Gray fox (Mammalian top carnivore)	46	460	mg/kg		SOIL_RF(f)_SB
NONRAD	Inorganic Compound	Antimony	SB	SOIL	Montane shrew (Mammalian insectivore)	7.9	79	mg/kg		SOIL_MS(i)_SB
NONRAD	Inorganic Compound	Antimony	SB	SOIL	Mountain cottontail (Mammalian herbivore)	2.7	27	mg/kg		SOIL_DC(p)_SB
NONRAD	Inorganic Compound	Antimony	SB	WATER	Aquatic community organisms - water	30	88	µg/L	MINIMUM	WATER_AQ(w)_SB
NONRAD	Inorganic Compound	Antimony	SB	WATER	Deer mouse (water)	810	2700	µg/L		WATER_DM(w)_SB
NONRAD	Inorganic Compound	Antimony	SB	WATER	Gray fox (water)	1700	6100	µg/L		WATER_RF(w)_SB
NONRAD	Inorganic Compound	Antimony	SB	WATER	Montane shrew (water)	690	2300	µg/L		WATER_MS(w)_SB
NONRAD	Inorganic Compound	Antimony	SB	WATER	Mountain cottontail (water)	1500	5400	µg/L		WATER_DC(w)_SB
NONRAD	Inorganic Compound	Antimony	SB	WATER	Occult little brown myotis bat (water)	960	3300	µg/L		WATER_BA(w)_SB
NONRAD	Inorganic Compound	Arsenic	AS	SEDIMENT	Aquatic community organisms - sediment	9.7	33	mg/kg	MINIMUM	SEDIMENT_AQ(s)_AS
NONRAD	Inorganic Compound	Arsenic	AS	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	24	39	mg/kg		SEDIMENT_BA(i)_AS
NONRAD	Inorganic Compound	Arsenic	AS	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	34	340	mg/kg		SEDIMENT_VGS(i)_AS
NONRAD	Inorganic Compound	Arsenic	AS	SOIL	American kestrel (Avian top carnivore)	740	7400	mg/kg		SOIL_AK(f)_AS
NONRAD	Inorganic Compound	Arsenic	AS	SOIL	American kestrel (insectivore / carnivore)	100	1000	mg/kg		SOIL_AK(fi)_AS
NONRAD	Inorganic Compound	Arsenic	AS	SOIL	American robin (Avian herbivore)	34	340	mg/kg		SOIL_AR(p)_AS
NONRAD	Inorganic Compound	Arsenic	AS	SOIL	American robin (Avian insectivore)	15	150	mg/kg		SOIL_AR(i)_AS
NONRAD	Inorganic Compound	Arsenic	AS	SOIL	American robin (Avian omnivore)	21	210	mg/kg		SOIL_AR(ip)_AS
NONRAD	Inorganic Compound	Arsenic	AS	SOIL	Deer mouse (Mammalian omnivore)	32	51	mg/kg		SOIL_DM(ip)_AS
NONRAD	Inorganic Compound	Arsenic	AS	SOIL	Earthworm (Soil-dwelling invertebrate)	6.8	68	mg/kg	MINIMUM	SOIL_EW_AS
NONRAD	Inorganic Compound	Arsenic	AS	SOIL	Generic plant (Terrestrial autotroph - producer)	18	91	mg/kg		SOIL_GP_AS
NONRAD	Inorganic Compound	Arsenic	AS	SOIL	Gray fox (Mammalian top carnivore)	820	1300	mg/kg		SOIL_RF(f)_AS
NONRAD	Inorganic Compound	Arsenic	AS	SOIL	Montane shrew (Mammalian insectivore)	19	31	mg/kg		SOIL_MS(i)_AS
NONRAD	Inorganic Compound	Arsenic	AS	SOIL	Mountain cottontail (Mammalian herbivore)	110	180	mg/kg		SOIL_DC(p)_AS
NONRAD	Inorganic Compound	Arsenic	AS	WATER	American kestrel (water)	42000	100000	µg/L		WATER_AK(w)_AS
NONRAD	Inorganic Compound	Arsenic	AS	WATER	American robin (water)	36000	91000	µg/L		WATER_AR(w)_AS
NONRAD	Inorganic Compound	Arsenic	AS	WATER	Aquatic community organisms - water	150	340	µg/L	MINIMUM	WATER_AQ(w)_AS
NONRAD	Inorganic Compound	Arsenic	AS	WATER	Deer mouse (water)	660	6600	µg/L		WATER_DM(w)_AS
NONRAD	Inorganic Compound	Arsenic	AS	WATER	Gray fox (water)	1400	14000	µg/L		WATER_RF(w)_AS
NONRAD	Inorganic Compound	Arsenic	AS	WATER	Montane shrew (water)	560	5600	µg/L		WATER_MS(w)_AS
NONRAD	Inorganic Compound	Arsenic	AS	WATER	Mountain cottontail (water)	1200	12000	µg/L		WATER_DC(w)_AS
NONRAD	Inorganic Compound	Arsenic	AS	WATER	Occult little brown myotis bat (water)	790	7900	µg/L		WATER_BA(w)_AS
NONRAD	Inorganic Compound	Arsenic	AS	WATER	Violet-green Swallow (water)	21000	52000	µg/L		WATER_VGS(w)_AS
NONRAD	Inorganic Compound	Barium	BA	SEDIMENT	Aquatic community organisms - sediment	150	300	mg/kg	MINIMUM	SEDIMENT_AQ(s)_BA
NONRAD	Inorganic Compound	Barium	BA	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	3100	31000	mg/kg		SEDIMENT_BA(i)_BA
NONRAD	Inorganic Compound	Barium	BA	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	2900	5200	mg/kg		SEDIMENT_VGS(i)_BA
NONRAD	Inorganic Compound	Barium	BA	SOIL	American kestrel (Avian top carnivore)	24000	44000	mg/kg		SOIL_AK(f)_BA
NONRAD	Inorganic Compound	Barium	BA	SOIL	American kestrel (insectivore / carnivore)	7500	13000	mg/kg		SOIL_AK(fi)_BA
NONRAD	Inorganic Compound	Barium	BA	SOIL	American robin (Avian herbivore)	720	1200	mg/kg		SOIL_AR(p)_BA
NONRAD	Inorganic Compound	Barium	BA	SOIL	American robin (Avian insectivore)	820	1400	mg/kg		SOIL_AR(i)_BA
NONRAD	Inorganic Compound	Barium	BA	SOIL	American robin (Avian omnivore)	770	1300	mg/kg		SOIL_AR(ip)_BA
NONRAD	Inorganic Compound	Barium	BA	SOIL	Deer mouse (Mammalian omnivore)	1800	8700	mg/kg		SOIL_DM(ip)_BA
NONRAD	Inorganic Compound	Barium	BA	SOIL	Earthworm (Soil-dwelling invertebrate)	330	3200	mg/kg		SOIL_EW_BA
NONRAD	Inorganic Compound	Barium	BA	SOIL	Generic plant (Terrestrial autotroph - producer)	110	260	mg/kg	MINIMUM	SOIL_GP_BA
NONRAD	Inorganic Compound	Barium	BA	SOIL	Gray fox (Mammalian top carnivore)	41000	190000	mg/kg		SOIL_RF(f)_BA
NONRAD	Inorganic Compound	Barium	BA	SOIL	Montane shrew (Mammalian insectivore)	2100	10000	mg/kg		SOIL_MS(i)_BA
NONRAD	Inorganic Compound	Barium	BA	SOIL	Mountain cottontail (Mammalian herbivore)	2900	14000	mg/kg		SOIL_DC(p)_BA
NONRAD	Inorganic Compound	Barium	BA	WATER	American kestrel (water)	760000	1500000	µg/L		WATER_AK(w)_BA

NONRAD	Inorganic Compound	Barium	BA	WATER	American robin (water)	650000	1300000	µg/L		WATER_AR(w)_BA
NONRAD	Inorganic Compound	Barium	BA	WATER	Aquatic community organisms - water	3.9	39	µg/L	MINIMUM	WATER_AQ(w)_BA
NONRAD	Inorganic Compound	Barium	BA	WATER	Deer mouse (water)	7200	10000	µg/L		WATER_DM(w)_BA
NONRAD	Inorganic Compound	Barium	BA	WATER	Gray fox (water)	16000	23000	µg/L		WATER_RF(w)_BA
NONRAD	Inorganic Compound	Barium	BA	WATER	Montane shrew (water)	6100	8800	µg/L		WATER_MS(w)_BA
NONRAD	Inorganic Compound	Barium	BA	WATER	Mountain cottontail (water)	14000	20000	µg/L		WATER_DC(w)_BA
NONRAD	Inorganic Compound	Barium	BA	WATER	Occult little brown myotis bat (water)	8600	12000	µg/L		WATER_BA(w)_BA
NONRAD	Inorganic Compound	Barium	BA	WATER	Violet-green Swallow (water)	380000	760000	µg/L		WATER_VGS(w)_BA
NONRAD	Inorganic Compound	Beryllium	BE	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	66	660	mg/kg	MINIMUM	SEDIMENT_BA(i)_BE
NONRAD	Inorganic Compound	Beryllium	BE	SOIL	Deer mouse (Mammalian omnivore)	56	560	mg/kg		SOIL_DM(ip)_BE
NONRAD	Inorganic Compound	Beryllium	BE	SOIL	Earthworm (Soil-dwelling invertebrate)	40	400	mg/kg		SOIL_EW_BE
NONRAD	Inorganic Compound	Beryllium	BE	SOIL	Generic plant (Terrestrial autotroph - producer)	2.5	25	mg/kg	MINIMUM	SOIL_GP_BE
NONRAD	Inorganic Compound	Beryllium	BE	SOIL	Gray fox (Mammalian top carnivore)	420	4200	mg/kg		SOIL_RF(f)_BE
NONRAD	Inorganic Compound	Beryllium	BE	SOIL	Montane shrew (Mammalian insectivore)	35	350	mg/kg		SOIL_MS(i)_BE
NONRAD	Inorganic Compound	Beryllium	BE	SOIL	Mountain cottontail (Mammalian herbivore)	89	890	mg/kg		SOIL_DC(p)_BE
NONRAD	Inorganic Compound	Beryllium	BE	WATER	Aquatic community organisms - water	0.66	6.6	ug/L	MINIMUM	WATER_AQ(w)_BE
NONRAD	Inorganic Compound	Beryllium	BE	WATER	Deer mouse (water)	3400	34000	µg/L		WATER_DM(w)_BE
NONRAD	Inorganic Compound	Beryllium	BE	WATER	Gray fox (water)	7600	76000	µg/L		WATER_RF(w)_BE
NONRAD	Inorganic Compound	Beryllium	BE	WATER	Montane shrew (water)	2900	29000	µg/L		WATER_MS(w)_BE
NONRAD	Inorganic Compound	Beryllium	BE	WATER	Mountain cottontail (water)	6800	68000	µg/L		WATER_DC(w)_BE
NONRAD	Inorganic Compound	Beryllium	BE	WATER	Occult little brown myotis bat (water)	4100	41000	µg/L		WATER_BA(w)_BE
NONRAD	Inorganic Compound	Boron	B	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	150	1500	mg/kg		SEDIMENT_BA(i)_B
NONRAD	Inorganic Compound	Boron	B	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	10	52	mg/kg	MINIMUM	SEDIMENT_VGS(i)_B
NONRAD	Inorganic Compound	Boron	B	SOIL	American kestrel (Avian top carnivore)	960	4700	mg/kg		SOIL_AK(f)_B
NONRAD	Inorganic Compound	Boron	B	SOIL	American kestrel (insectivore / carnivore)	37	180	mg/kg		SOIL_AK(fi)_B
NONRAD	Inorganic Compound	Boron	B	SOIL	American robin (Avian herbivore)	2	10	mg/kg	MINIMUM	SOIL_AR(p)_B
NONRAD	Inorganic Compound	Boron	B	SOIL	American robin (Avian insectivore)	7.1	35	mg/kg		SOIL_AR(i)_B
NONRAD	Inorganic Compound	Boron	B	SOIL	American robin (Avian omnivore)	3.1	15	mg/kg		SOIL_AR(ip)_B
NONRAD	Inorganic Compound	Boron	B	SOIL	Deer mouse (Mammalian omnivore)	55	550	mg/kg		SOIL_DM(ip)_B
NONRAD	Inorganic Compound	Boron	B	SOIL	Generic plant (Terrestrial autotroph - producer)	36	86	mg/kg		SOIL_GP_B
NONRAD	Inorganic Compound	Boron	B	SOIL	Gray fox (Mammalian top carnivore)	21000	210000	mg/kg		SOIL_RF(f)_B
NONRAD	Inorganic Compound	Boron	B	SOIL	Montane shrew (Mammalian insectivore)	130	1300	mg/kg		SOIL_MS(i)_B
NONRAD	Inorganic Compound	Boron	B	SOIL	Mountain cottontail (Mammalian herbivore)	84	840	mg/kg		SOIL_DC(p)_B
NONRAD	Inorganic Compound	Boron	B	WATER	American kestrel (water)	440000	1500000	µg/L		WATER_AK(w)_B
NONRAD	Inorganic Compound	Boron	B	WATER	American robin (water)	380000	1300000	µg/L		WATER_AR(w)_B
NONRAD	Inorganic Compound	Boron	B	WATER	Aquatic community organisms - water	1.6	16	µg/L	MINIMUM	WATER_AQ(w)_B
NONRAD	Inorganic Compound	Boron	B	WATER	Deer mouse (water)	140000	1400000	µg/L		WATER_DM(w)_B
NONRAD	Inorganic Compound	Boron	B	WATER	Gray fox (water)	320000	3200000	µg/L		WATER_RF(w)_B
NONRAD	Inorganic Compound	Boron	B	WATER	Montane shrew (water)	120000	1200000	µg/L		WATER_MS(w)_B
NONRAD	Inorganic Compound	Boron	B	WATER	Mountain cottontail (water)	280000	2800000	µg/L		WATER_DC(w)_B
NONRAD	Inorganic Compound	Boron	B	WATER	Occult little brown myotis bat (water)	170000	1700000	µg/L		WATER_BA(w)_B
NONRAD	Inorganic Compound	Boron	B	WATER	Violet-green Swallow (water)	220000	770000	µg/L		WATER_VGS(w)_B
NONRAD	Inorganic Compound	Cadmium	CD	SEDIMENT	Aquatic community organisms - sediment	0.99	4.9	mg/kg		SEDIMENT_AQ(s)_CD
NONRAD	Inorganic Compound	Cadmium	CD	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.3	3	mg/kg	MINIMUM	SEDIMENT_BA(i)_CD
NONRAD	Inorganic Compound	Cadmium	CD	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.37	3.7	mg/kg		SEDIMENT_VGS(i)_CD
NONRAD	Inorganic Compound	Cadmium	CD	SOIL	American kestrel (Avian top carnivore)	430	2300	mg/kg		SOIL_AK(f)_CD
NONRAD	Inorganic Compound	Cadmium	CD	SOIL	American kestrel (insectivore / carnivore)	1.3	7.7	mg/kg		SOIL_AK(fi)_CD
NONRAD	Inorganic Compound	Cadmium	CD	SOIL	American robin (Avian herbivore)	4.3	23	mg/kg		SOIL_AR(p)_CD
NONRAD	Inorganic Compound	Cadmium	CD	SOIL	American robin (Avian insectivore)	0.29	1.6	mg/kg		SOIL_AR(i)_CD
NONRAD	Inorganic Compound	Cadmium	CD	SOIL	American robin (Avian omnivore)	0.54	3	mg/kg		SOIL_AR(ip)_CD
NONRAD	Inorganic Compound	Cadmium	CD	SOIL	Deer mouse (Mammalian omnivore)	0.5	6.8	mg/kg		SOIL_DM(ip)_CD
NONRAD	Inorganic Compound	Cadmium	CD	SOIL	Earthworm (Soil-dwelling invertebrate)	140	760	mg/kg		SOIL_EW_CD
NONRAD	Inorganic Compound	Cadmium	CD	SOIL	Generic plant (Terrestrial autotroph - producer)	32	160	mg/kg		SOIL_GP_CD
NONRAD	Inorganic Compound	Cadmium	CD	SOIL	Gray fox (Mammalian top carnivore)	550	7400	mg/kg		SOIL_RF(f)_CD
NONRAD	Inorganic Compound	Cadmium	CD	SOIL	Montane shrew (Mammalian insectivore)	0.27	3.6	mg/kg	MINIMUM	SOIL_MS(i)_CD
NONRAD	Inorganic Compound	Cadmium	CD	SOIL	Mountain cottontail (Mammalian herbivore)	10	140	mg/kg		SOIL_DC(p)_CD
NONRAD	Inorganic Compound	Cadmium	CD	WATER	American kestrel (water)	12000	160000	µg/L		WATER_AK(w)_CD
NONRAD	Inorganic Compound	Cadmium	CD	WATER	American robin (water)	10000	140000	µg/L		WATER_AR(w)_CD
NONRAD	Inorganic Compound	Cadmium	CD	WATER	Aquatic community organisms - water	0.28	0.91	µg/L	MINIMUM	WATER_AQ(w)_CD
NONRAD	Inorganic Compound	Cadmium	CD	WATER	Deer mouse (water)	5600	20000	µg/L		WATER_DM(w)_CD
NONRAD	Inorganic Compound	Cadmium	CD	WATER	Gray fox (water)	12000	45000	µg/L		WATER_RF(w)_CD
NONRAD	Inorganic Compound	Cadmium	CD	WATER	Montane shrew (water)	4800	17000	µg/L		WATER_MS(w)_CD
NONRAD	Inorganic Compound	Cadmium	CD	WATER	Mountain cottontail (water)	11000	40000	µg/L		WATER_DC(w)_CD
NONRAD	Inorganic Compound	Cadmium	CD	WATER	Occult little brown myotis bat (water)	6700	24000	µg/L		WATER_BA(w)_CD
NONRAD	Inorganic Compound	Cadmium	CD	WATER	Violet-green Swallow (water)	5900	82000	µg/L		WATER_VGS(w)_CD
NONRAD	Inorganic Compound	Chloride	CL(-1)	WATER	Aquatic community organisms - water	230	860	µg/L	MINIMUM	WATER_AQ(w)_CL(-1)
NONRAD	Inorganic Compound	Chromium (total)	CR	SEDIMENT	Aquatic community organisms - sediment	43	110	mg/kg	MINIMUM	SEDIMENT_AQ(s)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	83	830	mg/kg		SEDIMENT_BA(i)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	60	600	mg/kg		SEDIMENT_VGS(i)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	SOIL	American kestrel (Avian top carnivore)	860	2700	mg/kg		SOIL_AK(f)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	SOIL	American kestrel (insectivore / carnivore)	170	560	mg/kg		SOIL_AK(fi)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	SOIL	American robin (Avian herbivore)	51	160	mg/kg		SOIL_AR(p)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	SOIL	American robin (Avian insectivore)	23	73	mg/kg	MINIMUM	SOIL_AR(i)_CR

NONRAD	Inorganic Compound	Chromium (total)	CR	SOIL	American robin (Avian omnivore)	32	100	mg/kg		SOIL_AR(ip)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	SOIL	Deer mouse (Mammalian omnivore)	110	11000	mg/kg		SOIL_DM(ip)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	SOIL	Gray fox (Mammalian top carnivore)	1800	180000	mg/kg		SOIL_RF(f)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	SOIL	Montane shrew (Mammalian insectivore)	63	6300	mg/kg		SOIL_MS(i)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	SOIL	Mountain cottontail (Mammalian herbivore)	410	41000	mg/kg		SOIL_DC(p)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	WATER	American kestrel (water)	14000	140000	µg/L		WATER_AK(w)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	WATER	American robin (water)	12000	120000	µg/L		WATER_AR(w)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	WATER	Aquatic community organisms - water	11	16	µg/L	MINIMUM	WATER_AQ(w)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	WATER	Deer mouse (water)	190000	740000	µg/L		WATER_DM(w)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	WATER	Gray fox (water)	430000	1600000	µg/L		WATER_RF(w)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	WATER	Montane shrew (water)	160000	630000	µg/L		WATER_MS(w)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	WATER	Mountain cottontail (water)	380000	1400000	µg/L		WATER_DC(w)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	WATER	Occult little brown myotis bat (water)	230000	890000	µg/L		WATER_BA(w)_CR
NONRAD	Inorganic Compound	Chromium (total)	CR	WATER	Violet-green Swallow (water)	7100	71000	µg/L		WATER_VGS(w)_CR
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	860	8600	mg/kg		SEDIMENT_BA(i)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	660	6600	mg/kg	MINIMUM	SEDIMENT_VGS(i)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	SOIL	American kestrel (Avian top carnivore)	3600	36000	mg/kg		SOIL_AK(f)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	SOIL	American kestrel (insectivore / carnivore)	1400	14000	mg/kg		SOIL_AK(fi)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	SOIL	American robin (Avian herbivore)	210	2100	mg/kg		SOIL_AR(p)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	SOIL	American robin (Avian insectivore)	140	1400	mg/kg		SOIL_AR(i)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	SOIL	American robin (Avian omnivore)	160	1600	mg/kg		SOIL_AR(ip)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	SOIL	Deer mouse (Mammalian omnivore)	850	5500	mg/kg		SOIL_DM(ip)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	SOIL	Earthworm (Soil-dwelling invertebrate)	0.34	3.4	mg/kg	MINIMUM	SOIL_EW_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	SOIL	Generic plant (Terrestrial autotroph - producer)	0.35	4	mg/kg		SOIL_GP_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	SOIL	Gray fox (Mammalian top carnivore)	7200	46000	mg/kg		SOIL_RF(f)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	SOIL	Montane shrew (Mammalian insectivore)	510	3300	mg/kg		SOIL_MS(i)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	SOIL	Mountain cottontail (Mammalian herbivore)	1600	10000	mg/kg		SOIL_DC(p)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	WATER	American kestrel (water)	14000	140000	µg/L		WATER_AK(w)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	WATER	American robin (water)	12000	120000	µg/L		WATER_AR(w)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	WATER	Aquatic community organisms - water	11	16	µg/L	MINIMUM	WATER_AQ(w)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	WATER	Deer mouse (water)	190000	740000	µg/L		WATER_DM(w)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	WATER	Gray fox (water)	430000	1600000	µg/L		WATER_RF(w)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	WATER	Montane shrew (water)	160000	630000	µg/L		WATER_MS(w)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	WATER	Mountain cottontail (water)	380000	1400000	µg/L		WATER_DC(w)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	WATER	Occult little brown myotis bat (water)	230000	890000	µg/L		WATER_BA(w)_CR(+6)
NONRAD	Inorganic Compound	Chromium(+6)	CR(+6)	WATER	Violet-green Swallow (water)	7100	71000	µg/L		WATER_VGS(w)_CR(+6)
NONRAD	Inorganic Compound	Cobalt	CO	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	330	3300	mg/kg		SEDIMENT_BA(i)_CO
NONRAD	Inorganic Compound	Cobalt	CO	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	220	2200	mg/kg	MINIMUM	SEDIMENT_VGS(i)_CO
NONRAD	Inorganic Compound	Cobalt	CO	SOIL	American kestrel (Avian top carnivore)	2300	5200	mg/kg		SOIL_AK(f)_CO
NONRAD	Inorganic Compound	Cobalt	CO	SOIL	American kestrel (insectivore / carnivore)	620	1400	mg/kg		SOIL_AK(fi)_CO
NONRAD	Inorganic Compound	Cobalt	CO	SOIL	American robin (Avian herbivore)	130	300	mg/kg		SOIL_AR(p)_CO
NONRAD	Inorganic Compound	Cobalt	CO	SOIL	American robin (Avian insectivore)	76	170	mg/kg		SOIL_AR(i)_CO
NONRAD	Inorganic Compound	Cobalt	CO	SOIL	American robin (Avian omnivore)	97	210	mg/kg		SOIL_AR(ip)_CO
NONRAD	Inorganic Compound	Cobalt	CO	SOIL	Deer mouse (Mammalian omnivore)	400	1000	mg/kg		SOIL_DM(ip)_CO
NONRAD	Inorganic Compound	Cobalt	CO	SOIL	Generic plant (Terrestrial autotroph - producer)	13	130	mg/kg	MINIMUM	SOIL_GP_CO
NONRAD	Inorganic Compound	Cobalt	CO	SOIL	Gray fox (Mammalian top carnivore)	5400	14000	mg/kg		SOIL_RF(f)_CO
NONRAD	Inorganic Compound	Cobalt	CO	SOIL	Montane shrew (Mammalian insectivore)	240	640	mg/kg		SOIL_MS(i)_CO
NONRAD	Inorganic Compound	Cobalt	CO	SOIL	Mountain cottontail (Mammalian herbivore)	1000	2800	mg/kg		SOIL_DC(p)_CO
NONRAD	Inorganic Compound	Cobalt	CO	WATER	American kestrel (water)	160	4100	µg/L		WATER_AK(w)_CO
NONRAD	Inorganic Compound	Cobalt	CO	WATER	American robin (water)	140	3500	µg/L		WATER_AR(w)_CO
NONRAD	Inorganic Compound	Cobalt	CO	WATER	Aquatic community organisms - water	3	30	µg/L	MINIMUM	WATER_AQ(w)_CO
NONRAD	Inorganic Compound	Cobalt	CO	WATER	Deer mouse (water)	100	2600	µg/L		WATER_DM(w)_CO
NONRAD	Inorganic Compound	Cobalt	CO	WATER	Gray fox (water)	230	5800	µg/L		WATER_RF(w)_CO
NONRAD	Inorganic Compound	Cobalt	CO	WATER	Montane shrew (water)	89	2200	µg/L		WATER_MS(w)_CO
NONRAD	Inorganic Compound	Cobalt	CO	WATER	Mountain cottontail (water)	200	5100	µg/L		WATER_DC(w)_CO
NONRAD	Inorganic Compound	Cobalt	CO	WATER	Occult little brown myotis bat (water)	120	3100	µg/L		WATER_BA(w)_CO
NONRAD	Inorganic Compound	Cobalt	CO	WATER	Violet-green Swallow (water)	82	2000	µg/L		WATER_VGS(w)_CO
NONRAD	Inorganic Compound	Copper	CU	SEDIMENT	Aquatic community organisms - sediment	31	140	mg/kg		SEDIMENT_AQ(s)_CU
NONRAD	Inorganic Compound	Copper	CU	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	49	81	mg/kg		SEDIMENT_BA(i)_CU
NONRAD	Inorganic Compound	Copper	CU	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	23	69	mg/kg	MINIMUM	SEDIMENT_VGS(i)_CU
NONRAD	Inorganic Compound	Copper	CU	SOIL	American kestrel (Avian top carnivore)	1100	3500	mg/kg		SOIL_AK(f)_CU
NONRAD	Inorganic Compound	Copper	CU	SOIL	American kestrel (insectivore / carnivore)	80	240	mg/kg		SOIL_AK(fi)_CU
NONRAD	Inorganic Compound	Copper	CU	SOIL	American robin (Avian herbivore)	34	100	mg/kg		SOIL_AR(p)_CU
NONRAD	Inorganic Compound	Copper	CU	SOIL	American robin (Avian insectivore)	14	43	mg/kg	MINIMUM	SOIL_AR(i)_CU
NONRAD	Inorganic Compound	Copper	CU	SOIL	American robin (Avian omnivore)	20	60	mg/kg		SOIL_AR(ip)_CU
NONRAD	Inorganic Compound	Copper	CU	SOIL	Deer mouse (Mammalian omnivore)	63	100	mg/kg		SOIL_DM(ip)_CU
NONRAD	Inorganic Compound	Copper	CU	SOIL	Earthworm (Soil-dwelling invertebrate)	80	530	mg/kg		SOIL_EW_CU
NONRAD	Inorganic Compound	Copper	CU	SOIL	Generic plant (Terrestrial autotroph - producer)	70	490	mg/kg		SOIL_GP_CU
NONRAD	Inorganic Compound	Copper	CU	SOIL	Gray fox (Mammalian top carnivore)	4000	6700	mg/kg		SOIL_RF(f)_CU
NONRAD	Inorganic Compound	Copper	CU	SOIL	Montane shrew (Mammalian insectivore)	42	70	mg/kg		SOIL_MS(i)_CU
NONRAD	Inorganic Compound	Copper	CU	SOIL	Mountain cottontail (Mammalian herbivore)	260	430	mg/kg		SOIL_DC(p)_CU
NONRAD	Inorganic Compound	Copper	CU	WATER	American kestrel (water)	25000	260000	µg/L		WATER_AK(w)_CU
NONRAD	Inorganic Compound	Copper	CU	WATER	American robin (water)	21000	220000	µg/L		WATER_AR(w)_CU

NONRAD	Inorganic Compound	Copper	CU	WATER	Aquatic community organisms - water	5	7	µg/L	MINIMUM	WATER_AQ(w)_CU
NONRAD	Inorganic Compound	Copper	CU	WATER	Deer mouse (water)	26000	39000	µg/L		WATER_DM(w)_CU
NONRAD	Inorganic Compound	Copper	CU	WATER	Gray fox (water)	59000	86000	µg/L		WATER_RF(w)_CU
NONRAD	Inorganic Compound	Copper	CU	WATER	Montane shrew (water)	22000	33000	µg/L		WATER_MS(w)_CU
NONRAD	Inorganic Compound	Copper	CU	WATER	Mountain cottontail (water)	52000	76000	µg/L		WATER_DC(w)_CU
NONRAD	Inorganic Compound	Copper	CU	WATER	Occult little brown myotis bat (water)	32000	46000	µg/L		WATER_BA(w)_CU
NONRAD	Inorganic Compound	Copper	CU	WATER	Violet-green Swallow (water)	12000	130000	µg/L		WATER_VGS(w)_CU
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	SEDIMENT	Aquatic community organisms - sediment	0.1	1	mg/kg	MINIMUM	SEDIMENT_AQ(s)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	380	3800	mg/kg		SEDIMENT_BA(i)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.14	1.4	mg/kg		SEDIMENT_VGS(i)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	SOIL	American kestrel (Avian top carnivore)	0.59	5.9	mg/kg		SOIL_AK(f)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	SOIL	American kestrel (insectivore / carnivore)	0.36	3.6	mg/kg		SOIL_AK(fi)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	SOIL	American robin (Avian herbivore)	0.1	1	mg/kg		SOIL_AR(p)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	SOIL	American robin (Avian insectivore)	0.098	0.98	mg/kg	MINIMUM	SOIL_AR(i)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	SOIL	American robin (Avian omnivore)	0.099	0.99	mg/kg		SOIL_AR(ip)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	SOIL	Deer mouse (Mammalian omnivore)	330	3300	mg/kg		SOIL_DM(ip)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	SOIL	Gray fox (Mammalian top carnivore)	3300	33000	mg/kg		SOIL_RF(f)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	SOIL	Montane shrew (Mammalian insectivore)	330	3300	mg/kg		SOIL_MS(i)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	SOIL	Mountain cottontail (Mammalian herbivore)	790	7900	mg/kg		SOIL_DC(p)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	WATER	American kestrel (water)	330	3300	µg/L		WATER_AK(w)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	WATER	American robin (water)	280	2800	µg/L		WATER_AR(w)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	WATER	Aquatic community organisms - water	5.2	22	µg/L	MINIMUM	WATER_AQ(w)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	WATER	Deer mouse (water)	360000	3600000	µg/L		WATER_DM(w)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	WATER	Gray fox (water)	790000	7900000	µg/L		WATER_RF(w)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	WATER	Montane shrew (water)	300000	3000000	µg/L		WATER_MS(w)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	WATER	Mountain cottontail (water)	700000	7000000	µg/L		WATER_DC(w)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	WATER	Occult little brown myotis bat (water)	430000	4300000	µg/L		WATER_BA(w)_CN(-1)
NONRAD	Inorganic Compound	Cyanide (total)	CN(-1)	WATER	Violet-green Swallow (water)	160	1600	µg/L		WATER_VGS(w)_CN(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1100	2200	mg/kg		SEDIMENT_BA(i)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	350	3500	mg/kg	MINIMUM	SEDIMENT_VGS(i)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	SOIL	American kestrel (Avian top carnivore)	2200	22000	mg/kg		SOIL_AK(f)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	SOIL	American kestrel (insectivore / carnivore)	910	9100	mg/kg		SOIL_AK(fi)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	SOIL	American robin (Avian herbivore)	170	1700	mg/kg		SOIL_AR(p)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	SOIL	American robin (Avian insectivore)	120	1200	mg/kg	MINIMUM	SOIL_AR(i)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	SOIL	American robin (Avian omnivore)	140	1400	mg/kg		SOIL_AR(ip)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	SOIL	Deer mouse (Mammalian omnivore)	1100	2100	mg/kg		SOIL_DM(ip)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	SOIL	Gray fox (Mammalian top carnivore)	13000	24000	mg/kg		SOIL_RF(f)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	SOIL	Montane shrew (Mammalian insectivore)	870	1600	mg/kg		SOIL_MS(i)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	SOIL	Mountain cottontail (Mammalian herbivore)	2600	4800	mg/kg		SOIL_DC(p)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	WATER	American kestrel (water)	100000	1000000	µg/L		WATER_AK(w)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	WATER	American robin (water)	87000	870000	µg/L		WATER_AR(w)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	WATER	Aquatic community organisms - water	20	200	µg/L	MINIMUM	WATER_AQ(w)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	WATER	Deer mouse (water)	140000	250000	µg/L		WATER_DM(w)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	WATER	Gray fox (water)	300000	560000	µg/L		WATER_RF(w)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	WATER	Montane shrew (water)	110000	210000	µg/L		WATER_MS(w)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	WATER	Mountain cottontail (water)	270000	500000	µg/L		WATER_DC(w)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	WATER	Occult little brown myotis bat (water)	160000	300000	µg/L		WATER_BA(w)_F(-1)
NONRAD	Inorganic Compound	Fluoride	F(-1)	WATER	Violet-green Swallow (water)	50000	500000	µg/L		WATER_VGS(w)_F(-1)
NONRAD	Inorganic Compound	Iron	FE	SEDIMENT	Aquatic community organisms - sediment	20000	40000	mg/kg	MINIMUM	SEDIMENT_AQ(s)_FE
NONRAD	Inorganic Compound	Iron	FE	WATER	Aquatic community organisms - water	1000	10000	µg/L	MINIMUM	WATER_AQ(w)_FE
NONRAD	Inorganic Compound	Lead	PB	SEDIMENT	Aquatic community organisms - sediment	35	120	mg/kg		SEDIMENT_AQ(s)_PB
NONRAD	Inorganic Compound	Lead	PB	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	110	220	mg/kg		SEDIMENT_BA(i)_PB
NONRAD	Inorganic Compound	Lead	PB	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	26	52	mg/kg	MINIMUM	SEDIMENT_VGS(i)_PB
NONRAD	Inorganic Compound	Lead	PB	SOIL	American kestrel (Avian top carnivore)	540	1000	mg/kg		SOIL_AK(f)_PB
NONRAD	Inorganic Compound	Lead	PB	SOIL	American kestrel (insectivore / carnivore)	83	160	mg/kg		SOIL_AK(fi)_PB
NONRAD	Inorganic Compound	Lead	PB	SOIL	American robin (Avian herbivore)	18	36	mg/kg		SOIL_AR(p)_PB
NONRAD	Inorganic Compound	Lead	PB	SOIL	American robin (Avian insectivore)	11	23	mg/kg	MINIMUM	SOIL_AR(i)_PB
NONRAD	Inorganic Compound	Lead	PB	SOIL	American robin (Avian omnivore)	14	28	mg/kg		SOIL_AR(ip)_PB
NONRAD	Inorganic Compound	Lead	PB	SOIL	Deer mouse (Mammalian omnivore)	120	230	mg/kg		SOIL_DM(ip)_PB
NONRAD	Inorganic Compound	Lead	PB	SOIL	Earthworm (Soil-dwelling invertebrate)	1700	8400	mg/kg		SOIL_EW_PB
NONRAD	Inorganic Compound	Lead	PB	SOIL	Generic plant (Terrestrial autotroph - producer)	120	570	mg/kg		SOIL_GP_PB
NONRAD	Inorganic Compound	Lead	PB	SOIL	Gray fox (Mammalian top carnivore)	3700	7000	mg/kg		SOIL_RF(f)_PB
NONRAD	Inorganic Compound	Lead	PB	SOIL	Montane shrew (Mammalian insectivore)	93	170	mg/kg		SOIL_MS(i)_PB
NONRAD	Inorganic Compound	Lead	PB	SOIL	Mountain cottontail (Mammalian herbivore)	310	600	mg/kg		SOIL_DC(p)_PB
NONRAD	Inorganic Compound	Lead	PB	WATER	American kestrel (water)	130000	1300000	µg/L		WATER_AK(w)_PB
NONRAD	Inorganic Compound	Lead	PB	WATER	American robin (water)	110000	1100000	µg/L		WATER_AR(w)_PB
NONRAD	Inorganic Compound	Lead	PB	WATER	Aquatic community organisms - water	1	10	µg/L	MINIMUM	WATER_AQ(w)_PB
NONRAD	Inorganic Compound	Lead	PB	WATER	Deer mouse (water)	5100	19000	µg/L		WATER_DM(w)_PB
NONRAD	Inorganic Compound	Lead	PB	WATER	Gray fox (water)	11000	43000	µg/L		WATER_RF(w)_PB
NONRAD	Inorganic Compound	Lead	PB	WATER	Montane shrew (water)	4300	16000	µg/L		WATER_MS(w)_PB
NONRAD	Inorganic Compound	Lead	PB	WATER	Mountain cottontail (water)	10000	38000	µg/L		WATER_DC(w)_PB
NONRAD	Inorganic Compound	Lead	PB	WATER	Occult little brown myotis bat (water)	6100	23000	µg/L		WATER_BA(w)_PB
NONRAD	Inorganic Compound	Lead	PB	WATER	Violet-green Swallow (water)	64000	640000	µg/L		WATER_VGS(w)_PB

NONRAD	Inorganic Compound	Lithium	LI	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	130	650	mg/kg	MINIMUM	SEDIMENT_BA(i)_LI
NONRAD	Inorganic Compound	Lithium	LI	SOIL	Deer mouse (Mammalian omnivore)	100	480	mg/kg		SOIL_DM(ip)_LI
NONRAD	Inorganic Compound	Lithium	LI	SOIL	Gray fox (Mammalian top carnivore)	870	4100	mg/kg		SOIL_RF(f)_LI
NONRAD	Inorganic Compound	Lithium	LI	SOIL	Montane shrew (Mammalian insectivore)	75	350	mg/kg	MINIMUM	SOIL_MS(i)_LI
NONRAD	Inorganic Compound	Lithium	LI	SOIL	Mountain cottontail (Mammalian herbivore)	150	750	mg/kg		SOIL_DC(p)_LI
NONRAD	Inorganic Compound	Manganese	MN	SEDIMENT	Aquatic community organisms - sediment	460	1100	mg/kg	MINIMUM	SEDIMENT_AQ(s)_MN
NONRAD	Inorganic Compound	Manganese	MN	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	4700	47000	mg/kg		SEDIMENT_BA(i)_MN
NONRAD	Inorganic Compound	Manganese	MN	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	10000	100000	mg/kg		SEDIMENT_VGS(i)_MN
NONRAD	Inorganic Compound	Manganese	MN	SOIL	American kestrel (Avian top carnivore)	60000	120000	mg/kg		SOIL_AK(f)_MN
NONRAD	Inorganic Compound	Manganese	MN	SOIL	American kestrel (insectivore / carnivore)	24000	50000	mg/kg		SOIL_AK(fi)_MN
NONRAD	Inorganic Compound	Manganese	MN	SOIL	American robin (Avian herbivore)	1300	2700	mg/kg		SOIL_AR(p)_MN
NONRAD	Inorganic Compound	Manganese	MN	SOIL	American robin (Avian insectivore)	2200	4700	mg/kg		SOIL_AR(i)_MN
NONRAD	Inorganic Compound	Manganese	MN	SOIL	American robin (Avian omnivore)	1600	3500	mg/kg		SOIL_AR(ip)_MN
NONRAD	Inorganic Compound	Manganese	MN	SOIL	Deer mouse (Mammalian omnivore)	1400	5400	mg/kg		SOIL_DM(ip)_MN
NONRAD	Inorganic Compound	Manganese	MN	SOIL	Earthworm (Soil-dwelling invertebrate)	450	4500	mg/kg		SOIL_EW_MN
NONRAD	Inorganic Compound	Manganese	MN	SOIL	Generic plant (Terrestrial autotroph - producer)	220	1100	mg/kg	MINIMUM	SOIL_GP_MN
NONRAD	Inorganic Compound	Manganese	MN	SOIL	Gray fox (Mammalian top carnivore)	40000	150000	mg/kg		SOIL_RF(f)_MN
NONRAD	Inorganic Compound	Manganese	MN	SOIL	Montane shrew (Mammalian insectivore)	2800	10000	mg/kg		SOIL_MS(i)_MN
NONRAD	Inorganic Compound	Manganese	MN	SOIL	Mountain cottontail (Mammalian herbivore)	2000	7500	mg/kg		SOIL_DC(p)_MN
NONRAD	Inorganic Compound	Manganese	MN	WATER	American kestrel (water)	4800000	48000000	µg/L		WATER_AK(w)_MN
NONRAD	Inorganic Compound	Manganese	MN	WATER	American robin (water)	4100000	41000000	µg/L		WATER_AR(w)_MN
NONRAD	Inorganic Compound	Manganese	MN	WATER	Aquatic community organisms - water	1300	2300	µg/L	MINIMUM	WATER_AQ(w)_MN
NONRAD	Inorganic Compound	Manganese	MN	WATER	Deer mouse (water)	230000	830000	µg/L		WATER_DM(w)_MN
NONRAD	Inorganic Compound	Manganese	MN	WATER	Gray fox (water)	510000	1800000	µg/L		WATER_RF(w)_MN
NONRAD	Inorganic Compound	Manganese	MN	WATER	Montane shrew (water)	190000	700000	µg/L		WATER_MS(w)_MN
NONRAD	Inorganic Compound	Manganese	MN	WATER	Mountain cottontail (water)	450000	1600000	µg/L		WATER_DC(w)_MN
NONRAD	Inorganic Compound	Manganese	MN	WATER	Occult little brown myotis bat (water)	270000	990000	µg/L		WATER_BA(w)_MN
NONRAD	Inorganic Compound	Manganese	MN	WATER	Violet-green Swallow (water)	2400000	24000000	µg/L		WATER_VGS(w)_MN
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	SEDIMENT	Aquatic community organisms - sediment	0.18	1	mg/kg		SEDIMENT_AQ(s)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	2	20	mg/kg		SEDIMENT_BA(i)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.017	0.17	mg/kg	MINIMUM	SEDIMENT_VGS(i)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	SOIL	American kestrel (Avian top carnivore)	0.32	3.2	mg/kg		SOIL_AK(f)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	SOIL	American kestrel (insectivore / carnivore)	0.058	0.58	mg/kg		SOIL_AK(fi)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	SOIL	American robin (Avian herbivore)	0.067	0.67	mg/kg		SOIL_AR(p)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	SOIL	American robin (Avian insectivore)	0.013	0.13	mg/kg	MINIMUM	SOIL_AR(i)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	SOIL	American robin (Avian omnivore)	0.022	0.22	mg/kg		SOIL_AR(ip)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	SOIL	Deer mouse (Mammalian omnivore)	3	30	mg/kg		SOIL_DM(ip)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	SOIL	Earthworm (Soil-dwelling invertebrate)	0.05	0.5	mg/kg		SOIL_EW_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	SOIL	Generic plant (Terrestrial autotroph - producer)	34	64	mg/kg		SOIL_GP_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	SOIL	Gray fox (Mammalian top carnivore)	76	760	mg/kg		SOIL_RF(f)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	SOIL	Montane shrew (Mammalian insectivore)	1.7	17	mg/kg		SOIL_MS(i)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	SOIL	Mountain cottontail (Mammalian herbivore)	23	230	mg/kg		SOIL_DC(p)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	WATER	American kestrel (water)	150	1500	µg/L		WATER_AK(w)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	WATER	American robin (water)	130	1300	µg/L		WATER_AR(w)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	WATER	Aquatic community organisms - water	0.77	1.4	µg/L	MINIMUM	WATER_AQ(w)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	WATER	Deer mouse (water)	7400	74000	µg/L		WATER_DM(w)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	WATER	Gray fox (water)	16000	160000	µg/L		WATER_RF(w)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	WATER	Montane shrew (water)	6300	63000	µg/L		WATER_MS(w)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	WATER	Mountain cottontail (water)	14000	140000	µg/L		WATER_DC(w)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	WATER	Occult little brown myotis bat (water)	8800	88000	µg/L		WATER_BA(w)_HGI
NONRAD	Inorganic Compound	Mercury (inorganic)	HGI	WATER	Violet-green Swallow (water)	78	780	µg/L		WATER_VGS(w)_HGI
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.0035	0.017	mg/kg		SEDIMENT_BA(i)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.00045	0.0045	mg/kg	MINIMUM	SEDIMENT_VGS(i)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	SOIL	American kestrel (Avian top carnivore)	0.009	0.09	mg/kg		SOIL_AK(f)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	SOIL	American kestrel (insectivore / carnivore)	0.0015	0.015	mg/kg		SOIL_AK(fi)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	SOIL	American robin (Avian herbivore)	0.066	0.66	mg/kg		SOIL_AR(p)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	SOIL	American robin (Avian insectivore)	0.00035	0.0035	mg/kg	MINIMUM	SOIL_AR(i)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	SOIL	American robin (Avian omnivore)	0.00071	0.0071	mg/kg		SOIL_AR(ip)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	SOIL	Deer mouse (Mammalian omnivore)	0.0062	0.031	mg/kg		SOIL_DM(ip)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	SOIL	Earthworm (Soil-dwelling invertebrate)	2.5	12	mg/kg		SOIL_EW_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	SOIL	Gray fox (Mammalian top carnivore)	0.14	0.74	mg/kg		SOIL_RF(f)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	SOIL	Montane shrew (Mammalian insectivore)	0.0031	0.015	mg/kg		SOIL_MS(i)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	SOIL	Mountain cottontail (Mammalian herbivore)	1.9	9.8	mg/kg		SOIL_DC(p)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	WATER	American kestrel (water)	53	530	µg/L		WATER_AK(w)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	WATER	American robin (water)	45	450	µg/L		WATER_AR(w)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	WATER	Aquatic community organisms - water	0.0028	0.028	µg/L	MINIMUM	WATER_AQ(w)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	WATER	Deer mouse (water)	160	840	µg/L		WATER_DM(w)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	WATER	Gray fox (water)	370	1800	µg/L		WATER_RF(w)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	WATER	Montane shrew (water)	140	710	µg/L		WATER_MS(w)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	WATER	Mountain cottontail (water)	320	1600	µg/L		WATER_DC(w)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	WATER	Occult little brown myotis bat (water)	200	1000	µg/L		WATER_BA(w)_HGM
NONRAD	Inorganic Compound	Mercury (methyl)	HGM	WATER	Violet-green Swallow (water)	26	260	µg/L		WATER_VGS(w)_HGM
NONRAD	Inorganic Compound	Molybdenum	MO	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	26	260	mg/kg	MINIMUM	SEDIMENT_VGS(i)_MO

NONRAD	Inorganic Compound	Molybdenum	MO	SOIL	American kestrel (Avian top carnivore)	1100	11000	mg/kg		SOIL_AK(f)_MO
NONRAD	Inorganic Compound	Molybdenum	MO	SOIL	American kestrel (insectivore / carnivore)	90	900	mg/kg		SOIL_AK(fi)_MO
NONRAD	Inorganic Compound	Molybdenum	MO	SOIL	American robin (Avian herbivore)	18	180	mg/kg		SOIL_AR(p)_MO
NONRAD	Inorganic Compound	Molybdenum	MO	SOIL	American robin (Avian insectivore)	15	150	mg/kg	MINIMUM	SOIL_AR(i)_MO
NONRAD	Inorganic Compound	Molybdenum	MO	SOIL	American robin (Avian omnivore)	16	160	mg/kg		SOIL_AR(ip)_MO
NONRAD	Inorganic Compound	Molybdenum	MO	WATER	Aquatic community organisms - water	1800	7900	µg/L	MINIMUM	WATER_AQ(w)_MO
NONRAD	Inorganic Compound	Nickel	NI	SEDIMENT	Aquatic community organisms - sediment	22	48	mg/kg		SEDIMENT_AQ(s)_NI
NONRAD	Inorganic Compound	Nickel	NI	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	12	24	mg/kg	MINIMUM	SEDIMENT_BA(i)_NI
NONRAD	Inorganic Compound	Nickel	NI	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	31	310	mg/kg		SEDIMENT_VGS(i)_NI
NONRAD	Inorganic Compound	Nickel	NI	SOIL	American kestrel (Avian top carnivore)	2000	8100	mg/kg		SOIL_AK(f)_NI
NONRAD	Inorganic Compound	Nickel	NI	SOIL	American kestrel (insectivore / carnivore)	110	440	mg/kg		SOIL_AK(fi)_NI
NONRAD	Inorganic Compound	Nickel	NI	SOIL	American robin (Avian herbivore)	120	500	mg/kg		SOIL_AR(p)_NI
NONRAD	Inorganic Compound	Nickel	NI	SOIL	American robin (Avian insectivore)	20	81	mg/kg		SOIL_AR(i)_NI
NONRAD	Inorganic Compound	Nickel	NI	SOIL	American robin (Avian omnivore)	35	130	mg/kg		SOIL_AR(ip)_NI
NONRAD	Inorganic Compound	Nickel	NI	SOIL	Deer mouse (Mammalian omnivore)	20	40	mg/kg		SOIL_DM(ip)_NI
NONRAD	Inorganic Compound	Nickel	NI	SOIL	Earthworm (Soil-dwelling invertebrate)	280	1300	mg/kg		SOIL_EW_NI
NONRAD	Inorganic Compound	Nickel	NI	SOIL	Generic plant (Terrestrial autotroph - producer)	38	270	mg/kg		SOIL_GP_NI
NONRAD	Inorganic Compound	Nickel	NI	SOIL	Gray fox (Mammalian top carnivore)	1200	2500	mg/kg		SOIL_RF(f)_NI
NONRAD	Inorganic Compound	Nickel	NI	SOIL	Montane shrew (Mammalian insectivore)	10	21	mg/kg	MINIMUM	SOIL_MS(i)_NI
NONRAD	Inorganic Compound	Nickel	NI	SOIL	Mountain cottontail (Mammalian herbivore)	270	540	mg/kg		SOIL_DC(p)_NI
NONRAD	Inorganic Compound	Nickel	NI	WATER	American kestrel (water)	230000	320000	µg/L		WATER_AK(w)_NI
NONRAD	Inorganic Compound	Nickel	NI	WATER	American robin (water)	200000	270000	µg/L		WATER_AR(w)_NI
NONRAD	Inorganic Compound	Nickel	NI	WATER	Aquatic community organisms - water	29	260	µg/L	MINIMUM	WATER_AQ(w)_NI
NONRAD	Inorganic Compound	Nickel	NI	WATER	Deer mouse (water)	360	3600	µg/L		WATER_DM(w)_NI
NONRAD	Inorganic Compound	Nickel	NI	WATER	Gray fox (water)	800	8000	µg/L		WATER_RF(w)_NI
NONRAD	Inorganic Compound	Nickel	NI	WATER	Montane shrew (water)	300	3000	µg/L		WATER_MS(w)_NI
NONRAD	Inorganic Compound	Nickel	NI	WATER	Mountain cottontail (water)	710	7100	µg/L		WATER_DC(w)_NI
NONRAD	Inorganic Compound	Nickel	NI	WATER	Occult little brown myotis bat (water)	430	4300	µg/L		WATER_BA(w)_NI
NONRAD	Inorganic Compound	Nickel	NI	WATER	Violet-green Swallow (water)	110000	160000	µg/L		WATER_VGS(w)_NI
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	SOIL	American kestrel (Avian top carnivore)	2	4	mg/kg		SOIL_AK(f)_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	SOIL	American kestrel (insectivore / carnivore)	3.9	8	mg/kg		SOIL_AK(fi)_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	SOIL	American robin (Avian herbivore)	0.12	0.24	mg/kg	MINIMUM	SOIL_AR(p)_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	SOIL	American robin (Avian insectivore)	31	64	mg/kg		SOIL_AR(i)_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	SOIL	American robin (Avian omnivore)	0.24	0.49	mg/kg		SOIL_AR(ip)_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	SOIL	Deer mouse (Mammalian omnivore)	0.21	1	mg/kg		SOIL_DM(ip)_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	SOIL	Earthworm (Soil-dwelling invertebrate)	3.5	35	mg/kg		SOIL_EW_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	SOIL	Generic plant (Terrestrial autotroph - producer)	40	80	mg/kg		SOIL_GP_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	SOIL	Gray fox (Mammalian top carnivore)	3.3	16	mg/kg		SOIL_RF(f)_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	SOIL	Montane shrew (Mammalian insectivore)	31	150	mg/kg		SOIL_MS(i)_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	SOIL	Mountain cottontail (Mammalian herbivore)	0.26	1.3	mg/kg		SOIL_DC(p)_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	WATER	American kestrel (water)	2100000	21000000	µg/L		WATER_AK(w)_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	WATER	American robin (water)	1800000	18000000	µg/L		WATER_AR(w)_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	WATER	Deer mouse (water)	41000	140000	µg/L		WATER_DM(w)_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	WATER	Gray fox (water)	91000	330000	µg/L		WATER_RF(w)_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	WATER	Montane shrew (water)	35000	120000	µg/L	MINIMUM	WATER_MS(w)_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	WATER	Mountain cottontail (water)	80000	290000	µg/L		WATER_DC(w)_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	WATER	Occult little brown myotis bat (water)	49000	170000	µg/L		WATER_BA(w)_ClO4(-1)
NONRAD	Inorganic Compound	Perchlorate Ion	ClO4(-1)	WATER	Violet-green Swallow (water)	1000000	10000000	µg/L		WATER_VGS(w)_ClO4(-1)
NONRAD	Inorganic Compound	Selenium	SE	SEDIMENT	Aquatic community organisms - sediment	0.72	2.9	mg/kg	MINIMUM	SEDIMENT_AQ(s)_SE
NONRAD	Inorganic Compound	Selenium	SE	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.8	1.2	mg/kg		SEDIMENT_BA(i)_SE
NONRAD	Inorganic Compound	Selenium	SE	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	1	2.1	mg/kg		SEDIMENT_VGS(i)_SE
NONRAD	Inorganic Compound	Selenium	SE	SOIL	American kestrel (Avian top carnivore)	74	140	mg/kg		SOIL_AK(f)_SE
NONRAD	Inorganic Compound	Selenium	SE	SOIL	American kestrel (insectivore / carnivore)	3.7	7.5	mg/kg		SOIL_AK(fi)_SE
NONRAD	Inorganic Compound	Selenium	SE	SOIL	American robin (Avian herbivore)	0.98	1.9	mg/kg		SOIL_AR(p)_SE
NONRAD	Inorganic Compound	Selenium	SE	SOIL	American robin (Avian insectivore)	0.71	1.4	mg/kg		SOIL_AR(i)_SE
NONRAD	Inorganic Compound	Selenium	SE	SOIL	American robin (Avian omnivore)	0.83	1.6	mg/kg		SOIL_AR(ip)_SE
NONRAD	Inorganic Compound	Selenium	SE	SOIL	Deer mouse (Mammalian omnivore)	0.82	1.2	mg/kg		SOIL_DM(ip)_SE
NONRAD	Inorganic Compound	Selenium	SE	SOIL	Earthworm (Soil-dwelling invertebrate)	4.1	41	mg/kg		SOIL_EW_SE
NONRAD	Inorganic Compound	Selenium	SE	SOIL	Generic plant (Terrestrial autotroph - producer)	0.52	3	mg/kg	MINIMUM	SOIL_GP_SE
NONRAD	Inorganic Compound	Selenium	SE	SOIL	Gray fox (Mammalian top carnivore)	92	130	mg/kg		SOIL_RF(f)_SE
NONRAD	Inorganic Compound	Selenium	SE	SOIL	Montane shrew (Mammalian insectivore)	0.7	1	mg/kg		SOIL_MS(i)_SE
NONRAD	Inorganic Compound	Selenium	SE	SOIL	Mountain cottontail (Mammalian herbivore)	2.2	3.4	mg/kg		SOIL_DC(p)_SE
NONRAD	Inorganic Compound	Selenium	SE	WATER	American kestrel (water)	3600	12000	µg/L		WATER_AK(w)_SE
NONRAD	Inorganic Compound	Selenium	SE	WATER	American robin (water)	3100	10000	µg/L		WATER_AR(w)_SE
NONRAD	Inorganic Compound	Selenium	SE	WATER	Aquatic community organisms - water	5	20	µg/L	MINIMUM	WATER_AQ(w)_SE
NONRAD	Inorganic Compound	Selenium	SE	WATER	Deer mouse (water)	1000	1700	µg/L		WATER_DM(w)_SE
NONRAD	Inorganic Compound	Selenium	SE	WATER	Gray fox (water)	2300	3800	µg/L		WATER_RF(w)_SE
NONRAD	Inorganic Compound	Selenium	SE	WATER	Montane shrew (water)	890	1400	µg/L		WATER_MS(w)_SE
NONRAD	Inorganic Compound	Selenium	SE	WATER	Mountain cottontail (water)	2000	3400	µg/L		WATER_DC(w)_SE
NONRAD	Inorganic Compound	Selenium	SE	WATER	Occult little brown myotis bat (water)	1200	2000	µg/L		WATER_BA(w)_SE
NONRAD	Inorganic Compound	Selenium	SE	WATER	Violet-green Swallow (water)	1800	6100	µg/L		WATER_VGS(w)_SE
NONRAD	Inorganic Compound	Silver	AG	SEDIMENT	Aquatic community organisms - sediment	0.5	5	mg/kg	MINIMUM	SEDIMENT_AQ(s)_AG
NONRAD	Inorganic Compound	Silver	AG	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	16	160	mg/kg		SEDIMENT_BA(i)_AG

NONRAD	Inorganic Compound	Silver	AG	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	3.6	36	mg/kg		SEDIMENT_VGS(i)_AG
NONRAD	Inorganic Compound	Silver	AG	SOIL	American kestrel (Avian top carnivore)	600	6000	mg/kg		SOIL_AK(f)_AG
NONRAD	Inorganic Compound	Silver	AG	SOIL	American kestrel (insectivore / carnivore)	13	130	mg/kg		SOIL_AK(fi)_AG
NONRAD	Inorganic Compound	Silver	AG	SOIL	American robin (Avian herbivore)	10	100	mg/kg		SOIL_AR(p)_AG
NONRAD	Inorganic Compound	Silver	AG	SOIL	American robin (Avian insectivore)	2.6	26	mg/kg	MINIMUM	SOIL_AR(i)_AG
NONRAD	Inorganic Compound	Silver	AG	SOIL	American robin (Avian omnivore)	4.1	41	mg/kg		SOIL_AR(ip)_AG
NONRAD	Inorganic Compound	Silver	AG	SOIL	Deer mouse (Mammalian omnivore)	24	240	mg/kg		SOIL_DM(ip)_AG
NONRAD	Inorganic Compound	Silver	AG	SOIL	Generic plant (Terrestrial autotroph - producer)	560	2800	mg/kg		SOIL_GP_AG
NONRAD	Inorganic Compound	Silver	AG	SOIL	Gray fox (Mammalian top carnivore)	4400	44000	mg/kg		SOIL_RF(f)_AG
NONRAD	Inorganic Compound	Silver	AG	SOIL	Montane shrew (Mammalian insectivore)	14	140	mg/kg		SOIL_MS(i)_AG
NONRAD	Inorganic Compound	Silver	AG	SOIL	Mountain cottontail (Mammalian herbivore)	150	1500	mg/kg		SOIL_DC(p)_AG
NONRAD	Inorganic Compound	Silver	AG	WATER	American kestrel (water)	45000	450000	µg/L		WATER_AK(w)_AG
NONRAD	Inorganic Compound	Silver	AG	WATER	American robin (water)	38000	380000	µg/L		WATER_AR(w)_AG
NONRAD	Inorganic Compound	Silver	AG	WATER	Aquatic community organisms - water	0.1	1	µg/L	MINIMUM	WATER_AQ(w)_AG
NONRAD	Inorganic Compound	Silver	AG	WATER	Deer mouse (water)	100000	1000000	µg/L		WATER_DM(w)_AG
NONRAD	Inorganic Compound	Silver	AG	WATER	Gray fox (water)	220000	2200000	µg/L		WATER_RF(w)_AG
NONRAD	Inorganic Compound	Silver	AG	WATER	Montane shrew (water)	85000	850000	µg/L		WATER_MS(w)_AG
NONRAD	Inorganic Compound	Silver	AG	WATER	Mountain cottontail (water)	190000	1900000	µg/L		WATER_DC(w)_AG
NONRAD	Inorganic Compound	Silver	AG	WATER	Occult little brown myotis bat (water)	110000	1100000	µg/L		WATER_BA(w)_AG
NONRAD	Inorganic Compound	Silver	AG	WATER	Violet-green Swallow (water)	22000	220000	µg/L		WATER_VGS(w)_AG
NONRAD	Inorganic Compound	Strontium (stable)	SR	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1600	16000	mg/kg	MINIMUM	SEDIMENT_BA(i)_SR
NONRAD	Inorganic Compound	Strontium (stable)	SR	SOIL	Deer mouse (Mammalian omnivore)	95	950	mg/kg	MINIMUM	SOIL_DM(ip)_SR
NONRAD	Inorganic Compound	Strontium (stable)	SR	SOIL	Gray fox (Mammalian top carnivore)	19000	190000	mg/kg		SOIL_RF(f)_SR
NONRAD	Inorganic Compound	Strontium (stable)	SR	SOIL	Montane shrew (Mammalian insectivore)	1000	10000	mg/kg		SOIL_MS(i)_SR
NONRAD	Inorganic Compound	Strontium (stable)	SR	SOIL	Mountain cottontail (Mammalian herbivore)	110	1100	mg/kg		SOIL_DC(p)_SR
NONRAD	Inorganic Compound	Strontium (stable)	SR	WATER	Aquatic community organisms - water	1500	15000	µg/L	MINIMUM	WATER_AQ(w)_SR
NONRAD	Inorganic Compound	Strontium (stable)	SR	WATER	Deer mouse (water)	130000	1300000	µg/L		WATER_DM(w)_SR
NONRAD	Inorganic Compound	Strontium (stable)	SR	WATER	Gray fox (water)	290000	2900000	µg/L		WATER_RF(w)_SR
NONRAD	Inorganic Compound	Strontium (stable)	SR	WATER	Montane shrew (water)	110000	1100000	µg/L		WATER_MS(w)_SR
NONRAD	Inorganic Compound	Strontium (stable)	SR	WATER	Mountain cottontail (water)	250000	2500000	µg/L		WATER_DC(w)_SR
NONRAD	Inorganic Compound	Strontium (stable)	SR	WATER	Occult little brown myotis bat (water)	150000	1500000	µg/L		WATER_BA(w)_SR
NONRAD	Inorganic Compound	Thallium	TL	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.73	7.3	mg/kg	MINIMUM	SEDIMENT_BA(i)_TL
NONRAD	Inorganic Compound	Thallium	TL	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	23	230	mg/kg		SEDIMENT_VGS(i)_TL
NONRAD	Inorganic Compound	Thallium	TL	SOIL	American kestrel (Avian top carnivore)	100	1000	mg/kg		SOIL_AK(f)_TL
NONRAD	Inorganic Compound	Thallium	TL	SOIL	American kestrel (insectivore / carnivore)	48	480	mg/kg		SOIL_AK(fi)_TL
NONRAD	Inorganic Compound	Thallium	TL	SOIL	American robin (Avian herbivore)	6.9	69	mg/kg		SOIL_AR(p)_TL
NONRAD	Inorganic Compound	Thallium	TL	SOIL	American robin (Avian insectivore)	4.5	45	mg/kg		SOIL_AR(i)_TL
NONRAD	Inorganic Compound	Thallium	TL	SOIL	American robin (Avian omnivore)	5.5	55	mg/kg		SOIL_AR(ip)_TL
NONRAD	Inorganic Compound	Thallium	TL	SOIL	Deer mouse (Mammalian omnivore)	0.72	7.2	mg/kg		SOIL_DM(ip)_TL
NONRAD	Inorganic Compound	Thallium	TL	SOIL	Generic plant (Terrestrial autotroph - producer)	0.05	0.5	mg/kg	MINIMUM	SOIL_GP_TL
NONRAD	Inorganic Compound	Thallium	TL	SOIL	Gray fox (Mammalian top carnivore)	5	50	mg/kg		SOIL_RF(f)_TL
NONRAD	Inorganic Compound	Thallium	TL	SOIL	Montane shrew (Mammalian insectivore)	0.42	4.2	mg/kg		SOIL_MS(i)_TL
NONRAD	Inorganic Compound	Thallium	TL	SOIL	Mountain cottontail (Mammalian herbivore)	1.2	12	mg/kg		SOIL_DC(p)_TL
NONRAD	Inorganic Compound	Thallium	TL	WATER	American kestrel (water)	2900	29000	µg/L		WATER_AK(w)_TL
NONRAD	Inorganic Compound	Thallium	TL	WATER	American robin (water)	2500	25000	µg/L		WATER_AR(w)_TL
NONRAD	Inorganic Compound	Thallium	TL	WATER	Aquatic community organisms - water	0.03	0.3	µg/L	MINIMUM	WATER_AQ(w)_TL
NONRAD	Inorganic Compound	Thallium	TL	WATER	Deer mouse (water)	37	370	µg/L		WATER_DM(w)_TL
NONRAD	Inorganic Compound	Thallium	TL	WATER	Gray fox (water)	82	820	µg/L		WATER_RF(w)_TL
NONRAD	Inorganic Compound	Thallium	TL	WATER	Montane shrew (water)	31	310	µg/L		WATER_MS(w)_TL
NONRAD	Inorganic Compound	Thallium	TL	WATER	Mountain cottontail (water)	73	730	µg/L		WATER_DC(w)_TL
NONRAD	Inorganic Compound	Thallium	TL	WATER	Occult little brown myotis bat (water)	44	440	µg/L		WATER_BA(w)_TL
NONRAD	Inorganic Compound	Thallium	TL	WATER	Violet-green Swallow (water)	1400	14000	µg/L		WATER_VGS(w)_TL
NONRAD	Inorganic Compound	Titanium	TI	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	88	880	mg/kg	MINIMUM	SEDIMENT_BA(i)_TI
NONRAD	Inorganic Compound	Titanium	TI	SOIL	Deer mouse (Mammalian omnivore)	150	1500	mg/kg		SOIL_DM(ip)_TI
NONRAD	Inorganic Compound	Titanium	TI	SOIL	Gray fox (Mammalian top carnivore)	8600	86000	mg/kg		SOIL_RF(f)_TI
NONRAD	Inorganic Compound	Titanium	TI	SOIL	Montane shrew (Mammalian insectivore)	77	770	mg/kg	MINIMUM	SOIL_MS(i)_TI
NONRAD	Inorganic Compound	Titanium	TI	SOIL	Mountain cottontail (Mammalian herbivore)	2800	28000	mg/kg		SOIL_DC(p)_TI
NONRAD	Inorganic Compound	Titanium	TI	WATER	Deer mouse (water)	83000	830000	µg/L		WATER_DM(w)_TI
NONRAD	Inorganic Compound	Titanium	TI	WATER	Gray fox (water)	180000	1800000	µg/L		WATER_RF(w)_TI
NONRAD	Inorganic Compound	Titanium	TI	WATER	Montane shrew (water)	70000	700000	µg/L	MINIMUM	WATER_MS(w)_TI
NONRAD	Inorganic Compound	Titanium	TI	WATER	Mountain cottontail (water)	160000	1600000	µg/L		WATER_DC(w)_TI
NONRAD	Inorganic Compound	Titanium	TI	WATER	Occult little brown myotis bat (water)	99000	990000	µg/L		WATER_BA(w)_TI
NONRAD	Inorganic Compound	Uranium	U	SEDIMENT	Aquatic community organisms - sediment	100	1000	mg/kg	MINIMUM	SEDIMENT_AQ(s)_U
NONRAD	Inorganic Compound	Uranium	U	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1000	2500	mg/kg		SEDIMENT_BA(i)_U
NONRAD	Inorganic Compound	Uranium	U	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	8600	86000	mg/kg		SEDIMENT_VGS(i)_U
NONRAD	Inorganic Compound	Uranium	U	SOIL	American kestrel (Avian top carnivore)	26000	260000	mg/kg		SOIL_AK(f)_U
NONRAD	Inorganic Compound	Uranium	U	SOIL	American kestrel (insectivore / carnivore)	14000	140000	mg/kg		SOIL_AK(fi)_U
NONRAD	Inorganic Compound	Uranium	U	SOIL	American robin (Avian herbivore)	1500	15000	mg/kg		SOIL_AR(p)_U
NONRAD	Inorganic Compound	Uranium	U	SOIL	American robin (Avian insectivore)	1100	11000	mg/kg		SOIL_AR(i)_U
NONRAD	Inorganic Compound	Uranium	U	SOIL	American robin (Avian omnivore)	1200	12000	mg/kg		SOIL_AR(ip)_U
NONRAD	Inorganic Compound	Uranium	U	SOIL	Deer mouse (Mammalian omnivore)	740	1800	mg/kg		SOIL_DM(ip)_U
NONRAD	Inorganic Compound	Uranium	U	SOIL	Generic plant (Terrestrial autotroph - producer)	25	250	mg/kg	MINIMUM	SOIL_GP_U
NONRAD	Inorganic Compound	Uranium	U	SOIL	Gray fox (Mammalian top carnivore)	4800	12000	mg/kg		SOIL_RF(f)_U

NONRAD	Inorganic Compound	Uranium	U	SOIL	Montane shrew (Mammalian insectivore)	480	1200	mg/kg		SOIL_MS(i)_U
NONRAD	Inorganic Compound	Uranium	U	SOIL	Mountain cottontail (Mammalian herbivore)	1000	2600	mg/kg		SOIL_DC(p)_U
NONRAD	Inorganic Compound	Uranium	U	WATER	American kestrel (water)	650000	6500000	µg/L		WATER_AK(w)_U
NONRAD	Inorganic Compound	Uranium	U	WATER	American robin (water)	550000	5500000	µg/L		WATER_AR(w)_U
NONRAD	Inorganic Compound	Uranium	U	WATER	Aquatic community organisms - water	5	50	µg/L	MINIMUM	WATER_AQ(w)_U
NONRAD	Inorganic Compound	Uranium	U	WATER	Deer mouse (water)	32000	78000	µg/L		WATER_DM(w)_U
NONRAD	Inorganic Compound	Uranium	U	WATER	Gray fox (water)	70000	170000	µg/L		WATER_RF(w)_U
NONRAD	Inorganic Compound	Uranium	U	WATER	Montane shrew (water)	27000	67000	µg/L		WATER_MS(w)_U
NONRAD	Inorganic Compound	Uranium	U	WATER	Mountain cottontail (water)	62000	150000	µg/L		WATER_DC(w)_U
NONRAD	Inorganic Compound	Uranium	U	WATER	Occult little brown myotis bat (water)	38000	94000	µg/L		WATER_BA(w)_U
NONRAD	Inorganic Compound	Uranium	U	WATER	Violet-green Swallow (water)	320000	3200000	µg/L		WATER_VGS(w)_U
NONRAD	Inorganic Compound	Vanadium	V	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	550	1100	mg/kg		SEDIMENT_BA(i)_V
NONRAD	Inorganic Compound	Vanadium	V	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	29	59	mg/kg	MINIMUM	SEDIMENT_VGS(i)_V
NONRAD	Inorganic Compound	Vanadium	V	SOIL	American kestrel (Avian top carnivore)	110	230	mg/kg		SOIL_AK(f)_V
NONRAD	Inorganic Compound	Vanadium	V	SOIL	American kestrel (insectivore / carnivore)	56	110	mg/kg		SOIL_AK(fi)_V
NONRAD	Inorganic Compound	Vanadium	V	SOIL	American robin (Avian herbivore)	6.8	13	mg/kg		SOIL_AR(p)_V
NONRAD	Inorganic Compound	Vanadium	V	SOIL	American robin (Avian insectivore)	4.7	9.5	mg/kg	MINIMUM	SOIL_AR(i)_V
NONRAD	Inorganic Compound	Vanadium	V	SOIL	American robin (Avian omnivore)	5.5	11	mg/kg		SOIL_AR(ip)_V
NONRAD	Inorganic Compound	Vanadium	V	SOIL	Deer mouse (Mammalian omnivore)	470	1000	mg/kg		SOIL_DM(ip)_V
NONRAD	Inorganic Compound	Vanadium	V	SOIL	Generic plant (Terrestrial autotroph - producer)	60	80	mg/kg		SOIL_GP_V
NONRAD	Inorganic Compound	Vanadium	V	SOIL	Gray fox (Mammalian top carnivore)	3200	6900	mg/kg		SOIL_RF(f)_V
NONRAD	Inorganic Compound	Vanadium	V	SOIL	Montane shrew (Mammalian insectivore)	290	610	mg/kg		SOIL_MS(i)_V
NONRAD	Inorganic Compound	Vanadium	V	SOIL	Mountain cottontail (Mammalian herbivore)	740	1500	mg/kg		SOIL_DC(p)_V
NONRAD	Inorganic Compound	Vanadium	V	WATER	American kestrel (water)	9100	91000	µg/L		WATER_AK(w)_V
NONRAD	Inorganic Compound	Vanadium	V	WATER	American robin (water)	7800	78000	µg/L		WATER_AR(w)_V
NONRAD	Inorganic Compound	Vanadium	V	WATER	Aquatic community organisms - water	19	190	µg/L	MINIMUM	WATER_AQ(w)_V
NONRAD	Inorganic Compound	Vanadium	V	WATER	Deer mouse (water)	11000	22000	µg/L		WATER_DM(w)_V
NONRAD	Inorganic Compound	Vanadium	V	WATER	Gray fox (water)	24000	48000	µg/L		WATER_RF(w)_V
NONRAD	Inorganic Compound	Vanadium	V	WATER	Montane shrew (water)	9400	18000	µg/L		WATER_MS(w)_V
NONRAD	Inorganic Compound	Vanadium	V	WATER	Mountain cottontail (water)	21000	43000	µg/L		WATER_DC(w)_V
NONRAD	Inorganic Compound	Vanadium	V	WATER	Occult little brown myotis bat (water)	13000	26000	µg/L		WATER_BA(w)_V
NONRAD	Inorganic Compound	Vanadium	V	WATER	Violet-green Swallow (water)	4500	45000	µg/L		WATER_VGS(w)_V
NONRAD	Inorganic Compound	Zinc	ZN	SEDIMENT	Aquatic community organisms - sediment	120	450	mg/kg		SEDIMENT_AQ(s)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	110	1100	mg/kg		SEDIMENT_BA(i)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	63	630	mg/kg	MINIMUM	SEDIMENT_VGS(i)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	SOIL	American kestrel (Avian top carnivore)	2600	7000	mg/kg		SOIL_AK(f)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	SOIL	American kestrel (insectivore / carnivore)	220	590	mg/kg		SOIL_AK(fi)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	SOIL	American robin (Avian herbivore)	330	120	mg/kg		SOIL_AR(p)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	SOIL	American robin (Avian insectivore)	47	120	mg/kg	MINIMUM	SOIL_AR(i)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	SOIL	American robin (Avian omnivore)	83	220	mg/kg		SOIL_AR(ip)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	SOIL	Deer mouse (Mammalian omnivore)	170	1700	mg/kg		SOIL_DM(ip)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	SOIL	Earthworm (Soil-dwelling invertebrate)	120	930	mg/kg		SOIL_EW_ZN
NONRAD	Inorganic Compound	Zinc	ZN	SOIL	Generic plant (Terrestrial autotroph - producer)	160	810	mg/kg		SOIL_GP_ZN
NONRAD	Inorganic Compound	Zinc	ZN	SOIL	Gray fox (Mammalian top carnivore)	9600	94000	mg/kg		SOIL_RF(f)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	SOIL	Montane shrew (Mammalian insectivore)	99	980	mg/kg		SOIL_MS(i)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	SOIL	Mountain cottontail (Mammalian herbivore)	1800	18000	mg/kg		SOIL_DC(p)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	WATER	American kestrel (water)	1000000	10000000	µg/L		WATER_AK(w)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	WATER	American robin (water)	850000	8500000	µg/L		WATER_AR(w)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	WATER	Aquatic community organisms - water	65	85	µg/L	MINIMUM	WATER_AQ(w)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	WATER	Deer mouse (water)	660000	6600000	µg/L		WATER_DM(w)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	WATER	Gray fox (water)	1400000	14000000	µg/L		WATER_RF(w)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	WATER	Montane shrew (water)	560000	5600000	µg/L		WATER_MS(w)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	WATER	Mountain cottontail (water)	1200000	12000000	µg/L		WATER_DC(w)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	WATER	Occult little brown myotis bat (water)	790000	7900000	µg/L		WATER_BA(w)_ZN
NONRAD	Inorganic Compound	Zinc	ZN	WATER	Violet-green Swallow (water)	490000	4900000	µg/L		WATER_VGS(w)_ZN
NONRAD	Polyaromatic Hydrocarbon	Acenaphthene	83-32-9	SEDIMENT	Aquatic community organisms - sediment	0.076	0.76	mg/kg	MINIMUM	SEDIMENT_AQ(s)_83-32-9
NONRAD	Polyaromatic Hydrocarbon	Acenaphthene	83-32-9	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	140	1400	mg/kg		SEDIMENT_BA(i)_83-32-9
NONRAD	Polyaromatic Hydrocarbon	Acenaphthene	83-32-9	SOIL	Deer mouse (Mammalian omnivore)	160	1600	mg/kg		SOIL_DM(ip)_83-32-9
NONRAD	Polyaromatic Hydrocarbon	Acenaphthene	83-32-9	SOIL	Generic plant (Terrestrial autotroph - producer)	0.25	2	mg/kg	MINIMUM	SOIL_GP_83-32-9
NONRAD	Polyaromatic Hydrocarbon	Acenaphthene	83-32-9	SOIL	Gray fox (Mammalian top carnivore)	29000	290000	mg/kg		SOIL_RF(f)_83-32-9
NONRAD	Polyaromatic Hydrocarbon	Acenaphthene	83-32-9	SOIL	Montane shrew (Mammalian insectivore)	130	1300	mg/kg		SOIL_MS(i)_83-32-9
NONRAD	Polyaromatic Hydrocarbon	Acenaphthene	83-32-9	SOIL	Mountain cottontail (Mammalian herbivore)	530	5300	mg/kg		SOIL_DC(p)_83-32-9
NONRAD	Polyaromatic Hydrocarbon	Acenaphthene	83-32-9	WATER	Aquatic community organisms - water	5.8	58	µg/L	MINIMUM	WATER_AQ(w)_83-32-9
NONRAD	Polyaromatic Hydrocarbon	Acenaphthene	83-32-9	WATER	Deer mouse (water)	360000	3600000	µg/L		WATER_DM(w)_83-32-9
NONRAD	Polyaromatic Hydrocarbon	Acenaphthene	83-32-9	WATER	Gray fox (water)	810000	8100000	µg/L		WATER_RF(w)_83-32-9
NONRAD	Polyaromatic Hydrocarbon	Acenaphthene	83-32-9	WATER	Montane shrew (water)	310000	3100000	µg/L		WATER_MS(w)_83-32-9
NONRAD	Polyaromatic Hydrocarbon	Acenaphthene	83-32-9	WATER	Mountain cottontail (water)	720000	7200000	µg/L		WATER_DC(w)_83-32-9
NONRAD	Polyaromatic Hydrocarbon	Acenaphthene	83-32-9	WATER	Occult little brown myotis bat (water)	440000	4400000	µg/L		WATER_BA(w)_83-32-9
NONRAD	Polyaromatic Hydrocarbon	Acenaphthylene	208-96-8	SEDIMENT	Aquatic community organisms - sediment	0.076	0.76	mg/kg	MINIMUM	SEDIMENT_AQ(s)_208-96-8
NONRAD	Polyaromatic Hydrocarbon	Acenaphthylene	208-96-8	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	140	1400	mg/kg		SEDIMENT_BA(i)_208-96-8
NONRAD	Polyaromatic Hydrocarbon	Acenaphthylene	208-96-8	SOIL	Deer mouse (Mammalian omnivore)	160	1600	mg/kg		SOIL_DM(ip)_208-96-8
NONRAD	Polyaromatic Hydrocarbon	Acenaphthylene	208-96-8	SOIL	Gray fox (Mammalian top carnivore)	28000	280000	mg/kg		SOIL_RF(f)_208-96-8
NONRAD	Polyaromatic Hydrocarbon	Acenaphthylene	208-96-8	SOIL	Montane shrew (Mammalian insectivore)	120	1200	mg/kg	MINIMUM	SOIL_MS(i)_208-96-8

NONRAD	Polyaromatic Hydrocarbon	Acenaphthylene	208-96-8	SOIL	Mountain cottontail (Mammalian herbivore)	540	5400	mg/kg		SOIL_DC(p)_208-96-8
NONRAD	Polyaromatic Hydrocarbon	Acenaphthylene	208-96-8	WATER	Aquatic community organisms - water	4800	48000	µg/L	MINIMUM	WATER_AQ(w)_208-96-8
NONRAD	Polyaromatic Hydrocarbon	Acenaphthylene	208-96-8	WATER	Deer mouse (water)	360000	3600000	µg/L		WATER_DM(w)_208-96-8
NONRAD	Polyaromatic Hydrocarbon	Acenaphthylene	208-96-8	WATER	Gray fox (water)	810000	8100000	µg/L		WATER_RF(w)_208-96-8
NONRAD	Polyaromatic Hydrocarbon	Acenaphthylene	208-96-8	WATER	Montane shrew (water)	310000	3100000	µg/L		WATER_MS(w)_208-96-8
NONRAD	Polyaromatic Hydrocarbon	Acenaphthylene	208-96-8	WATER	Mountain cottontail (water)	720000	7200000	µg/L		WATER_DC(w)_208-96-8
NONRAD	Polyaromatic Hydrocarbon	Acenaphthylene	208-96-8	WATER	Occult little brown myotis bat (water)	440000	4400000	µg/L		WATER_BA(w)_208-96-8
NONRAD	Polyaromatic Hydrocarbon	Anthracene	120-12-7	SEDIMENT	Aquatic community organisms - sediment	0.057	0.57	mg/kg	MINIMUM	SEDIMENT_AQ(s)_120-12-7
NONRAD	Polyaromatic Hydrocarbon	Anthracene	120-12-7	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	240	2400	mg/kg		SEDIMENT_BA(i)_120-12-7
NONRAD	Polyaromatic Hydrocarbon	Anthracene	120-12-7	SOIL	Deer mouse (Mammalian omnivore)	300	3000	mg/kg		SOIL_DM(ip)_120-12-7
NONRAD	Polyaromatic Hydrocarbon	Anthracene	120-12-7	SOIL	Generic plant (Terrestrial autotroph - producer)	6.8	9	mg/kg	MINIMUM	SOIL_GP_120-12-7
NONRAD	Polyaromatic Hydrocarbon	Anthracene	120-12-7	SOIL	Gray fox (Mammalian top carnivore)	38000	380000	mg/kg		SOIL_RF(f)_120-12-7
NONRAD	Polyaromatic Hydrocarbon	Anthracene	120-12-7	SOIL	Montane shrew (Mammalian insectivore)	210	2100	mg/kg		SOIL_MS(i)_120-12-7
NONRAD	Polyaromatic Hydrocarbon	Anthracene	120-12-7	SOIL	Mountain cottontail (Mammalian herbivore)	1200	12000	mg/kg		SOIL_DC(p)_120-12-7
NONRAD	Polyaromatic Hydrocarbon	Anthracene	120-12-7	WATER	Aquatic community organisms - water	0.73	7.3	µg/L	MINIMUM	WATER_AQ(w)_120-12-7
NONRAD	Polyaromatic Hydrocarbon	Anthracene	120-12-7	WATER	Deer mouse (water)	520000	5200000	µg/L		WATER_DM(w)_120-12-7
NONRAD	Polyaromatic Hydrocarbon	Anthracene	120-12-7	WATER	Gray fox (water)	1100000	11000000	µg/L		WATER_RF(w)_120-12-7
NONRAD	Polyaromatic Hydrocarbon	Anthracene	120-12-7	WATER	Montane shrew (water)	440000	4400000	µg/L		WATER_MS(w)_120-12-7
NONRAD	Polyaromatic Hydrocarbon	Anthracene	120-12-7	WATER	Mountain cottontail (water)	1000000	10000000	µg/L		WATER_DC(w)_120-12-7
NONRAD	Polyaromatic Hydrocarbon	Anthracene	120-12-7	WATER	Occult little brown myotis bat (water)	620000	6200000	µg/L		WATER_BA(w)_120-12-7
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	SEDIMENT	Aquatic community organisms - sediment	0.1	1	mg/kg	MINIMUM	SEDIMENT_AQ(s)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	5.2	52	mg/kg		SEDIMENT_BA(i)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	2.1	21	mg/kg		SEDIMENT_VGS(i)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	SOIL	American kestrel (Avian top carnivore)	28	280	mg/kg		SOIL_AK(f)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	SOIL	American kestrel (insectivore / carnivore)	6.4	64	mg/kg		SOIL_AK(fi)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	SOIL	American robin (Avian herbivore)	0.73	7.3	mg/kg	MINIMUM	SOIL_AR(p)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	SOIL	American robin (Avian insectivore)	0.88	8.8	mg/kg		SOIL_AR(i)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	SOIL	American robin (Avian omnivore)	0.8	8	mg/kg		SOIL_AR(ip)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	SOIL	Deer mouse (Mammalian omnivore)	3.4	34	mg/kg		SOIL_DM(ip)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	SOIL	Generic plant (Terrestrial autotroph - producer)	18	180	mg/kg		SOIL_GP_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	SOIL	Gray fox (Mammalian top carnivore)	110	1100	mg/kg		SOIL_RF(f)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	SOIL	Montane shrew (Mammalian insectivore)	4	40	mg/kg		SOIL_MS(i)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	SOIL	Mountain cottontail (Mammalian herbivore)	6.1	61	mg/kg		SOIL_DC(p)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	WATER	Aquatic community organisms - water	0.027	0.27	µg/L	MINIMUM	WATER_AQ(w)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	WATER	Deer mouse (water)	890	8900	µg/L		WATER_DM(w)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	WATER	Gray fox (water)	1900	19000	µg/L		WATER_RF(w)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	WATER	Montane shrew (water)	760	7600	µg/L		WATER_MS(w)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	WATER	Mountain cottontail (water)	1700	17000	µg/L		WATER_DC(w)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)anthracene	56-55-3	WATER	Occult little brown myotis bat (water)	1000	10000	µg/L		WATER_BA(w)_56-55-3
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)pyrene	50-32-8	SEDIMENT	Aquatic community organisms - sediment	0.15	1.4	mg/kg	MINIMUM	SEDIMENT_AQ(s)_50-32-8
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)pyrene	50-32-8	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	74	230	mg/kg		SEDIMENT_BA(i)_50-32-8
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)pyrene	50-32-8	SOIL	Deer mouse (Mammalian omnivore)	84	260	mg/kg		SOIL_DM(ip)_50-32-8
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)pyrene	50-32-8	SOIL	Gray fox (Mammalian top carnivore)	3400	11000	mg/kg		SOIL_RF(f)_50-32-8
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)pyrene	50-32-8	SOIL	Montane shrew (Mammalian insectivore)	62	190	mg/kg	MINIMUM	SOIL_MS(i)_50-32-8
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)pyrene	50-32-8	SOIL	Mountain cottontail (Mammalian herbivore)	260	830	mg/kg		SOIL_DC(p)_50-32-8
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)pyrene	50-32-8	WATER	Aquatic community organisms - water	0.014	0.14	µg/L	MINIMUM	WATER_AQ(w)_50-32-8
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)pyrene	50-32-8	WATER	Deer mouse (water)	5200	52000	µg/L		WATER_DM(w)_50-32-8
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)pyrene	50-32-8	WATER	Gray fox (water)	11000	110000	µg/L		WATER_RF(w)_50-32-8
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)pyrene	50-32-8	WATER	Montane shrew (water)	4400	44000	µg/L		WATER_MS(w)_50-32-8
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)pyrene	50-32-8	WATER	Mountain cottontail (water)	10000	100000	µg/L		WATER_DC(w)_50-32-8
NONRAD	Polyaromatic Hydrocarbon	Benzo(a)pyrene	50-32-8	WATER	Occult little brown myotis bat (water)	6200	62000	µg/L		WATER_BA(w)_50-32-8
NONRAD	Polyaromatic Hydrocarbon	Benzo(b)fluoranthene	205-99-2	SEDIMENT	Aquatic community organisms - sediment	0.19	1.9	mg/kg	MINIMUM	SEDIMENT_AQ(s)_205-99-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(b)fluoranthene	205-99-2	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	53	530	mg/kg		SEDIMENT_BA(i)_205-99-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(b)fluoranthene	205-99-2	SOIL	Deer mouse (Mammalian omnivore)	51	510	mg/kg		SOIL_DM(ip)_205-99-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(b)fluoranthene	205-99-2	SOIL	Generic plant (Terrestrial autotroph - producer)	18	180	mg/kg	MINIMUM	SOIL_GP_205-99-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(b)fluoranthene	205-99-2	SOIL	Gray fox (Mammalian top carnivore)	2400	24000	mg/kg		SOIL_RF(f)_205-99-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(b)fluoranthene	205-99-2	SOIL	Montane shrew (Mammalian insectivore)	44	440	mg/kg		SOIL_MS(i)_205-99-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(b)fluoranthene	205-99-2	SOIL	Mountain cottontail (Mammalian herbivore)	130	1300	mg/kg		SOIL_DC(p)_205-99-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(b)fluoranthene	205-99-2	WATER	Aquatic community organisms - water	9	90	µg/L	MINIMUM	WATER_AQ(w)_205-99-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(b)fluoranthene	205-99-2	WATER	Deer mouse (water)	21000	210000	µg/L		WATER_DM(w)_205-99-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(b)fluoranthene	205-99-2	WATER	Gray fox (water)	46000	460000	µg/L		WATER_RF(w)_205-99-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(b)fluoranthene	205-99-2	WATER	Montane shrew (water)	17000	170000	µg/L		WATER_MS(w)_205-99-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(b)fluoranthene	205-99-2	WATER	Mountain cottontail (water)	41000	410000	µg/L		WATER_DC(w)_205-99-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(b)fluoranthene	205-99-2	WATER	Occult little brown myotis bat (water)	25000	250000	µg/L		WATER_BA(w)_205-99-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(g,h,i)perylene	191-24-2	SEDIMENT	Aquatic community organisms - sediment	0.17	1.7	mg/kg	MINIMUM	SEDIMENT_AQ(s)_191-24-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(g,h,i)perylene	191-24-2	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	29	290	mg/kg		SEDIMENT_BA(i)_191-24-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(g,h,i)perylene	191-24-2	SOIL	Deer mouse (Mammalian omnivore)	46	460	mg/kg		SOIL_DM(ip)_191-24-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(g,h,i)perylene	191-24-2	SOIL	Gray fox (Mammalian top carnivore)	3600	36000	mg/kg		SOIL_RF(f)_191-24-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(g,h,i)perylene	191-24-2	SOIL	Montane shrew (Mammalian insectivore)	25	250	mg/kg	MINIMUM	SOIL_MS(i)_191-24-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(g,h,i)perylene	191-24-2	SOIL	Mountain cottontail (Mammalian herbivore)	470	4700	mg/kg		SOIL_DC(p)_191-24-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(g,h,i)perylene	191-24-2	WATER	Aquatic community organisms - water	7.6	76	µg/L	MINIMUM	WATER_AQ(w)_191-24-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(g,h,i)perylene	191-24-2	WATER	Deer mouse (water)	37000	370000	µg/L		WATER_DM(w)_191-24-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(g,h,i)perylene	191-24-2	WATER	Gray fox (water)	83000	830000	µg/L		WATER_RF(w)_191-24-2

NONRAD	Polyaromatic Hydrocarbon	Benzo(g,h,i)perylene	191-24-2	WATER	Montane shrew (water)	32000	320000	µg/L		WATER_MS(w)_191-24-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(g,h,i)perylene	191-24-2	WATER	Mountain cottontail (water)	74000	740000	µg/L		WATER_DC(w)_191-24-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(g,h,i)perylene	191-24-2	WATER	Occult little brown myotis bat (water)	45000	450000	µg/L		WATER_BA(w)_191-24-2
NONRAD	Polyaromatic Hydrocarbon	Benzo(k)fluoranthene	207-08-9	SEDIMENT	Aquatic community organisms - sediment	0.24	2.4	mg/kg	MINIMUM	SEDIMENT_AQ(s)_207-08-9
NONRAD	Polyaromatic Hydrocarbon	Benzo(k)fluoranthene	207-08-9	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	83	830	mg/kg		SEDIMENT_BA(i)_207-08-9
NONRAD	Polyaromatic Hydrocarbon	Benzo(k)fluoranthene	207-08-9	SOIL	Deer mouse (Mammalian omnivore)	99	990	mg/kg		SOIL_DM(ip)_207-08-9
NONRAD	Polyaromatic Hydrocarbon	Benzo(k)fluoranthene	207-08-9	SOIL	Gray fox (Mammalian top carnivore)	4300	43000	mg/kg		SOIL_RF(f)_207-08-9
NONRAD	Polyaromatic Hydrocarbon	Benzo(k)fluoranthene	207-08-9	SOIL	Montane shrew (Mammalian insectivore)	71	710	mg/kg	MINIMUM	SOIL_MS(i)_207-08-9
NONRAD	Polyaromatic Hydrocarbon	Benzo(k)fluoranthene	207-08-9	SOIL	Mountain cottontail (Mammalian herbivore)	330	3300	mg/kg		SOIL_DC(p)_207-08-9
NONRAD	Polyaromatic Hydrocarbon	Benzo(k)fluoranthene	207-08-9	WATER	Aquatic community organisms - water	0.0041	0.041	µg/L	MINIMUM	WATER_AQ(w)_207-08-9
NONRAD	Polyaromatic Hydrocarbon	Benzo(k)fluoranthene	207-08-9	WATER	Deer mouse (water)	37000	370000	µg/L		WATER_DM(w)_207-08-9
NONRAD	Polyaromatic Hydrocarbon	Benzo(k)fluoranthene	207-08-9	WATER	Gray fox (water)	83000	830000	µg/L		WATER_RF(w)_207-08-9
NONRAD	Polyaromatic Hydrocarbon	Benzo(k)fluoranthene	207-08-9	WATER	Montane shrew (water)	32000	320000	µg/L		WATER_MS(w)_207-08-9
NONRAD	Polyaromatic Hydrocarbon	Benzo(k)fluoranthene	207-08-9	WATER	Mountain cottontail (water)	74000	740000	µg/L		WATER_DC(w)_207-08-9
NONRAD	Polyaromatic Hydrocarbon	Benzo(k)fluoranthene	207-08-9	WATER	Occult little brown myotis bat (water)	45000	450000	µg/L		WATER_BA(w)_207-08-9
NONRAD	Polyaromatic Hydrocarbon	Chrysene	218-01-9	SEDIMENT	Aquatic community organisms - sediment	0.16	1.2	mg/kg	MINIMUM	SEDIMENT_AQ(s)_218-01-9
NONRAD	Polyaromatic Hydrocarbon	Chrysene	218-01-9	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	3.9	39	mg/kg		SEDIMENT_BA(i)_218-01-9
NONRAD	Polyaromatic Hydrocarbon	Chrysene	218-01-9	SOIL	Deer mouse (Mammalian omnivore)	3.1	31	mg/kg		SOIL_DM(ip)_218-01-9
NONRAD	Polyaromatic Hydrocarbon	Chrysene	218-01-9	SOIL	Gray fox (Mammalian top carnivore)	110	1100	mg/kg		SOIL_RF(f)_218-01-9
NONRAD	Polyaromatic Hydrocarbon	Chrysene	218-01-9	SOIL	Montane shrew (Mammalian insectivore)	3.1	31	mg/kg	MINIMUM	SOIL_MS(i)_218-01-9
NONRAD	Polyaromatic Hydrocarbon	Chrysene	218-01-9	SOIL	Mountain cottontail (Mammalian herbivore)	6.3	63	mg/kg		SOIL_DC(p)_218-01-9
NONRAD	Polyaromatic Hydrocarbon	Chrysene	218-01-9	WATER	Aquatic community organisms - water	0.0018	0.018	µg/L	MINIMUM	WATER_AQ(w)_218-01-9
NONRAD	Polyaromatic Hydrocarbon	Chrysene	218-01-9	WATER	Deer mouse (water)	890	8900	µg/L		WATER_DM(w)_218-01-9
NONRAD	Polyaromatic Hydrocarbon	Chrysene	218-01-9	WATER	Gray fox (water)	1900	19000	µg/L		WATER_RF(w)_218-01-9
NONRAD	Polyaromatic Hydrocarbon	Chrysene	218-01-9	WATER	Montane shrew (water)	760	7600	µg/L		WATER_MS(w)_218-01-9
NONRAD	Polyaromatic Hydrocarbon	Chrysene	218-01-9	WATER	Mountain cottontail (water)	1700	17000	µg/L		WATER_DC(w)_218-01-9
NONRAD	Polyaromatic Hydrocarbon	Chrysene	218-01-9	WATER	Occult little brown myotis bat (water)	1000	10000	µg/L		WATER_BA(w)_218-01-9
NONRAD	Polyaromatic Hydrocarbon	Dibenzo(a,h)anthracene	53-70-3	SEDIMENT	Aquatic community organisms - sediment	0.033	0.33	mg/kg	MINIMUM	SEDIMENT_AQ(s)_53-70-3
NONRAD	Polyaromatic Hydrocarbon	Dibenzo(a,h)anthracene	53-70-3	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	17	170	mg/kg		SEDIMENT_BA(i)_53-70-3
NONRAD	Polyaromatic Hydrocarbon	Dibenzo(a,h)anthracene	53-70-3	SOIL	Deer mouse (Mammalian omnivore)	22	220	mg/kg		SOIL_DM(ip)_53-70-3
NONRAD	Polyaromatic Hydrocarbon	Dibenzo(a,h)anthracene	53-70-3	SOIL	Gray fox (Mammalian top carnivore)	850	8500	mg/kg		SOIL_RF(f)_53-70-3
NONRAD	Polyaromatic Hydrocarbon	Dibenzo(a,h)anthracene	53-70-3	SOIL	Montane shrew (Mammalian insectivore)	14	140	mg/kg	MINIMUM	SOIL_MS(i)_53-70-3
NONRAD	Polyaromatic Hydrocarbon	Dibenzo(a,h)anthracene	53-70-3	SOIL	Mountain cottontail (Mammalian herbivore)	84	840	mg/kg		SOIL_DC(p)_53-70-3
NONRAD	Polyaromatic Hydrocarbon	Dibenzo(a,h)anthracene	53-70-3	WATER	Aquatic community organisms - water	0.0034	0.034	µg/L	MINIMUM	WATER_AQ(w)_53-70-3
NONRAD	Polyaromatic Hydrocarbon	Dibenzo(a,h)anthracene	53-70-3	WATER	Deer mouse (water)	7000	70000	µg/L		WATER_DM(w)_53-70-3
NONRAD	Polyaromatic Hydrocarbon	Dibenzo(a,h)anthracene	53-70-3	WATER	Gray fox (water)	15000	150000	µg/L		WATER_RF(w)_53-70-3
NONRAD	Polyaromatic Hydrocarbon	Dibenzo(a,h)anthracene	53-70-3	WATER	Montane shrew (water)	5900	59000	µg/L		WATER_MS(w)_53-70-3
NONRAD	Polyaromatic Hydrocarbon	Dibenzo(a,h)anthracene	53-70-3	WATER	Mountain cottontail (water)	13000	130000	µg/L		WATER_DC(w)_53-70-3
NONRAD	Polyaromatic Hydrocarbon	Dibenzo(a,h)anthracene	53-70-3	WATER	Occult little brown myotis bat (water)	8300	83000	µg/L		WATER_BA(w)_53-70-3
NONRAD	Polyaromatic Hydrocarbon	Fluoranthene	206-44-0	SEDIMENT	Aquatic community organisms - sediment	0.42	2.2	mg/kg	MINIMUM	SEDIMENT_AQ(s)_206-44-0
NONRAD	Polyaromatic Hydrocarbon	Fluoranthene	206-44-0	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	25	250	mg/kg		SEDIMENT_BA(i)_206-44-0
NONRAD	Polyaromatic Hydrocarbon	Fluoranthene	206-44-0	SOIL	Deer mouse (Mammalian omnivore)	38	380	mg/kg		SOIL_DM(ip)_206-44-0
NONRAD	Polyaromatic Hydrocarbon	Fluoranthene	206-44-0	SOIL	Earthworm (Soil-dwelling invertebrate)	10	23	mg/kg	MINIMUM	SOIL_EW_206-44-0
NONRAD	Polyaromatic Hydrocarbon	Fluoranthene	206-44-0	SOIL	Gray fox (Mammalian top carnivore)	3900	39000	mg/kg		SOIL_RF(f)_206-44-0
NONRAD	Polyaromatic Hydrocarbon	Fluoranthene	206-44-0	SOIL	Montane shrew (Mammalian insectivore)	22	220	mg/kg		SOIL_MS(i)_206-44-0
NONRAD	Polyaromatic Hydrocarbon	Fluoranthene	206-44-0	SOIL	Mountain cottontail (Mammalian herbivore)	270	2700	mg/kg		SOIL_DC(p)_206-44-0
NONRAD	Polyaromatic Hydrocarbon	Fluoranthene	206-44-0	WATER	Aquatic community organisms - water	0.04	0.4	µg/L	MINIMUM	WATER_AQ(w)_206-44-0
NONRAD	Polyaromatic Hydrocarbon	Fluoranthene	206-44-0	WATER	Deer mouse (water)	65000	650000	µg/L		WATER_DM(w)_206-44-0
NONRAD	Polyaromatic Hydrocarbon	Fluoranthene	206-44-0	WATER	Gray fox (water)	140000	1400000	µg/L		WATER_RF(w)_206-44-0
NONRAD	Polyaromatic Hydrocarbon	Fluoranthene	206-44-0	WATER	Montane shrew (water)	56000	560000	µg/L		WATER_MS(w)_206-44-0
NONRAD	Polyaromatic Hydrocarbon	Fluoranthene	206-44-0	WATER	Mountain cottontail (water)	120000	1200000	µg/L		WATER_DC(w)_206-44-0
NONRAD	Polyaromatic Hydrocarbon	Fluoranthene	206-44-0	WATER	Occult little brown myotis bat (water)	78000	780000	µg/L		WATER_BA(w)_206-44-0
NONRAD	Polyaromatic Hydrocarbon	Fluorene	86-73-7	SEDIMENT	Aquatic community organisms - sediment	0.077	0.53	mg/kg	MINIMUM	SEDIMENT_AQ(s)_86-73-7
NONRAD	Polyaromatic Hydrocarbon	Fluorene	86-73-7	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	280	570	mg/kg		SEDIMENT_BA(i)_86-73-7
NONRAD	Polyaromatic Hydrocarbon	Fluorene	86-73-7	SOIL	Deer mouse (Mammalian omnivore)	340	680	mg/kg		SOIL_DM(ip)_86-73-7
NONRAD	Polyaromatic Hydrocarbon	Fluorene	86-73-7	SOIL	Earthworm (Soil-dwelling invertebrate)	3.7	19	mg/kg	MINIMUM	SOIL_EW_86-73-7
NONRAD	Polyaromatic Hydrocarbon	Fluorene	86-73-7	SOIL	Gray fox (Mammalian top carnivore)	50000	100000	mg/kg		SOIL_RF(f)_86-73-7
NONRAD	Polyaromatic Hydrocarbon	Fluorene	86-73-7	SOIL	Montane shrew (Mammalian insectivore)	250	510	mg/kg		SOIL_MS(i)_86-73-7
NONRAD	Polyaromatic Hydrocarbon	Fluorene	86-73-7	SOIL	Mountain cottontail (Mammalian herbivore)	1100	2300	mg/kg		SOIL_DC(p)_86-73-7
NONRAD	Polyaromatic Hydrocarbon	Fluorene	86-73-7	WATER	Aquatic community organisms - water	3.9	39	µg/L	MINIMUM	WATER_AQ(w)_86-73-7
NONRAD	Polyaromatic Hydrocarbon	Fluorene	86-73-7	WATER	Deer mouse (water)	650000	1300000	µg/L		WATER_DM(w)_86-73-7
NONRAD	Polyaromatic Hydrocarbon	Fluorene	86-73-7	WATER	Gray fox (water)	1400000	2900000	µg/L		WATER_RF(w)_86-73-7
NONRAD	Polyaromatic Hydrocarbon	Fluorene	86-73-7	WATER	Montane shrew (water)	560000	1100000	µg/L		WATER_MS(w)_86-73-7
NONRAD	Polyaromatic Hydrocarbon	Fluorene	86-73-7	WATER	Mountain cottontail (water)	1200000	2500000	µg/L		WATER_DC(w)_86-73-7
NONRAD	Polyaromatic Hydrocarbon	Fluorene	86-73-7	WATER	Occult little brown myotis bat (water)	780000	1500000	µg/L		WATER_BA(w)_86-73-7
NONRAD	Polyaromatic Hydrocarbon	Indeno(1,2,3-cd)pyrene	193-39-5	SEDIMENT	Aquatic community organisms - sediment	0.2	2	mg/kg	MINIMUM	SEDIMENT_AQ(s)_193-39-5
NONRAD	Polyaromatic Hydrocarbon	Indeno(1,2,3-cd)pyrene	193-39-5	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	83	830	mg/kg		SEDIMENT_BA(i)_193-39-5
NONRAD	Polyaromatic Hydrocarbon	Indeno(1,2,3-cd)pyrene	193-39-5	SOIL	Deer mouse (Mammalian omnivore)	110	1100	mg/kg		SOIL_DM(ip)_193-39-5
NONRAD	Polyaromatic Hydrocarbon	Indeno(1,2,3-cd)pyrene	193-39-5	SOIL	Gray fox (Mammalian top carnivore)	4600	46000	mg/kg		SOIL_RF(f)_193-39-5
NONRAD	Polyaromatic Hydrocarbon	Indeno(1,2,3-cd)pyrene	193-39-5	SOIL	Montane shrew (Mammalian insectivore)	71	710	mg/kg	MINIMUM	SOIL_MS(i)_193-39-5
NONRAD	Polyaromatic Hydrocarbon	Indeno(1,2,3-cd)pyrene	193-39-5	SOIL	Mountain cottontail (Mammalian herbivore)	510	5100	mg/kg		SOIL_DC(p)_193-39-5
NONRAD	Polyaromatic Hydrocarbon	Indeno(1,2,3-cd)pyrene	193-39-5	WATER	Aquatic community organisms - water	4.3	43	µg/L	MINIMUM	WATER_AQ(w)_193-39-5
NONRAD	Polyaromatic Hydrocarbon	Indeno(1,2,3-cd)pyrene	193-39-5	WATER	Deer mouse (water)	37000	370000	µg/L		WATER_DM(w)_193-39-5

NONRAD	Polyaromatic Hydrocarbon	Indeno(1,2,3-cd)pyrene	193-39-5	WATER	Gray fox (water)	83000	830000	µg/L		WATER_RF(w)_193-39-5
NONRAD	Polyaromatic Hydrocarbon	Indeno(1,2,3-cd)pyrene	193-39-5	WATER	Montane shrew (water)	32000	320000	µg/L		WATER_MS(w)_193-39-5
NONRAD	Polyaromatic Hydrocarbon	Indeno(1,2,3-cd)pyrene	193-39-5	WATER	Mountain cottontail (water)	74000	740000	µg/L		WATER_DC(w)_193-39-5
NONRAD	Polyaromatic Hydrocarbon	Indeno(1,2,3-cd)pyrene	193-39-5	WATER	Occult little brown myotis bat (water)	45000	450000	µg/L		WATER_BA(w)_193-39-5
NONRAD	Polyaromatic Hydrocarbon	Methylnaphthalene[2-]	91-57-6	SEDIMENT	Aquatic community organisms - sediment	0.076	0.76	mg/kg	MINIMUM	SEDIMENT_AQ(s)_91-57-6
NONRAD	Polyaromatic Hydrocarbon	Methylnaphthalene[2-]	91-57-6	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	18	180	mg/kg		SEDIMENT_BA(i)_91-57-6
NONRAD	Polyaromatic Hydrocarbon	Methylnaphthalene[2-]	91-57-6	SOIL	Deer mouse (Mammalian omnivore)	24	240	mg/kg		SOIL_DM(ip)_91-57-6
NONRAD	Polyaromatic Hydrocarbon	Methylnaphthalene[2-]	91-57-6	SOIL	Gray fox (Mammalian top carnivore)	4900	49000	mg/kg		SOIL_RF(f)_91-57-6
NONRAD	Polyaromatic Hydrocarbon	Methylnaphthalene[2-]	91-57-6	SOIL	Montane shrew (Mammalian insectivore)	16	160	mg/kg	MINIMUM	SOIL_MS(i)_91-57-6
NONRAD	Polyaromatic Hydrocarbon	Methylnaphthalene[2-]	91-57-6	SOIL	Mountain cottontail (Mammalian herbivore)	110	1100	mg/kg		SOIL_DC(p)_91-57-6
NONRAD	Polyaromatic Hydrocarbon	Methylnaphthalene[2-]	91-57-6	WATER	Aquatic community organisms - water	330	3300	µg/L	MINIMUM	WATER_AQ(w)_91-57-6
NONRAD	Polyaromatic Hydrocarbon	Methylnaphthalene[2-]	91-57-6	WATER	Deer mouse (water)	84000	840000	µg/L		WATER_DM(w)_91-57-6
NONRAD	Polyaromatic Hydrocarbon	Methylnaphthalene[2-]	91-57-6	WATER	Gray fox (water)	180000	1800000	µg/L		WATER_RF(w)_91-57-6
NONRAD	Polyaromatic Hydrocarbon	Methylnaphthalene[2-]	91-57-6	WATER	Montane shrew (water)	71000	710000	µg/L		WATER_MS(w)_91-57-6
NONRAD	Polyaromatic Hydrocarbon	Methylnaphthalene[2-]	91-57-6	WATER	Mountain cottontail (water)	160000	1600000	µg/L		WATER_DC(w)_91-57-6
NONRAD	Polyaromatic Hydrocarbon	Methylnaphthalene[2-]	91-57-6	WATER	Occult little brown myotis bat (water)	100000	1000000	µg/L		WATER_BA(w)_91-57-6
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	SEDIMENT	Aquatic community organisms - sediment	0.17	0.56	mg/kg	MINIMUM	SEDIMENT_AQ(s)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	31	89	mg/kg		SEDIMENT_BA(i)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	21	210	mg/kg		SEDIMENT_VGS(i)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	SOIL	American kestrel (Avian top carnivore)	2100	21000	mg/kg		SOIL_AK(f)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	SOIL	American kestrel (insectivore / carnivore)	78	780	mg/kg		SOIL_AK(fi)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	SOIL	American robin (Avian herbivore)	3.4	34	mg/kg		SOIL_AR(p)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	SOIL	American robin (Avian insectivore)	15	150	mg/kg		SOIL_AR(i)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	SOIL	American robin (Avian omnivore)	5.7	57	mg/kg		SOIL_AR(ip)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	SOIL	Deer mouse (Mammalian omnivore)	9.6	27	mg/kg		SOIL_DM(ip)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	SOIL	Generic plant (Terrestrial autotroph - producer)	1	10	mg/kg	MINIMUM	SOIL_GP_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	SOIL	Gray fox (Mammalian top carnivore)	5800	16000	mg/kg		SOIL_RF(f)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	SOIL	Montane shrew (Mammalian insectivore)	28	79	mg/kg		SOIL_MS(i)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	SOIL	Mountain cottontail (Mammalian herbivore)	14	40	mg/kg		SOIL_DC(p)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	WATER	American kestrel (water)	110	1100	µg/L		WATER_AK(w)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	WATER	American robin (water)	99	990	µg/L		WATER_AR(w)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	WATER	Aquatic community organisms - water	1.1	11	µg/L	MINIMUM	WATER_AQ(w)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	WATER	Deer mouse (water)	2600	26000	µg/L		WATER_DM(w)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	WATER	Gray fox (water)	5800	58000	µg/L		WATER_RF(w)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	WATER	Montane shrew (water)	2200	22000	µg/L		WATER_MS(w)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	WATER	Mountain cottontail (water)	5100	51000	µg/L		WATER_DC(w)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	WATER	Occult little brown myotis bat (water)	3100	31000	µg/L		WATER_BA(w)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Naphthalene	91-20-3	WATER	Violet-green Swallow (water)	57	570	µg/L		WATER_VGS(w)_91-20-3
NONRAD	Polyaromatic Hydrocarbon	Phenanthrene	85-01-8	SEDIMENT	Aquatic community organisms - sediment	0.2	1.1	mg/kg	MINIMUM	SEDIMENT_AQ(s)_85-01-8
NONRAD	Polyaromatic Hydrocarbon	Phenanthrene	85-01-8	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	12	120	mg/kg		SEDIMENT_BA(i)_85-01-8
NONRAD	Polyaromatic Hydrocarbon	Phenanthrene	85-01-8	SOIL	Deer mouse (Mammalian omnivore)	15	150	mg/kg		SOIL_DM(ip)_85-01-8
NONRAD	Polyaromatic Hydrocarbon	Phenanthrene	85-01-8	SOIL	Earthworm (Soil-dwelling invertebrate)	5.5	12	mg/kg	MINIMUM	SOIL_EW_85-01-8
NONRAD	Polyaromatic Hydrocarbon	Phenanthrene	85-01-8	SOIL	Gray fox (Mammalian top carnivore)	1900	19000	mg/kg		SOIL_RF(f)_85-01-8
NONRAD	Polyaromatic Hydrocarbon	Phenanthrene	85-01-8	SOIL	Montane shrew (Mammalian insectivore)	11	110	mg/kg		SOIL_MS(i)_85-01-8
NONRAD	Polyaromatic Hydrocarbon	Phenanthrene	85-01-8	SOIL	Mountain cottontail (Mammalian herbivore)	62	620	mg/kg		SOIL_DC(p)_85-01-8
NONRAD	Polyaromatic Hydrocarbon	Phenanthrene	85-01-8	WATER	Aquatic community organisms - water	6.3	30	µg/L	MINIMUM	WATER_AQ(w)_85-01-8
NONRAD	Polyaromatic Hydrocarbon	Phenanthrene	85-01-8	WATER	Deer mouse (water)	27000	270000	µg/L		WATER_DM(w)_85-01-8
NONRAD	Polyaromatic Hydrocarbon	Phenanthrene	85-01-8	WATER	Gray fox (water)	59000	590000	µg/L		WATER_RF(w)_85-01-8
NONRAD	Polyaromatic Hydrocarbon	Phenanthrene	85-01-8	WATER	Montane shrew (water)	23000	230000	µg/L		WATER_MS(w)_85-01-8
NONRAD	Polyaromatic Hydrocarbon	Phenanthrene	85-01-8	WATER	Mountain cottontail (water)	52000	520000	µg/L		WATER_DC(w)_85-01-8
NONRAD	Polyaromatic Hydrocarbon	Phenanthrene	85-01-8	WATER	Occult little brown myotis bat (water)	32000	320000	µg/L		WATER_BA(w)_85-01-8
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	SEDIMENT	Aquatic community organisms - sediment	0.19	1.5	mg/kg	MINIMUM	SEDIMENT_AQ(s)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	26	260	mg/kg		SEDIMENT_BA(i)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	46	460	mg/kg		SEDIMENT_VGS(i)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	SOIL	American kestrel (Avian top carnivore)	3000	30000	mg/kg		SOIL_AK(f)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	SOIL	American kestrel (insectivore / carnivore)	160	1600	mg/kg		SOIL_AK(fi)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	SOIL	American robin (Avian herbivore)	68	680	mg/kg		SOIL_AR(p)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	SOIL	American robin (Avian insectivore)	33	330	mg/kg		SOIL_AR(i)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	SOIL	American robin (Avian omnivore)	44	440	mg/kg		SOIL_AR(ip)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	SOIL	Deer mouse (Mammalian omnivore)	31	310	mg/kg		SOIL_DM(ip)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	SOIL	Earthworm (Soil-dwelling invertebrate)	10	20	mg/kg	MINIMUM	SOIL_EW_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	SOIL	Gray fox (Mammalian top carnivore)	3100	31000	mg/kg		SOIL_RF(f)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	SOIL	Montane shrew (Mammalian insectivore)	23	230	mg/kg		SOIL_MS(i)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	SOIL	Mountain cottontail (Mammalian herbivore)	110	1100	mg/kg		SOIL_DC(p)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	WATER	Aquatic community organisms - water	0.025	0.25	µg/L	MINIMUM	WATER_AQ(w)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	WATER	Deer mouse (water)	39000	390000	µg/L		WATER_DM(w)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	WATER	Gray fox (water)	87000	870000	µg/L		WATER_RF(w)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	WATER	Montane shrew (water)	33000	330000	µg/L		WATER_MS(w)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	WATER	Mountain cottontail (water)	77000	770000	µg/L		WATER_DC(w)_129-00-0
NONRAD	Polyaromatic Hydrocarbon	Pyrene	129-00-0	WATER	Occult little brown myotis bat (water)	47000	470000	µg/L		WATER_BA(w)_129-00-0
NONRAD	Polychlorinated Biphenyl	Aroclor-1016	12674-11-2	SEDIMENT	Aquatic community organisms - sediment	0.059	0.59	mg/kg	MINIMUM	SEDIMENT_AQ(s)_12674-11-2
NONRAD	Polychlorinated Biphenyl	Aroclor-1016	12674-11-2	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1.2	3.4	mg/kg		SEDIMENT_BA(i)_12674-11-2
NONRAD	Polychlorinated Biphenyl	Aroclor-1016	12674-11-2	SOIL	Deer mouse (Mammalian omnivore)	2	5.9	mg/kg		SOIL_DM(ip)_12674-11-2

NONRAD	Polychlorinated Biphenyl	Aroclor-1016	12674-11-2	SOIL	Gray fox (Mammalian top carnivore)	250	720	mg/kg		SOIL_RF(f)_12674-11-2
NONRAD	Polychlorinated Biphenyl	Aroclor-1016	12674-11-2	SOIL	Montane shrew (Mammalian insectivore)	1.1	3.1	mg/kg	MINIMUM	SOIL_MS(i)_12674-11-2
NONRAD	Polychlorinated Biphenyl	Aroclor-1016	12674-11-2	SOIL	Mountain cottontail (Mammalian herbivore)	48	130	mg/kg		SOIL_DC(p)_12674-11-2
NONRAD	Polychlorinated Biphenyl	Aroclor-1016	12674-11-2	WATER	Aquatic community organisms - water	0.014	0.14	µg/L	MINIMUM	WATER_AQ(w)_12674-11-2
NONRAD	Polychlorinated Biphenyl	Aroclor-1016	12674-11-2	WATER	Deer mouse (water)	180	1800	µg/L		WATER_DM(w)_12674-11-2
NONRAD	Polychlorinated Biphenyl	Aroclor-1016	12674-11-2	WATER	Gray fox (water)	400	4000	µg/L		WATER_RF(w)_12674-11-2
NONRAD	Polychlorinated Biphenyl	Aroclor-1016	12674-11-2	WATER	Montane shrew (water)	150	1500	µg/L		WATER_MS(w)_12674-11-2
NONRAD	Polychlorinated Biphenyl	Aroclor-1016	12674-11-2	WATER	Mountain cottontail (water)	360	3600	µg/L		WATER_DC(w)_12674-11-2
NONRAD	Polychlorinated Biphenyl	Aroclor-1016	12674-11-2	WATER	Occult little brown myotis bat (water)	220	2200	µg/L		WATER_BA(w)_12674-11-2
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	SEDIMENT	Aquatic community organisms - sediment	0.059	0.59	mg/kg		SEDIMENT_AQ(s)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.43	1.7	mg/kg		SEDIMENT_BA(i)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.053	0.53	mg/kg	MINIMUM	SEDIMENT_VGS(i)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	SOIL	American kestrel (Avian top carnivore)	6.2	62	mg/kg		SOIL_AK(f)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	SOIL	American kestrel (insectivore / carnivore)	0.19	1.9	mg/kg		SOIL_AK(fi)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	SOIL	American robin (Avian herbivore)	0.92	9.2	mg/kg		SOIL_AR(p)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	SOIL	American robin (Avian insectivore)	0.041	0.41	mg/kg	MINIMUM	SOIL_AR(i)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	SOIL	American robin (Avian omnivore)	0.078	0.78	mg/kg		SOIL_AR(ip)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	SOIL	Deer mouse (Mammalian omnivore)	0.75	3	mg/kg		SOIL_DM(ip)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	SOIL	Gray fox (Mammalian top carnivore)	100	400	mg/kg		SOIL_RF(f)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	SOIL	Montane shrew (Mammalian insectivore)	0.39	1.5	mg/kg		SOIL_MS(i)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	SOIL	Mountain cottontail (Mammalian herbivore)	27	110	mg/kg		SOIL_DC(p)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	WATER	American kestrel (water)	830	8300	µg/L		WATER_AK(w)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	WATER	American robin (water)	710	7100	µg/L		WATER_AR(w)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	WATER	Aquatic community organisms - water	0.014	0.14	µg/L	MINIMUM	WATER_AQ(w)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	WATER	Deer mouse (water)	490	4900	µg/L		WATER_DM(w)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	WATER	Gray fox (water)	1000	10000	µg/L		WATER_RF(w)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	WATER	Montane shrew (water)	420	4200	µg/L		WATER_MS(w)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	WATER	Mountain cottontail (water)	960	9600	µg/L		WATER_DC(w)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	WATER	Occult little brown myotis bat (water)	590	5900	µg/L		WATER_BA(w)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1242	53469-21-9	WATER	Violet-green Swallow (water)	410	4100	µg/L		WATER_VGS(w)_53469-21-9
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	SEDIMENT	Aquatic community organisms - sediment	0.059	0.59	mg/kg		SEDIMENT_AQ(s)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.0081	0.081	mg/kg	MINIMUM	SEDIMENT_BA(i)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.053	0.53	mg/kg		SEDIMENT_VGS(i)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	SOIL	American kestrel (Avian top carnivore)	6.3	63	mg/kg		SOIL_AK(f)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	SOIL	American kestrel (insectivore / carnivore)	0.19	1.9	mg/kg		SOIL_AK(fi)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	SOIL	American robin (Avian herbivore)	0.94	9.4	mg/kg		SOIL_AR(p)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	SOIL	American robin (Avian insectivore)	0.041	0.41	mg/kg		SOIL_AR(i)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	SOIL	American robin (Avian omnivore)	0.078	0.78	mg/kg		SOIL_AR(ip)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	SOIL	Deer mouse (Mammalian omnivore)	0.014	0.14	mg/kg		SOIL_DM(ip)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	SOIL	Gray fox (Mammalian top carnivore)	1.9	19	mg/kg		SOIL_RF(f)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	SOIL	Montane shrew (Mammalian insectivore)	0.0073	0.073	mg/kg	MINIMUM	SOIL_MS(i)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	SOIL	Mountain cottontail (Mammalian herbivore)	0.53	5.3	mg/kg		SOIL_DC(p)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	WATER	American kestrel (water)	830	8300	µg/L		WATER_AK(w)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	WATER	American robin (water)	710	7100	µg/L		WATER_AR(w)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	WATER	Aquatic community organisms - water	0.014	0.14	µg/L	MINIMUM	WATER_AQ(w)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	WATER	Deer mouse (water)	52	520	µg/L		WATER_DM(w)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	WATER	Gray fox (water)	110	1100	µg/L		WATER_RF(w)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	WATER	Montane shrew (water)	44	440	µg/L		WATER_MS(w)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	WATER	Mountain cottontail (water)	100	1000	µg/L		WATER_DC(w)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	WATER	Occult little brown myotis bat (water)	62	620	µg/L		WATER_BA(w)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1248	12672-29-6	WATER	Violet-green Swallow (water)	410	4100	µg/L		WATER_VGS(w)_12672-29-6
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	SEDIMENT	Aquatic community organisms - sediment	0.06	0.34	mg/kg		SEDIMENT_AQ(s)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.5	2.7	mg/kg		SEDIMENT_BA(i)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.053	0.53	mg/kg	MINIMUM	SEDIMENT_VGS(i)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	SOIL	American kestrel (Avian top carnivore)	7.6	76	mg/kg		SOIL_AK(f)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	SOIL	American kestrel (insectivore / carnivore)	0.19	1.9	mg/kg		SOIL_AK(fi)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	SOIL	American robin (Avian herbivore)	1.1	11	mg/kg		SOIL_AR(p)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	SOIL	American robin (Avian insectivore)	0.041	0.41	mg/kg	MINIMUM	SOIL_AR(i)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	SOIL	American robin (Avian omnivore)	0.079	0.79	mg/kg		SOIL_AR(ip)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	SOIL	Deer mouse (Mammalian omnivore)	0.87	4.8	mg/kg		SOIL_DM(ip)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	SOIL	Generic plant (Terrestrial autotroph - producer)	160	620	mg/kg		SOIL_GP_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	SOIL	Gray fox (Mammalian top carnivore)	7.2	72	mg/kg		SOIL_RF(f)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	SOIL	Montane shrew (Mammalian insectivore)	0.45	2.4	mg/kg		SOIL_MS(i)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	SOIL	Mountain cottontail (Mammalian herbivore)	44	240	mg/kg		SOIL_DC(p)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	WATER	American kestrel (water)	830	8300	µg/L		WATER_AK(w)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	WATER	American robin (water)	710	7100	µg/L		WATER_AR(w)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	WATER	Aquatic community organisms - water	0.014	0.14	µg/L	MINIMUM	WATER_AQ(w)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	WATER	Deer mouse (water)	160	1600	µg/L		WATER_DM(w)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	WATER	Gray fox (water)	360	3600	µg/L		WATER_RF(w)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	WATER	Montane shrew (water)	130	1300	µg/L		WATER_MS(w)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	WATER	Mountain cottontail (water)	310	3100	µg/L		WATER_DC(w)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	WATER	Occult little brown myotis bat (water)	190	1900	µg/L		WATER_BA(w)_11097-69-1
NONRAD	Polychlorinated Biphenyl	Aroclor-1254	11097-69-1	WATER	Violet-green Swallow (water)	410	4100	µg/L		WATER_VGS(w)_11097-69-1

NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	SEDIMENT	Aquatic community organisms - sediment	0.059	0.59	mg/kg	MINIMUM	SEDIMENT_AQ(s)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	11	27	mg/kg		SEDIMENT_BA(i)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	1.1	1.6	mg/kg		SEDIMENT_VGS(i)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	SOIL	American kestrel (Avian top carnivore)	400	560	mg/kg		SOIL_AK(f)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	SOIL	American kestrel (insectivore / carnivore)	4.2	5.9	mg/kg		SOIL_AK(fi)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	SOIL	American robin (Avian herbivore)	37	52	mg/kg		SOIL_AR(p)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	SOIL	American robin (Avian insectivore)	0.88	1.2	mg/kg	MINIMUM	SOIL_AR(i)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	SOIL	American robin (Avian omnivore)	1.7	2.4	mg/kg		SOIL_AR(ip)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	SOIL	Deer mouse (Mammalian omnivore)	20	48	mg/kg		SOIL_DM(ip)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	SOIL	Gray fox (Mammalian top carnivore)	15	150	mg/kg		SOIL_RF(f)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	SOIL	Montane shrew (Mammalian insectivore)	10	24	mg/kg		SOIL_MS(i)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	SOIL	Mountain cottontail (Mammalian herbivore)	1800	4500	mg/kg		SOIL_DC(p)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	WATER	American kestrel (water)	8900	89000	µg/L		WATER_AK(w)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	WATER	American robin (water)	7600	76000	µg/L		WATER_AR(w)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	WATER	Aquatic community organisms - water	0.014	0.14	µg/L	MINIMUM	WATER_AQ(w)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	WATER	Deer mouse (water)	160	1600	µg/L		WATER_DM(w)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	WATER	Gray fox (water)	360	3600	µg/L		WATER_RF(w)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	WATER	Montane shrew (water)	130	1300	µg/L		WATER_MS(w)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	WATER	Mountain cottontail (water)	310	3100	µg/L		WATER_DC(w)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	WATER	Occult little brown myotis bat (water)	190	1900	µg/L		WATER_BA(w)_11096-82-5
NONRAD	Polychlorinated Biphenyl	Aroclor-1260	11096-82-5	WATER	Violet-green Swallow (water)	4400	44000	µg/L		WATER_VGS(w)_11096-82-5
NONRAD	Pesticide	Aldrin	309-00-2	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.042	0.21	mg/kg	MINIMUM	SEDIMENT_BA(i)_309-00-2
NONRAD	Pesticide	Aldrin	309-00-2	SOIL	Deer mouse (Mammalian omnivore)	0.074	0.37	mg/kg		SOIL_DM(ip)_309-00-2
NONRAD	Pesticide	Aldrin	309-00-2	SOIL	Gray fox (Mammalian top carnivore)	13	66	mg/kg		SOIL_RF(f)_309-00-2
NONRAD	Pesticide	Aldrin	309-00-2	SOIL	Montane shrew (Mammalian insectivore)	0.037	0.18	mg/kg	MINIMUM	SOIL_MS(i)_309-00-2
NONRAD	Pesticide	Aldrin	309-00-2	SOIL	Mountain cottontail (Mammalian herbivore)	12	60	mg/kg		SOIL_DC(p)_309-00-2
NONRAD	Pesticide	BHC[alpha-]	319-84-6	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	66	660	mg/kg	MINIMUM	SEDIMENT_BA(i)_319-84-6
NONRAD	Pesticide	BHC[alpha-]	319-84-6	SOIL	Deer mouse (Mammalian omnivore)	100	1000	mg/kg		SOIL_DM(ip)_319-84-6
NONRAD	Pesticide	BHC[alpha-]	319-84-6	SOIL	Gray fox (Mammalian top carnivore)	18000	180000	mg/kg		SOIL_RF(f)_319-84-6
NONRAD	Pesticide	BHC[alpha-]	319-84-6	SOIL	Montane shrew (Mammalian insectivore)	59	590	mg/kg	MINIMUM	SOIL_MS(i)_319-84-6
NONRAD	Pesticide	BHC[alpha-]	319-84-6	SOIL	Mountain cottontail (Mammalian herbivore)	800	8000	mg/kg		SOIL_DC(p)_319-84-6
NONRAD	Pesticide	BHC[beta-]	319-85-7	SEDIMENT	Aquatic community organisms - sediment	0.005	0.05	mg/kg	MINIMUM	SEDIMENT_AQ(s)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.3	1.5	mg/kg		SEDIMENT_BA(i)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	18	180	mg/kg		SEDIMENT_VGS(i)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	SOIL	American kestrel (Avian top carnivore)	2600	26000	mg/kg		SOIL_AK(f)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	SOIL	American kestrel (insectivore / carnivore)	69	690	mg/kg		SOIL_AK(fi)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	SOIL	American robin (Avian herbivore)	78	780	mg/kg		SOIL_AR(p)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	SOIL	American robin (Avian insectivore)	14	140	mg/kg		SOIL_AR(i)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	SOIL	American robin (Avian omnivore)	24	240	mg/kg		SOIL_AR(ip)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	SOIL	Deer mouse (Mammalian omnivore)	0.46	2.3	mg/kg		SOIL_DM(ip)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	SOIL	Gray fox (Mammalian top carnivore)	83	410	mg/kg		SOIL_RF(f)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	SOIL	Montane shrew (Mammalian insectivore)	0.27	1.3	mg/kg	MINIMUM	SOIL_MS(i)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	SOIL	Mountain cottontail (Mammalian herbivore)	3.7	18	mg/kg		SOIL_DC(p)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	WATER	American kestrel (water)	310000	3100000	µg/L		WATER_AK(w)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	WATER	American robin (water)	270000	2700000	µg/L		WATER_AR(w)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	WATER	Aquatic community organisms - water	2.2	22	µg/L	MINIMUM	WATER_AQ(w)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	WATER	Deer mouse (water)	2100	10000	µg/L		WATER_DM(w)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	WATER	Gray fox (water)	4600	23000	µg/L		WATER_RF(w)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	WATER	Montane shrew (water)	1700	8900	µg/L		WATER_MS(w)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	WATER	Mountain cottontail (water)	4100	20000	µg/L		WATER_DC(w)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	WATER	Occult little brown myotis bat (water)	2500	12000	µg/L		WATER_BA(w)_319-85-7
NONRAD	Pesticide	BHC[beta-]	319-85-7	WATER	Violet-green Swallow (water)	150000	1500000	µg/L		WATER_VGS(w)_319-85-7
NONRAD	Pesticide	BHC[gamma-]	58-89-9	SEDIMENT	Aquatic community organisms - sediment	0.0023	0.0049	mg/kg	MINIMUM	SEDIMENT_AQ(s)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.01	0.1	mg/kg		SEDIMENT_BA(i)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.27	1.1	mg/kg		SEDIMENT_VGS(i)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	SOIL	American kestrel (Avian top carnivore)	38	150	mg/kg		SOIL_AK(f)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	SOIL	American kestrel (insectivore / carnivore)	1	4	mg/kg		SOIL_AK(fi)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	SOIL	American robin (Avian herbivore)	1.1	4.5	mg/kg		SOIL_AR(p)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	SOIL	American robin (Avian insectivore)	0.21	0.85	mg/kg		SOIL_AR(i)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	SOIL	American robin (Avian omnivore)	0.35	1.4	mg/kg		SOIL_AR(ip)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	SOIL	Deer mouse (Mammalian omnivore)	0.016	0.16	mg/kg		SOIL_DM(ip)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	SOIL	Generic plant (Terrestrial autotroph - producer)	0.1	1	mg/kg		SOIL_GP_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	SOIL	Gray fox (Mammalian top carnivore)	2.9	29	mg/kg		SOIL_RF(f)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	SOIL	Montane shrew (Mammalian insectivore)	0.0095	0.095	mg/kg	MINIMUM	SOIL_MS(i)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	SOIL	Mountain cottontail (Mammalian herbivore)	0.12	1.2	mg/kg		SOIL_DC(p)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	WATER	American kestrel (water)	4600	18000	µg/L		WATER_AK(w)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	WATER	American robin (water)	4000	16000	µg/L		WATER_AR(w)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	WATER	Aquatic community organisms - water	0.095	0.95	µg/L	MINIMUM	WATER_AQ(w)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	WATER	Deer mouse (water)	73	730	µg/L		WATER_DM(w)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	WATER	Gray fox (water)	160	1600	µg/L		WATER_RF(w)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	WATER	Montane shrew (water)	62	620	µg/L		WATER_MS(w)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	WATER	Mountain cottontail (water)	140	1400	µg/L		WATER_DC(w)_58-89-9
NONRAD	Pesticide	BHC[gamma-]	58-89-9	WATER	Occult little brown myotis bat (water)	88	880	µg/L		WATER_BA(w)_58-89-9

NONRAD	Pesticide	BHC[gamma-]	58-89-9	WATER	Violet-green Swallow (water)	2300	9200	µg/L		WATER_VGS(w)_58-89-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	SEDIMENT	Aquatic community organisms - sediment	0.0032	0.017	mg/kg	MINIMUM	SEDIMENT_AQ(s)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.3	3	mg/kg		SEDIMENT_BA(i)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.35	1.7	mg/kg		SEDIMENT_VGS(i)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	SOIL	American kestrel (Avian top carnivore)	45	220	mg/kg		SOIL_AK(f)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	SOIL	American kestrel (insectivore / carnivore)	1.3	6.5	mg/kg		SOIL_AK(fi)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	SOIL	American robin (Avian herbivore)	17	89	mg/kg		SOIL_AR(p)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	SOIL	American robin (Avian insectivore)	0.27	1.3	mg/kg	MINIMUM	SOIL_AR(i)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	SOIL	American robin (Avian omnivore)	0.55	2.7	mg/kg		SOIL_AR(ip)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	SOIL	Deer mouse (Mammalian omnivore)	0.53	5.3	mg/kg		SOIL_DM(ip)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	SOIL	Generic plant (Terrestrial autotroph - producer)	2.2	22	mg/kg		SOIL_GP_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	SOIL	Gray fox (Mammalian top carnivore)	80	810	mg/kg		SOIL_RF(f)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	SOIL	Montane shrew (Mammalian insectivore)	0.27	2.7	mg/kg	MINIMUM	SOIL_MS(i)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	SOIL	Mountain cottontail (Mammalian herbivore)	54	540	mg/kg		SOIL_DC(p)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	WATER	American kestrel (water)	17000	89000	µg/L		WATER_AK(w)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	WATER	American robin (water)	15000	76000	µg/L		WATER_AR(w)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	WATER	Aquatic community organisms - water	0.0043	0.043	µg/L	MINIMUM	WATER_AQ(w)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	WATER	Deer mouse (water)	6100	62000	µg/L		WATER_DM(w)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	WATER	Gray fox (water)	13000	130000	µg/L		WATER_RF(w)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	WATER	Montane shrew (water)	5200	52000	µg/L		WATER_MS(w)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	WATER	Mountain cottontail (water)	12000	120000	µg/L		WATER_DC(w)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	WATER	Occult little brown myotis bat (water)	7300	74000	µg/L		WATER_BA(w)_5103-71-9
NONRAD	Pesticide	Chlordane[alpha-]	5103-71-9	WATER	Violet-green Swallow (water)	8800	44000	µg/L		WATER_VGS(w)_5103-71-9
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	SEDIMENT	Aquatic community organisms - sediment	0.0032	0.017	mg/kg	MINIMUM	SEDIMENT_AQ(s)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	2.6	26	mg/kg		SEDIMENT_BA(i)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	3.1	15	mg/kg		SEDIMENT_VGS(i)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	SOIL	American kestrel (Avian top carnivore)	270	1300	mg/kg		SOIL_AK(f)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	SOIL	American kestrel (insectivore / carnivore)	11	56	mg/kg		SOIL_AK(fi)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	SOIL	American robin (Avian herbivore)	20	100	mg/kg		SOIL_AR(p)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	SOIL	American robin (Avian insectivore)	2.2	11	mg/kg		SOIL_AR(i)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	SOIL	American robin (Avian omnivore)	4.1	20	mg/kg		SOIL_AR(ip)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	SOIL	Deer mouse (Mammalian omnivore)	4.3	43	mg/kg		SOIL_DM(ip)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	SOIL	Generic plant (Terrestrial autotroph - producer)	2.2	22	mg/kg	MINIMUM	SOIL_GP_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	SOIL	Gray fox (Mammalian top carnivore)	420	4200	mg/kg		SOIL_RF(f)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	SOIL	Montane shrew (Mammalian insectivore)	2.3	23	mg/kg	MINIMUM	SOIL_MS(i)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	SOIL	Mountain cottontail (Mammalian herbivore)	63	630	mg/kg		SOIL_DC(p)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	WATER	American kestrel (water)	17000	89000	µg/L		WATER_AK(w)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	WATER	American robin (water)	15000	76000	µg/L		WATER_AR(w)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	WATER	Aquatic community organisms - water	0.0043	0.043	µg/L	MINIMUM	WATER_AQ(w)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	WATER	Deer mouse (water)	6100	62000	µg/L		WATER_DM(w)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	WATER	Gray fox (water)	13000	130000	µg/L		WATER_RF(w)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	WATER	Montane shrew (water)	5200	52000	µg/L		WATER_MS(w)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	WATER	Mountain cottontail (water)	12000	120000	µg/L		WATER_DC(w)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	WATER	Occult little brown myotis bat (water)	7300	74000	µg/L		WATER_BA(w)_5103-74-2
NONRAD	Pesticide	Chlordane[gamma-]	5103-74-2	WATER	Violet-green Swallow (water)	8800	44000	µg/L		WATER_VGS(w)_5103-74-2
NONRAD	Pesticide	DDD[4,4'-]	72-54-8	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	4.6	9.2	mg/kg		SEDIMENT_BA(i)_72-54-8
NONRAD	Pesticide	DDD[4,4'-]	72-54-8	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.0082	0.042	mg/kg	MINIMUM	SEDIMENT_VGS(i)_72-54-8
NONRAD	Pesticide	DDD[4,4'-]	72-54-8	SOIL	American kestrel (Avian top carnivore)	0.9	4.6	mg/kg		SOIL_AK(f)_72-54-8
NONRAD	Pesticide	DDD[4,4'-]	72-54-8	SOIL	American kestrel (insectivore / carnivore)	0.03	0.15	mg/kg		SOIL_AK(fi)_72-54-8
NONRAD	Pesticide	DDD[4,4'-]	72-54-8	SOIL	American robin (Avian herbivore)	0.12	0.66	mg/kg		SOIL_AR(p)_72-54-8
NONRAD	Pesticide	DDD[4,4'-]	72-54-8	SOIL	American robin (Avian insectivore)	0.0063	0.032	mg/kg	MINIMUM	SOIL_AR(i)_72-54-8
NONRAD	Pesticide	DDD[4,4'-]	72-54-8	SOIL	American robin (Avian omnivore)	0.012	0.062	mg/kg		SOIL_AR(ip)_72-54-8
NONRAD	Pesticide	DDD[4,4'-]	72-54-8	SOIL	Deer mouse (Mammalian omnivore)	7.9	15	mg/kg		SOIL_DM(ip)_72-54-8
NONRAD	Pesticide	DDD[4,4'-]	72-54-8	SOIL	Gray fox (Mammalian top carnivore)	1000	2000	mg/kg		SOIL_RF(f)_72-54-8
NONRAD	Pesticide	DDD[4,4'-]	72-54-8	SOIL	Montane shrew (Mammalian insectivore)	4.1	8.3	mg/kg		SOIL_MS(i)_72-54-8
NONRAD	Pesticide	DDD[4,4'-]	72-54-8	SOIL	Mountain cottontail (Mammalian herbivore)	250	510	mg/kg		SOIL_DC(p)_72-54-8
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	SEDIMENT	Aquatic community organisms - sediment	0.0031	0.031	mg/kg	MINIMUM	SEDIMENT_AQ(s)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	4.1	10	mg/kg		SEDIMENT_BA(i)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.14	0.71	mg/kg		SEDIMENT_VGS(i)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	SOIL	American kestrel (Avian top carnivore)	20	100	mg/kg		SOIL_AK(f)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	SOIL	American kestrel (insectivore / carnivore)	0.52	2.6	mg/kg		SOIL_AK(fi)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	SOIL	American robin (Avian herbivore)	4.9	24	mg/kg		SOIL_AR(p)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	SOIL	American robin (Avian insectivore)	0.11	0.55	mg/kg	MINIMUM	SOIL_AR(i)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	SOIL	American robin (Avian omnivore)	0.21	1	mg/kg		SOIL_AR(ip)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	SOIL	Deer mouse (Mammalian omnivore)	7.2	18	mg/kg		SOIL_DM(ip)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	SOIL	Gray fox (Mammalian top carnivore)	1100	2900	mg/kg		SOIL_RF(f)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	SOIL	Montane shrew (Mammalian insectivore)	3.7	9.3	mg/kg		SOIL_MS(i)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	SOIL	Mountain cottontail (Mammalian herbivore)	540	1300	mg/kg		SOIL_DC(p)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	WATER	American kestrel (water)	1000	10000	µg/L		WATER_AK(w)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	WATER	American robin (water)	920	9200	µg/L		WATER_AR(w)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	WATER	Aquatic community organisms - water	100	1000	µg/L	MINIMUM	WATER_AQ(w)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	WATER	Deer mouse (water)	52000	520000	µg/L		WATER_DM(w)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	WATER	Gray fox (water)	110000	1100000	µg/L		WATER_RF(w)_72-55-9

NONRAD	Pesticide	DDE[4,4'-]	72-55-9	WATER	Montane shrew (water)	44000	440000	µg/L		WATER_MS(w)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	WATER	Mountain cottontail (water)	100000	1000000	µg/L		WATER_DC(w)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	WATER	Occult little brown myotis bat (water)	62000	620000	µg/L		WATER_BA(w)_72-55-9
NONRAD	Pesticide	DDE[4,4'-]	72-55-9	WATER	Violet-green Swallow (water)	530	5300	µg/L		WATER_VGS(w)_72-55-9
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	SEDIMENT	Aquatic community organisms - sediment	0.0041	0.041	mg/kg	MINIMUM	SEDIMENT_AQ(s)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.049	0.24	mg/kg		SEDIMENT_BA(i)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.47	1.3	mg/kg		SEDIMENT_VGS(i)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	SOIL	American kestrel (Avian top carnivore)	83	240	mg/kg		SOIL_AK(f)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	SOIL	American kestrel (insectivore / carnivore)	1.7	5.1	mg/kg		SOIL_AK(fi)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	SOIL	American robin (Avian herbivore)	24	72	mg/kg		SOIL_AR(p)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	SOIL	American robin (Avian insectivore)	0.36	1	mg/kg		SOIL_AR(i)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	SOIL	American robin (Avian omnivore)	0.71	2.1	mg/kg		SOIL_AR(ip)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	SOIL	Deer mouse (Mammalian omnivore)	0.088	0.44	mg/kg		SOIL_DM(ip)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	SOIL	Generic plant (Terrestrial autotroph - producer)	4.1	6	mg/kg		SOIL_GP_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	SOIL	Gray fox (Mammalian top carnivore)	18	91	mg/kg		SOIL_RF(f)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	SOIL	Montane shrew (Mammalian insectivore)	0.044	0.22	mg/kg	MINIMUM	SOIL_MS(i)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	SOIL	Mountain cottontail (Mammalian herbivore)	10	53	mg/kg		SOIL_DC(p)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	WATER	American kestrel (water)	2000	20000	µg/L		WATER_AK(w)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	WATER	American robin (water)	1700	17000	µg/L		WATER_AR(w)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	WATER	Aquatic community organisms - water	0.001	0.01	µg/L	MINIMUM	WATER_AQ(w)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	WATER	Deer mouse (water)	8400	84000	µg/L		WATER_DM(w)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	WATER	Gray fox (water)	18000	180000	µg/L		WATER_RF(w)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	WATER	Montane shrew (water)	7100	71000	µg/L		WATER_MS(w)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	WATER	Mountain cottontail (water)	16000	160000	µg/L		WATER_DC(w)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	WATER	Occult little brown myotis bat (water)	10000	100000	µg/L		WATER_BA(w)_50-29-3
NONRAD	Pesticide	DDT[4,4'-]	50-29-3	WATER	Violet-green Swallow (water)	990	9900	µg/L		WATER_VGS(w)_50-29-3
NONRAD	Pesticide	Dieldrin	60-57-1	SEDIMENT	Aquatic community organisms - sediment	0.0019	0.019	mg/kg	MINIMUM	SEDIMENT_AQ(s)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.005	0.01	mg/kg		SEDIMENT_BA(i)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.015	0.82	mg/kg		SEDIMENT_VGS(i)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	SOIL	American kestrel (Avian top carnivore)	1.7	93	mg/kg		SOIL_AK(f)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	SOIL	American kestrel (insectivore / carnivore)	0.056	3	mg/kg		SOIL_AK(fi)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	SOIL	American robin (Avian herbivore)	0.33	17	mg/kg		SOIL_AR(p)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	SOIL	American robin (Avian insectivore)	0.012	0.64	mg/kg		SOIL_AR(i)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	SOIL	American robin (Avian omnivore)	0.023	1.2	mg/kg		SOIL_AR(ip)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	SOIL	Deer mouse (Mammalian omnivore)	0.0087	0.017	mg/kg		SOIL_DM(ip)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	SOIL	Generic plant (Terrestrial autotroph - producer)	10	100	mg/kg		SOIL_GP_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	SOIL	Gray fox (Mammalian top carnivore)	1.1	2.3	mg/kg		SOIL_RF(f)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	SOIL	Montane shrew (Mammalian insectivore)	0.0045	0.009	mg/kg	MINIMUM	SOIL_MS(i)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	SOIL	Mountain cottontail (Mammalian herbivore)	0.34	0.69	mg/kg		SOIL_DC(p)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	WATER	American kestrel (water)	640	6400	µg/L		WATER_AK(w)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	WATER	American robin (water)	550	5500	µg/L		WATER_AR(w)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	WATER	Aquatic community organisms - water	0.056	0.24	µg/L	MINIMUM	WATER_AQ(w)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	WATER	Deer mouse (water)	100	1000	µg/L		WATER_DM(w)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	WATER	Gray fox (water)	230	2300	µg/L		WATER_RF(w)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	WATER	Montane shrew (water)	89	890	µg/L		WATER_MS(w)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	WATER	Mountain cottontail (water)	200	2000	µg/L		WATER_DC(w)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	WATER	Occult little brown myotis bat (water)	120	1200	µg/L		WATER_BA(w)_60-57-1
NONRAD	Pesticide	Dieldrin	60-57-1	WATER	Violet-green Swallow (water)	310	3100	µg/L		WATER_VGS(w)_60-57-1
NONRAD	Pesticide	Endosulfan	115-29-7	SEDIMENT	Aquatic community organisms - sediment	0.00001	0.0001	mg/kg	MINIMUM	SEDIMENT_AQ(s)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1.3	13	mg/kg		SEDIMENT_BA(i)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	60	600	mg/kg		SEDIMENT_VGS(i)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	SOIL	American kestrel (Avian top carnivore)	2500	25000	mg/kg		SOIL_AK(f)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	SOIL	American kestrel (insectivore / carnivore)	200	2000	mg/kg		SOIL_AK(fi)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	SOIL	American robin (Avian herbivore)	15	150	mg/kg		SOIL_AR(p)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	SOIL	American robin (Avian insectivore)	37	370	mg/kg		SOIL_AR(i)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	SOIL	American robin (Avian omnivore)	21	210	mg/kg		SOIL_AR(ip)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	SOIL	Deer mouse (Mammalian omnivore)	0.64	6.4	mg/kg	MINIMUM	SOIL_DM(ip)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	SOIL	Gray fox (Mammalian top carnivore)	95	950	mg/kg		SOIL_RF(f)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	SOIL	Montane shrew (Mammalian insectivore)	1.1	11	mg/kg		SOIL_MS(i)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	SOIL	Mountain cottontail (Mammalian herbivore)	1	10	mg/kg		SOIL_DC(p)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	WATER	American kestrel (water)	83000	830000	µg/L		WATER_AK(w)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	WATER	American robin (water)	71000	710000	µg/L		WATER_AR(w)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	WATER	Aquatic community organisms - water	0.056	0.22	µg/L	MINIMUM	WATER_AQ(w)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	WATER	Deer mouse (water)	780	7800	µg/L		WATER_DM(w)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	WATER	Gray fox (water)	1700	17000	µg/L		WATER_RF(w)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	WATER	Montane shrew (water)	670	6700	µg/L		WATER_MS(w)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	WATER	Mountain cottontail (water)	1500	15000	µg/L		WATER_DC(w)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	WATER	Occult little brown myotis bat (water)	940	9400	µg/L		WATER_BA(w)_115-29-7
NONRAD	Pesticide	Endosulfan	115-29-7	WATER	Violet-green Swallow (water)	41000	410000	µg/L		WATER_VGS(w)_115-29-7
NONRAD	Pesticide	Endrin	72-20-8	SEDIMENT	Aquatic community organisms - sediment	0.0022	0.022	mg/kg		SEDIMENT_AQ(s)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.026	0.26	mg/kg		SEDIMENT_BA(i)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.0018	0.018	mg/kg	MINIMUM	SEDIMENT_VGS(i)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	SOIL	American kestrel (Avian top carnivore)	0.21	2.1	mg/kg		SOIL_AK(f)_72-20-8

NONRAD	Pesticide	Endrin	72-20-8	SOIL	American kestrel (insectivore / carnivore)	0.0068	0.068	mg/kg		SOIL_AK(fi)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	SOIL	American robin (Avian herbivore)	0.046	0.46	mg/kg		SOIL_AR(p)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	SOIL	American robin (Avian insectivore)	0.0014	0.014	mg/kg	MINIMUM	SOIL_AR(i)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	SOIL	American robin (Avian omnivore)	0.0028	0.028	mg/kg		SOIL_AR(ip)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	SOIL	Deer mouse (Mammalian omnivore)	0.045	0.45	mg/kg		SOIL_DM(ip)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	SOIL	Generic plant (Terrestrial autotroph - producer)	0.0034	0.034	mg/kg		SOIL_GP_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	SOIL	Gray fox (Mammalian top carnivore)	6.3	63	mg/kg		SOIL_RF(f)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	SOIL	Montane shrew (Mammalian insectivore)	0.023	0.23	mg/kg		SOIL_MS(i)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	SOIL	Mountain cottontail (Mammalian herbivore)	2.1	21	mg/kg		SOIL_DC(p)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	WATER	American kestrel (water)	83	830	µg/L		WATER_AK(w)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	WATER	American robin (water)	71	710	µg/L		WATER_AR(w)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	WATER	Aquatic community organisms - water	0.036	0.086	µg/L	MINIMUM	WATER_AQ(w)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	WATER	Deer mouse (water)	480	4800	µg/L		WATER_DM(w)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	WATER	Gray fox (water)	1000	10000	µg/L		WATER_RF(w)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	WATER	Montane shrew (water)	410	4100	µg/L		WATER_MS(w)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	WATER	Mountain cottontail (water)	940	9400	µg/L		WATER_DC(w)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	WATER	Occult little brown myotis bat (water)	570	5700	µg/L		WATER_BA(w)_72-20-8
NONRAD	Pesticide	Endrin	72-20-8	WATER	Violet-green Swallow (water)	41	410	µg/L		WATER_VGS(w)_72-20-8
NONRAD	Pesticide	Heptachlor	76-44-8	SEDIMENT	Aquatic community organisms - sediment	0.0024	0.016	mg/kg	MINIMUM	SEDIMENT_AQ(s)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.066	0.66	mg/kg		SEDIMENT_BA(i)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.39	3.9	mg/kg		SEDIMENT_VGS(i)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	SOIL	American kestrel (Avian top carnivore)	45	450	mg/kg		SOIL_AK(f)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	SOIL	American kestrel (insectivore / carnivore)	1.4	14	mg/kg		SOIL_AK(fi)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	SOIL	American robin (Avian herbivore)	7.7	77	mg/kg		SOIL_AR(p)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	SOIL	American robin (Avian insectivore)	0.3	3	mg/kg		SOIL_AR(i)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	SOIL	American robin (Avian omnivore)	0.59	5.9	mg/kg		SOIL_AR(ip)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	SOIL	Deer mouse (Mammalian omnivore)	0.11	1.1	mg/kg		SOIL_DM(ip)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	SOIL	Generic plant (Terrestrial autotroph - producer)	0.4	4	mg/kg		SOIL_GP_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	SOIL	Gray fox (Mammalian top carnivore)	15	150	mg/kg		SOIL_RF(f)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	SOIL	Montane shrew (Mammalian insectivore)	0.059	0.59	mg/kg	MINIMUM	SOIL_MS(i)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	SOIL	Mountain cottontail (Mammalian herbivore)	4.6	46	mg/kg		SOIL_DC(p)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	WATER	American kestrel (water)	7600	76000	µg/L		WATER_AK(w)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	WATER	American robin (water)	6500	65000	µg/L		WATER_AR(w)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	WATER	Aquatic community organisms - water	0.0038	0.038	µg/L	MINIMUM	WATER_AQ(w)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	WATER	Deer mouse (water)	520	5200	µg/L		WATER_DM(w)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	WATER	Gray fox (water)	1100	11000	µg/L		WATER_RF(w)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	WATER	Montane shrew (water)	440	4400	µg/L		WATER_MS(w)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	WATER	Mountain cottontail (water)	1000	10000	µg/L		WATER_DC(w)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	WATER	Occult little brown myotis bat (water)	620	6200	µg/L		WATER_BA(w)_76-44-8
NONRAD	Pesticide	Heptachlor	76-44-8	WATER	Violet-green Swallow (water)	3800	38000	µg/L		WATER_VGS(w)_76-44-8
NONRAD	Pesticide	Kepone	143-50-0	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.024	0.12	mg/kg	MINIMUM	SEDIMENT_BA(i)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	1.6	3.3	mg/kg		SEDIMENT_VGS(i)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	SOIL	American kestrel (Avian top carnivore)	190	380	mg/kg		SOIL_AK(f)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	SOIL	American kestrel (insectivore / carnivore)	6.1	12	mg/kg		SOIL_AK(fi)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	SOIL	American robin (Avian herbivore)	46	92	mg/kg		SOIL_AR(p)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	SOIL	American robin (Avian insectivore)	1.3	2.6	mg/kg		SOIL_AR(i)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	SOIL	American robin (Avian omnivore)	2.5	5.1	mg/kg		SOIL_AR(ip)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	SOIL	Deer mouse (Mammalian omnivore)	0.042	0.21	mg/kg		SOIL_DM(ip)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	SOIL	Gray fox (Mammalian top carnivore)	5.8	29	mg/kg		SOIL_RF(f)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	SOIL	Montane shrew (Mammalian insectivore)	0.022	0.11	mg/kg	MINIMUM	SOIL_MS(i)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	SOIL	Mountain cottontail (Mammalian herbivore)	2.1	10	mg/kg		SOIL_DC(p)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	WATER	American kestrel (water)	70000	140000	µg/L		WATER_AK(w)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	WATER	American robin (water)	60000	120000	µg/L		WATER_AR(w)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	WATER	Deer mouse (water)	420	2100	µg/L		WATER_DM(w)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	WATER	Gray fox (water)	930	4600	µg/L		WATER_RF(w)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	WATER	Montane shrew (water)	350	1700	µg/L	MINIMUM	WATER_MS(w)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	WATER	Mountain cottontail (water)	820	4100	µg/L		WATER_DC(w)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	WATER	Occult little brown myotis bat (water)	500	2500	µg/L		WATER_BA(w)_143-50-0
NONRAD	Pesticide	Kepone	143-50-0	WATER	Violet-green Swallow (water)	35000	70000	µg/L		WATER_VGS(w)_143-50-0
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	SEDIMENT	Aquatic community organisms - sediment	0.03	0.3	mg/kg	MINIMUM	SEDIMENT_AQ(s)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	5.7	11	mg/kg		SEDIMENT_BA(i)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	24	240	mg/kg		SEDIMENT_VGS(i)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	SOIL	American kestrel (Avian top carnivore)	2100	21000	mg/kg		SOIL_AK(f)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	SOIL	American kestrel (insectivore / carnivore)	87	880	mg/kg		SOIL_AK(fi)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	SOIL	American robin (Avian herbivore)	110	1100	mg/kg		SOIL_AR(p)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	SOIL	American robin (Avian insectivore)	18	180	mg/kg		SOIL_AR(i)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	SOIL	American robin (Avian omnivore)	31	310	mg/kg		SOIL_AR(ip)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	SOIL	Deer mouse (Mammalian omnivore)	9	18	mg/kg		SOIL_DM(ip)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	SOIL	Gray fox (Mammalian top carnivore)	1000	2000	mg/kg		SOIL_RF(f)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	SOIL	Montane shrew (Mammalian insectivore)	5.1	10	mg/kg	MINIMUM	SOIL_MS(i)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	SOIL	Mountain cottontail (Mammalian herbivore)	83	160	mg/kg		SOIL_DC(p)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	WATER	American kestrel (water)	210000	2100000	µg/L		WATER_AK(w)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	WATER	American robin (water)	180000	1800000	µg/L		WATER_AR(w)_72-43-5

NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	WATER	Aquatic community organisms - water	0.03	0.3	µg/L	MINIMUM	WATER_AQ(w)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	WATER	Deer mouse (water)	21000	42000	µg/L		WATER_DM(w)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	WATER	Gray fox (water)	46000	93000	µg/L		WATER_RF(w)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	WATER	Montane shrew (water)	17000	35000	µg/L		WATER_MS(w)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	WATER	Mountain cottontail (water)	41000	82000	µg/L		WATER_DC(w)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	WATER	Occult little brown myotis bat (water)	25000	50000	µg/L		WATER_BA(w)_72-43-5
NONRAD	Pesticide	Methoxychlor[4,4'-]	72-43-5	WATER	Violet-green Swallow (water)	100000	1000000	µg/L		WATER_VGS(w)_72-43-5
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	SEDIMENT	Aquatic community organisms - sediment	0.0001	0.001	mg/kg	MINIMUM	SEDIMENT_AQ(s)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	6.6	66	mg/kg		SEDIMENT_BA(i)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	5.4	54	mg/kg		SEDIMENT_VGS(i)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	SOIL	American kestrel (Avian top carnivore)	550	5500	mg/kg		SOIL_AK(f)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	SOIL	American kestrel (insectivore / carnivore)	19	190	mg/kg		SOIL_AK(fi)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	SOIL	American robin (Avian herbivore)	69	690	mg/kg		SOIL_AR(p)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	SOIL	American robin (Avian insectivore)	4.1	41	mg/kg	MINIMUM	SOIL_AR(i)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	SOIL	American robin (Avian omnivore)	7.8	78	mg/kg		SOIL_AR(ip)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	SOIL	Deer mouse (Mammalian omnivore)	11	110	mg/kg		SOIL_DM(ip)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	SOIL	Gray fox (Mammalian top carnivore)	1300	13000	mg/kg		SOIL_RF(f)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	SOIL	Montane shrew (Mammalian insectivore)	5.9	59	mg/kg		SOIL_MS(i)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	SOIL	Mountain cottontail (Mammalian herbivore)	290	2900	mg/kg		SOIL_DC(p)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	WATER	American kestrel (water)	83000	830000	µg/L		WATER_AK(w)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	WATER	American robin (water)	71000	710000	µg/L		WATER_AR(w)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	WATER	Aquatic community organisms - water	0.0002	0.002	µg/L	MINIMUM	WATER_AQ(w)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	WATER	Deer mouse (water)	42000	420000	µg/L		WATER_DM(w)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	WATER	Gray fox (water)	93000	930000	µg/L		WATER_RF(w)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	WATER	Montane shrew (water)	35000	350000	µg/L		WATER_MS(w)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	WATER	Mountain cottontail (water)	82000	820000	µg/L		WATER_DC(w)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	WATER	Occult little brown myotis bat (water)	50000	500000	µg/L		WATER_BA(w)_8001-35-2
NONRAD	Pesticide	Toxaphene (Technical Grade)	8001-35-2	WATER	Violet-green Swallow (water)	41000	410000	µg/L		WATER_VGS(w)_8001-35-2
NONRAD	Semivolatile Organic compound	Benzoic Acid	65-85-0	SEDIMENT	Aquatic community organisms - sediment			mg/kg		SEDIMENT_AQ(s)_65-85-0
NONRAD	Semivolatile Organic compound	Benzoic Acid	65-85-0	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1.2	12	mg/kg	MINIMUM	SEDIMENT_BA(i)_65-85-0
NONRAD	Semivolatile Organic compound	Benzoic Acid	65-85-0	SOIL	Deer mouse (Mammalian omnivore)	1.3	13	mg/kg		SOIL_DM(ip)_65-85-0
NONRAD	Semivolatile Organic compound	Benzoic Acid	65-85-0	SOIL	Gray fox (Mammalian top carnivore)	2000	20000	mg/kg		SOIL_RF(f)_65-85-0
NONRAD	Semivolatile Organic compound	Benzoic Acid	65-85-0	SOIL	Montane shrew (Mammalian insectivore)	1	10	mg/kg	MINIMUM	SOIL_MS(i)_65-85-0
NONRAD	Semivolatile Organic compound	Benzoic Acid	65-85-0	SOIL	Mountain cottontail (Mammalian herbivore)	4.6	46	mg/kg		SOIL_DC(p)_65-85-0
NONRAD	Semivolatile Organic compound	Benzoic Acid	65-85-0	WATER	Aquatic community organisms - water	42	420	µg/L	MINIMUM	WATER_AQ(w)_65-85-0
NONRAD	Semivolatile Organic compound	Benzoic Acid	65-85-0	WATER	Deer mouse (water)	21000	210000	µg/L		WATER_DM(w)_65-85-0
NONRAD	Semivolatile Organic compound	Benzoic Acid	65-85-0	WATER	Gray fox (water)	46000	460000	µg/L		WATER_RF(w)_65-85-0
NONRAD	Semivolatile Organic compound	Benzoic Acid	65-85-0	WATER	Montane shrew (water)	17000	170000	µg/L		WATER_MS(w)_65-85-0
NONRAD	Semivolatile Organic compound	Benzoic Acid	65-85-0	WATER	Mountain cottontail (water)	41000	410000	µg/L		WATER_DC(w)_65-85-0
NONRAD	Semivolatile Organic compound	Benzoic Acid	65-85-0	WATER	Occult little brown myotis bat (water)	25000	250000	µg/L		WATER_BA(w)_65-85-0
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.66	6.6	mg/kg		SEDIMENT_BA(i)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.026	0.26	mg/kg	MINIMUM	SEDIMENT_VGS(i)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	SOIL	American kestrel (Avian top carnivore)	9.3	93	mg/kg		SOIL_AK(f)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	SOIL	American kestrel (insectivore / carnivore)	0.096	0.96	mg/kg		SOIL_AK(fi)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	SOIL	American robin (Avian herbivore)	16	160	mg/kg		SOIL_AR(p)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	SOIL	American robin (Avian insectivore)	0.02	0.2	mg/kg	MINIMUM	SOIL_AR(i)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	SOIL	American robin (Avian omnivore)	0.04	0.4	mg/kg		SOIL_AR(ip)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	SOIL	Deer mouse (Mammalian omnivore)	1.1	11	mg/kg		SOIL_DM(ip)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	SOIL	Gray fox (Mammalian top carnivore)	500	5000	mg/kg		SOIL_RF(f)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	SOIL	Montane shrew (Mammalian insectivore)	0.6	6	mg/kg		SOIL_MS(i)_117-81-7

NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	SOIL	Mountain cottontail (Mammalian herbivore)	1900	19000	mg/kg		SOIL_DC(p)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	WATER	American kestrel (water)	9100	91000	µg/L		WATER_AK(w)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	WATER	American robin (water)	7800	78000	µg/L		WATER_AR(w)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	WATER	Aquatic community organisms - water	32	320	µg/L	MINIMUM	WATER_AQ(w)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	WATER	Deer mouse (water)	96000	960000	µg/L		WATER_DM(w)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	WATER	Gray fox (water)	210000	2100000	µg/L		WATER_RF(w)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	WATER	Montane shrew (water)	82000	820000	µg/L		WATER_MS(w)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	WATER	Mountain cottontail (water)	180000	1800000	µg/L		WATER_DC(w)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	WATER	Occult little brown myotis bat (water)	110000	1100000	µg/L		WATER_BA(w)_117-81-7
NONRAD	Semivolatile Organic compound	Bis(2-ethylhexyl)phthalate	117-81-7	WATER	Violet-green Swallow (water)	4500	45000	µg/L		WATER_VGS(w)_117-81-7
NONRAD	Semivolatile Organic compound	Butyl Benzyl Phthalate	85-68-7	SEDIMENT	Aquatic community organisms - sediment	0.1	1	mg/kg	MINIMUM	SEDIMENT_AQ(s)_85-68-7
NONRAD	Semivolatile Organic compound	Butyl Benzyl Phthalate	85-68-7	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	100	1000	mg/kg		SEDIMENT_BA(i)_85-68-7
NONRAD	Semivolatile Organic compound	Butyl Benzyl Phthalate	85-68-7	SOIL	Deer mouse (Mammalian omnivore)	160	1600	mg/kg		SOIL_DM(ip)_85-68-7
NONRAD	Semivolatile Organic compound	Butyl Benzyl Phthalate	85-68-7	SOIL	Gray fox (Mammalian top carnivore)	23000	230000	mg/kg		SOIL_RF(f)_85-68-7
NONRAD	Semivolatile Organic compound	Butyl Benzyl Phthalate	85-68-7	SOIL	Montane shrew (Mammalian insectivore)	90	900	mg/kg	MINIMUM	SOIL_MS(i)_85-68-7
NONRAD	Semivolatile Organic compound	Butyl Benzyl Phthalate	85-68-7	SOIL	Mountain cottontail (Mammalian herbivore)	2400	24000	mg/kg		SOIL_DC(p)_85-68-7
NONRAD	Semivolatile Organic compound	Butyl Benzyl Phthalate	85-68-7	WATER	Aquatic community organisms - water	19	190	µg/L	MINIMUM	WATER_AQ(w)_85-68-7
NONRAD	Semivolatile Organic compound	Butyl Benzyl Phthalate	85-68-7	WATER	Deer mouse (water)	830000	8300000	µg/L		WATER_DM(w)_85-68-7
NONRAD	Semivolatile Organic compound	Butyl Benzyl Phthalate	85-68-7	WATER	Gray fox (water)	1800000	18000000	µg/L		WATER_RF(w)_85-68-7
NONRAD	Semivolatile Organic compound	Butyl Benzyl Phthalate	85-68-7	WATER	Montane shrew (water)	710000	7100000	µg/L		WATER_MS(w)_85-68-7
NONRAD	Semivolatile Organic compound	Butyl Benzyl Phthalate	85-68-7	WATER	Mountain cottontail (water)	1600000	16000000	µg/L		WATER_DC(w)_85-68-7
NONRAD	Semivolatile Organic compound	Butyl Benzyl Phthalate	85-68-7	WATER	Occult little brown myotis bat (water)	1000000	10000000	µg/L		WATER_BA(w)_85-68-7
NONRAD	Semivolatile Organic compound	Carbazole	86-74-8	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	130	1300	mg/kg	MINIMUM	SEDIMENT_BA(i)_86-74-8
NONRAD	Semivolatile Organic compound	Carbazole	86-74-8	SOIL	Deer mouse (Mammalian omnivore)	79	790	mg/kg	MINIMUM	SOIL_DM(ip)_86-74-8
NONRAD	Semivolatile Organic compound	Carbazole	86-74-8	SOIL	Gray fox (Mammalian top carnivore)	13000	130000	mg/kg		SOIL_RF(f)_86-74-8
NONRAD	Semivolatile Organic compound	Carbazole	86-74-8	SOIL	Montane shrew (Mammalian insectivore)	110	1100	mg/kg		SOIL_MS(i)_86-74-8
NONRAD	Semivolatile Organic compound	Carbazole	86-74-8	SOIL	Mountain cottontail (Mammalian herbivore)	140	1400	mg/kg		SOIL_DC(p)_86-74-8
NONRAD	Semivolatile Organic compound	Chlorobenzene	108-90-7	SEDIMENT	Aquatic community organisms - sediment	0.03	0.3	mg/kg	MINIMUM	SEDIMENT_AQ(s)_108-90-7
NONRAD	Semivolatile Organic compound	Chlorobenzene	108-90-7	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	48	480	mg/kg		SEDIMENT_BA(i)_108-90-7
NONRAD	Semivolatile Organic compound	Chlorobenzene	108-90-7	SOIL	Deer mouse (Mammalian omnivore)	53	530	mg/kg		SOIL_DM(ip)_108-90-7
NONRAD	Semivolatile Organic compound	Chlorobenzene	108-90-7	SOIL	Earthworm (Soil-dwelling invertebrate)	2.4	24	mg/kg	MINIMUM	SOIL_EW_108-90-7
NONRAD	Semivolatile Organic compound	Chlorobenzene	108-90-7	SOIL	Gray fox (Mammalian top carnivore)	25000	250000	mg/kg		SOIL_RF(f)_108-90-7
NONRAD	Semivolatile Organic compound	Chlorobenzene	108-90-7	SOIL	Montane shrew (Mammalian insectivore)	43	430	mg/kg		SOIL_MS(i)_108-90-7
NONRAD	Semivolatile Organic compound	Chlorobenzene	108-90-7	SOIL	Mountain cottontail (Mammalian herbivore)	170	1700	mg/kg		SOIL_DC(p)_108-90-7
NONRAD	Semivolatile Organic compound	Chlorobenzene	108-90-7	WATER	Aquatic community organisms - water	130	1300	µg/L	MINIMUM	WATER_AQ(w)_108-90-7
NONRAD	Semivolatile Organic compound	Chlorobenzene	108-90-7	WATER	Deer mouse (water)	310000	3100000	µg/L		WATER_DM(w)_108-90-7

NONRAD	Semivolatile Organic compound	Chlorobenzene	108-90-7	WATER	Gray fox (water)	690000	6900000	µg/L		WATER_RF(w)_108-90-7
NONRAD	Semivolatile Organic compound	Chlorobenzene	108-90-7	WATER	Montane shrew (water)	260000	2600000	µg/L		WATER_MS(w)_108-90-7
NONRAD	Semivolatile Organic compound	Chlorobenzene	108-90-7	WATER	Mountain cottontail (water)	610000	6100000	µg/L		WATER_DC(w)_108-90-7
NONRAD	Semivolatile Organic compound	Chlorobenzene	108-90-7	WATER	Occult little brown myotis bat (water)	370000	3700000	µg/L		WATER_BA(w)_108-90-7
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	SEDIMENT	Aquatic community organisms - sediment	0.055	0.55	mg/kg	MINIMUM	SEDIMENT_AQ(s)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	2.6	26	mg/kg		SEDIMENT_BA(i)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	3.9	39	mg/kg		SEDIMENT_VGS(i)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	SOIL	American kestrel (Avian top carnivore)	310	3100	mg/kg		SOIL_AK(f)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	SOIL	American kestrel (insectivore / carnivore)	14	140	mg/kg		SOIL_AK(fi)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	SOIL	American robin (Avian herbivore)	0.39	3.9	mg/kg	MINIMUM	SOIL_AR(p)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	SOIL	American robin (Avian insectivore)	2.6	26	mg/kg		SOIL_AR(i)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	SOIL	American robin (Avian omnivore)	0.68	6.8	mg/kg		SOIL_AR(ip)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	SOIL	Deer mouse (Mammalian omnivore)	0.54	5.4	mg/kg		SOIL_DM(ip)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	SOIL	Gray fox (Mammalian top carnivore)	340	3400	mg/kg		SOIL_RF(f)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	SOIL	Montane shrew (Mammalian insectivore)	2.3	23	mg/kg		SOIL_MS(i)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	SOIL	Mountain cottontail (Mammalian herbivore)	0.74	7.4	mg/kg		SOIL_DC(p)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	WATER	American kestrel (water)	9400	94000	µg/L		WATER_AK(w)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	WATER	American robin (water)	8000	80000	µg/L		WATER_AR(w)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	WATER	Aquatic community organisms - water	490	4300	µg/L	MINIMUM	WATER_AQ(w)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	WATER	Deer mouse (water)	2600	26000	µg/L		WATER_DM(w)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	WATER	Gray fox (water)	5800	58000	µg/L		WATER_RF(w)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	WATER	Montane shrew (water)	2200	22000	µg/L		WATER_MS(w)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	WATER	Mountain cottontail (water)	5100	51000	µg/L		WATER_DC(w)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	WATER	Occult little brown myotis bat (water)	3100	31000	µg/L		WATER_BA(w)_95-57-8
NONRAD	Semivolatile Organic compound	Chlorophenol[2-]	95-57-8	WATER	Violet-green Swallow (water)	4600	46000	µg/L		WATER_VGS(w)_95-57-8
NONRAD	Semivolatile Organic compound	Dibenzofuran	132-64-9	SEDIMENT	Aquatic community organisms - sediment	0.51	5.1	mg/kg	MINIMUM	SEDIMENT_AQ(s)_132-64-9
NONRAD	Semivolatile Organic compound	Dibenzofuran	132-64-9	SOIL	Generic plant (Terrestrial autotroph - producer)	6.1	61	mg/kg	MINIMUM	SOIL_GP_132-64-9
NONRAD	Semivolatile Organic compound	Dibenzofuran	132-64-9	WATER	Aquatic community organisms - water	3.7	37	µg/L	MINIMUM	WATER_AQ(w)_132-64-9
NONRAD	Semivolatile Organic compound	Diethyl Phthalate	84-66-2	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	4000	40000	mg/kg	MINIMUM	SEDIMENT_BA(i)_84-66-2
NONRAD	Semivolatile Organic compound	Diethyl Phthalate	84-66-2	SOIL	Deer mouse (Mammalian omnivore)	3600	36000	mg/kg		SOIL_DM(ip)_84-66-2
NONRAD	Semivolatile Organic compound	Diethyl Phthalate	84-66-2	SOIL	Generic plant (Terrestrial autotroph - producer)	100	1000	mg/kg	MINIMUM	SOIL_GP_84-66-2
NONRAD	Semivolatile Organic compound	Diethyl Phthalate	84-66-2	SOIL	Gray fox (Mammalian top carnivore)	2500000	25000000	mg/kg		SOIL_RF(f)_84-66-2
NONRAD	Semivolatile Organic compound	Diethyl Phthalate	84-66-2	SOIL	Montane shrew (Mammalian insectivore)	3600	36000	mg/kg		SOIL_MS(i)_84-66-2
NONRAD	Semivolatile Organic compound	Diethyl Phthalate	84-66-2	SOIL	Mountain cottontail (Mammalian herbivore)	8800	88000	mg/kg		SOIL_DC(p)_84-66-2
NONRAD	Semivolatile Organic compound	Dimethyl Phthalate	131-11-3	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	90	1100	mg/kg	MINIMUM	SEDIMENT_BA(i)_131-11-3
NONRAD	Semivolatile Organic compound	Dimethyl Phthalate	131-11-3	SOIL	Deer mouse (Mammalian omnivore)	38	460	mg/kg		SOIL_DM(ip)_131-11-3

NONRAD	Semivolatile Organic compound	Dimethyl Phthalate	131-11-3	SOIL	Earthworm (Soil-dwelling invertebrate)	10	100	mg/kg	MINIMUM	SOIL_EW_131-11-3
NONRAD	Semivolatile Organic compound	Dimethyl Phthalate	131-11-3	SOIL	Gray fox (Mammalian top carnivore)	48000	590000	mg/kg		SOIL_RF(f)_131-11-3
NONRAD	Semivolatile Organic compound	Dimethyl Phthalate	131-11-3	SOIL	Montane shrew (Mammalian insectivore)	80	980	mg/kg		SOIL_MS(i)_131-11-3
NONRAD	Semivolatile Organic compound	Dimethyl Phthalate	131-11-3	SOIL	Mountain cottontail (Mammalian herbivore)	60	740	mg/kg		SOIL_DC(p)_131-11-3
NONRAD	Semivolatile Organic compound	Dimethyl Phthalate	131-11-3	WATER	Aquatic community organisms - water	3	30	µg/L	MINIMUM	WATER_AQ(w)_131-11-3
NONRAD	Semivolatile Organic compound	Dimethyl Phthalate	131-11-3	WATER	Deer mouse (water)	350000	3500000	µg/L		WATER_DM(w)_131-11-3
NONRAD	Semivolatile Organic compound	Dimethyl Phthalate	131-11-3	WATER	Gray fox (water)	790000	7900000	µg/L		WATER_RF(w)_131-11-3
NONRAD	Semivolatile Organic compound	Dimethyl Phthalate	131-11-3	WATER	Montane shrew (water)	300000	3000000	µg/L		WATER_MS(w)_131-11-3
NONRAD	Semivolatile Organic compound	Dimethyl Phthalate	131-11-3	WATER	Mountain cottontail (water)	700000	7000000	µg/L		WATER_DC(w)_131-11-3
NONRAD	Semivolatile Organic compound	Dimethyl Phthalate	131-11-3	WATER	Occult little brown myotis bat (water)	420000	4200000	µg/L		WATER_BA(w)_131-11-3
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	SEDIMENT	Aquatic community organisms - sediment	0.011	0.11	mg/kg	MINIMUM	SEDIMENT_AQ(s)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	210	490	mg/kg		SEDIMENT_BA(i)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.014	0.14	mg/kg		SEDIMENT_VGS(i)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	SOIL	American kestrel (Avian top carnivore)	2	20	mg/kg		SOIL_AK(f)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	SOIL	American kestrel (insectivore / carnivore)	0.052	0.52	mg/kg		SOIL_AK(fi)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	SOIL	American robin (Avian herbivore)	0.38	3.8	mg/kg		SOIL_AR(p)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	SOIL	American robin (Avian insectivore)	0.011	0.11	mg/kg	MINIMUM	SOIL_AR(i)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	SOIL	American robin (Avian omnivore)	0.021	0.21	mg/kg		SOIL_AR(ip)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	SOIL	Deer mouse (Mammalian omnivore)	360	860	mg/kg		SOIL_DM(ip)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	SOIL	Generic plant (Terrestrial autotroph - producer)	160	600	mg/kg		SOIL_GP_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	SOIL	Gray fox (Mammalian top carnivore)	62000	140000	mg/kg		SOIL_RF(f)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	SOIL	Montane shrew (Mammalian insectivore)	180	450	mg/kg		SOIL_MS(i)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	SOIL	Mountain cottontail (Mammalian herbivore)	17000	40000	mg/kg		SOIL_DC(p)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	WATER	American kestrel (water)	1100	11000	µg/L		WATER_AK(w)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	WATER	American robin (water)	1000	10000	µg/L		WATER_AR(w)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	WATER	Aquatic community organisms - water	19	190	µg/L	MINIMUM	WATER_AQ(w)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	WATER	Deer mouse (water)	3100000	10000000	µg/L		WATER_DM(w)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	WATER	Gray fox (water)	6900000	23000000	µg/L		WATER_RF(w)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	WATER	Montane shrew (water)	2600000	8900000	µg/L		WATER_MS(w)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	WATER	Mountain cottontail (water)	6100000	20000000	µg/L		WATER_DC(w)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	WATER	Occult little brown myotis bat (water)	3700000	12000000	µg/L		WATER_BA(w)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-Butyl Phthalate	84-74-2	WATER	Violet-green Swallow (water)	570	5700	µg/L		WATER_VGS(w)_84-74-2
NONRAD	Semivolatile Organic compound	Di-n-octylphthalate	117-84-0	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1	10	mg/kg	MINIMUM	SEDIMENT_BA(i)_117-84-0
NONRAD	Semivolatile Organic compound	Di-n-octylphthalate	117-84-0	SOIL	Deer mouse (Mammalian omnivore)	1.8	18	mg/kg		SOIL_DM(ip)_117-84-0
NONRAD	Semivolatile Organic compound	Di-n-octylphthalate	117-84-0	SOIL	Gray fox (Mammalian top carnivore)	1300	13000	mg/kg		SOIL_RF(f)_117-84-0
NONRAD	Semivolatile Organic compound	Di-n-octylphthalate	117-84-0	SOIL	Montane shrew (Mammalian insectivore)	0.91	9.1	mg/kg	MINIMUM	SOIL_MS(i)_117-84-0

NONRAD	Semivolatile Organic compound	Di-n-octylphthalate	117-84-0	SOIL	Mountain cottontail (Mammalian herbivore)	8400	84000	mg/kg		SOIL_DC(p)_117-84-0
NONRAD	Semivolatile Organic compound	Di-n-octylphthalate	117-84-0	WATER	Aquatic community organisms - water	3	30	µg/L	MINIMUM	WATER_AQ(w)_117-84-0
NONRAD	Semivolatile Organic compound	Di-n-octylphthalate	117-84-0	WATER	Deer mouse (water)	340000	3400000	µg/L		WATER_DM(w)_117-84-0
NONRAD	Semivolatile Organic compound	Di-n-octylphthalate	117-84-0	WATER	Gray fox (water)	750000	7500000	µg/L		WATER_RF(w)_117-84-0
NONRAD	Semivolatile Organic compound	Di-n-octylphthalate	117-84-0	WATER	Montane shrew (water)	290000	2900000	µg/L		WATER_MS(w)_117-84-0
NONRAD	Semivolatile Organic compound	Di-n-octylphthalate	117-84-0	WATER	Mountain cottontail (water)	670000	6700000	µg/L		WATER_DC(w)_117-84-0
NONRAD	Semivolatile Organic compound	Di-n-octylphthalate	117-84-0	WATER	Occult little brown myotis bat (water)	400000	4000000	µg/L		WATER_BA(w)_117-84-0
NONRAD	Semivolatile Organic compound	Methylphenol[2-]	95-48-7	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1700	17000	mg/kg	MINIMUM	SEDIMENT_BA(i)_95-48-7
NONRAD	Semivolatile Organic compound	Methylphenol[2-]	95-48-7	SOIL	Deer mouse (Mammalian omnivore)	580	5800	mg/kg		SOIL_DM(ip)_95-48-7
NONRAD	Semivolatile Organic compound	Methylphenol[2-]	95-48-7	SOIL	Generic plant (Terrestrial autotroph - producer)	0.67	7	mg/kg	MINIMUM	SOIL_GP_95-48-7
NONRAD	Semivolatile Organic compound	Methylphenol[2-]	95-48-7	SOIL	Gray fox (Mammalian top carnivore)	160000	1600000	mg/kg		SOIL_RF(f)_95-48-7
NONRAD	Semivolatile Organic compound	Methylphenol[2-]	95-48-7	SOIL	Montane shrew (Mammalian insectivore)	1500	15000	mg/kg		SOIL_MS(i)_95-48-7
NONRAD	Semivolatile Organic compound	Methylphenol[2-]	95-48-7	SOIL	Mountain cottontail (Mammalian herbivore)	880	8800	mg/kg		SOIL_DC(p)_95-48-7
NONRAD	Semivolatile Organic compound	Methylphenol[3-]	108-39-4	SOIL	Generic plant (Terrestrial autotroph - producer)	0.69	7	mg/kg	MINIMUM	SOIL_GP_108-39-4
NONRAD	Semivolatile Organic compound	Nitroaniline[2-]	88-74-4	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	7.3	14	mg/kg	MINIMUM	SEDIMENT_BA(i)_88-74-4
NONRAD	Semivolatile Organic compound	Nitroaniline[2-]	88-74-4	SOIL	Deer mouse (Mammalian omnivore)	5.3	10	mg/kg	MINIMUM	SOIL_DM(ip)_88-74-4
NONRAD	Semivolatile Organic compound	Nitroaniline[2-]	88-74-4	SOIL	Gray fox (Mammalian top carnivore)	2200	4400	mg/kg		SOIL_RF(f)_88-74-4
NONRAD	Semivolatile Organic compound	Nitroaniline[2-]	88-74-4	SOIL	Montane shrew (Mammalian insectivore)	6.5	13	mg/kg		SOIL_MS(i)_88-74-4
NONRAD	Semivolatile Organic compound	Nitroaniline[2-]	88-74-4	SOIL	Mountain cottontail (Mammalian herbivore)	11	22	mg/kg		SOIL_DC(p)_88-74-4
NONRAD	Semivolatile Organic compound	Nitrobenzene	98-95-3	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	24	240	mg/kg	MINIMUM	SEDIMENT_BA(i)_98-95-3
NONRAD	Semivolatile Organic compound	Nitrobenzene	98-95-3	SOIL	Deer mouse (Mammalian omnivore)	4.8	48	mg/kg		SOIL_DM(ip)_98-95-3
NONRAD	Semivolatile Organic compound	Nitrobenzene	98-95-3	SOIL	Earthworm (Soil-dwelling invertebrate)	2.2	22	mg/kg	MINIMUM	SOIL_EW_98-95-3
NONRAD	Semivolatile Organic compound	Nitrobenzene	98-95-3	SOIL	Gray fox (Mammalian top carnivore)	4100	41000	mg/kg		SOIL_RF(f)_98-95-3
NONRAD	Semivolatile Organic compound	Nitrobenzene	98-95-3	SOIL	Montane shrew (Mammalian insectivore)	21	210	mg/kg		SOIL_MS(i)_98-95-3
NONRAD	Semivolatile Organic compound	Nitrobenzene	98-95-3	SOIL	Mountain cottontail (Mammalian herbivore)	6.7	67	mg/kg		SOIL_DC(p)_98-95-3
NONRAD	Semivolatile Organic compound	Nitrobenzene	98-95-3	WATER	Aquatic community organisms - water	550	2200	µg/L	MINIMUM	WATER_AQ(w)_98-95-3
NONRAD	Semivolatile Organic compound	Nitrobenzene	98-95-3	WATER	Deer mouse (water)	31000	310000	µg/L		WATER_DM(w)_98-95-3
NONRAD	Semivolatile Organic compound	Nitrobenzene	98-95-3	WATER	Gray fox (water)	68000	680000	µg/L		WATER_RF(w)_98-95-3
NONRAD	Semivolatile Organic compound	Nitrobenzene	98-95-3	WATER	Montane shrew (water)	26000	260000	µg/L		WATER_MS(w)_98-95-3
NONRAD	Semivolatile Organic compound	Nitrobenzene	98-95-3	WATER	Mountain cottontail (water)	60000	600000	µg/L		WATER_DC(w)_98-95-3
NONRAD	Semivolatile Organic compound	Nitrobenzene	98-95-3	WATER	Occult little brown myotis bat (water)	37000	370000	µg/L		WATER_BA(w)_98-95-3
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	SEDIMENT	Aquatic community organisms - sediment	3.6	36	mg/kg		SEDIMENT_AQ(s)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	12	120	mg/kg		SEDIMENT_BA(i)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.9	9	mg/kg	MINIMUM	SEDIMENT_VGS(i)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	SOIL	American kestrel (Avian top carnivore)	110	1100	mg/kg		SOIL_AK(f)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	SOIL	American kestrel (insectivore / carnivore)	3.3	33	mg/kg		SOIL_AK(fi)_82-68-8

NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	SOIL	American robin (Avian herbivore)	21	210	mg/kg		SOIL_AR(p)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	SOIL	American robin (Avian insectivore)	0.7	7	mg/kg	MINIMUM	SOIL_AR(i)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	SOIL	American robin (Avian omnivore)	1.3	13	mg/kg		SOIL_AR(ip)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	SOIL	Deer mouse (Mammalian omnivore)	22	220	mg/kg		SOIL_DM(ip)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	SOIL	Gray fox (Mammalian top carnivore)	3500	35000	mg/kg		SOIL_RF(f)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	SOIL	Montane shrew (Mammalian insectivore)	11	110	mg/kg		SOIL_MS(i)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	SOIL	Mountain cottontail (Mammalian herbivore)	930	9300	mg/kg		SOIL_DC(p)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	WATER	American kestrel (water)	58000	580000	µg/L		WATER_AK(w)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	WATER	American robin (water)	50000	500000	µg/L		WATER_AR(w)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	WATER	Aquatic community organisms - water	10	100	µg/L	MINIMUM	WATER_AQ(w)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	WATER	Deer mouse (water)	340000	3400000	µg/L		WATER_DM(w)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	WATER	Gray fox (water)	750000	7500000	µg/L		WATER_RF(w)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	WATER	Montane shrew (water)	290000	2900000	µg/L		WATER_MS(w)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	WATER	Mountain cottontail (water)	670000	6700000	µg/L		WATER_DC(w)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	WATER	Occult little brown myotis bat (water)	400000	4000000	µg/L		WATER_BA(w)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachloronitrobenzene	82-68-8	WATER	Violet-green Swallow (water)	29000	290000	µg/L		WATER_VGS(w)_82-68-8
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	SEDIMENT	Aquatic community organisms - sediment	0.01	0.1	mg/kg	MINIMUM	SEDIMENT_AQ(s)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.9	9	mg/kg		SEDIMENT_BA(i)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.47	4.7	mg/kg		SEDIMENT_VGS(i)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	SOIL	American kestrel (Avian top carnivore)	57	570	mg/kg		SOIL_AK(f)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	SOIL	American kestrel (insectivore / carnivore)	1.7	17	mg/kg		SOIL_AK(fi)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	SOIL	American robin (Avian herbivore)	29	290	mg/kg		SOIL_AR(p)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	SOIL	American robin (Avian insectivore)	0.36	3.6	mg/kg	MINIMUM	SOIL_AR(i)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	SOIL	American robin (Avian omnivore)	0.72	7.2	mg/kg		SOIL_AR(ip)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	SOIL	Deer mouse (Mammalian omnivore)	1.5	15	mg/kg		SOIL_DM(ip)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	SOIL	Earthworm (Soil-dwelling invertebrate)	31	150	mg/kg		SOIL_EW_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	SOIL	Generic plant (Terrestrial autotroph - producer)	5	50	mg/kg		SOIL_GP_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	SOIL	Gray fox (Mammalian top carnivore)	230	2300	mg/kg		SOIL_RF(f)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	SOIL	Montane shrew (Mammalian insectivore)	0.81	8.1	mg/kg		SOIL_MS(i)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	SOIL	Mountain cottontail (Mammalian herbivore)	180	1800	mg/kg		SOIL_DC(p)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	WATER	American kestrel (water)	27000	270000	µg/L		WATER_AK(w)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	WATER	American robin (water)	23000	230000	µg/L		WATER_AR(w)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	WATER	Aquatic community organisms - water	15	19	µg/L	MINIMUM	WATER_AQ(w)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	WATER	Deer mouse (water)	1200	12000	µg/L		WATER_DM(w)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	WATER	Gray fox (water)	2700	27000	µg/L		WATER_RF(w)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	WATER	Montane shrew (water)	1000	10000	µg/L		WATER_MS(w)_87-86-5

NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	WATER	Mountain cottontail (water)	2400	24000	µg/L		WATER_DC(w)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	WATER	Occult little brown myotis bat (water)	1500	15000	µg/L		WATER_BA(w)_87-86-5
NONRAD	Semivolatile Organic compound	Pentachlorophenol	87-86-5	WATER	Violet-green Swallow (water)	13000	130000	µg/L		WATER_VGS(w)_87-86-5
NONRAD	Semivolatile Organic compound	Phenol	108-95-2	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	750	7500	mg/kg	MINIMUM	SEDIMENT_BA(i)_108-95-2
NONRAD	Semivolatile Organic compound	Phenol	108-95-2	SOIL	Deer mouse (Mammalian omnivore)	37	370	mg/kg		SOIL_DM(ip)_108-95-2
NONRAD	Semivolatile Organic compound	Phenol	108-95-2	SOIL	Earthworm (Soil-dwelling invertebrate)	1.8	18	mg/kg		SOIL_EW_108-95-2
NONRAD	Semivolatile Organic compound	Phenol	108-95-2	SOIL	Generic plant (Terrestrial autotroph - producer)	0.79	8	mg/kg	MINIMUM	SOIL_GP_108-95-2
NONRAD	Semivolatile Organic compound	Phenol	108-95-2	SOIL	Gray fox (Mammalian top carnivore)	43000	430000	mg/kg		SOIL_RF(f)_108-95-2
NONRAD	Semivolatile Organic compound	Phenol	108-95-2	SOIL	Montane shrew (Mammalian insectivore)	640	6400	mg/kg		SOIL_MS(i)_108-95-2
NONRAD	Semivolatile Organic compound	Phenol	108-95-2	SOIL	Mountain cottontail (Mammalian herbivore)	47	470	mg/kg		SOIL_DC(p)_108-95-2
NONRAD	Semivolatile Organic compound	Phenol	108-95-2	WATER	Aquatic community organisms - water	320	3200	µg/L	MINIMUM	WATER_AQ(w)_108-95-2
NONRAD	Semivolatile Organic compound	Phenol	108-95-2	WATER	Deer mouse (water)	310000	3100000	µg/L		WATER_DM(w)_108-95-2
NONRAD	Semivolatile Organic compound	Phenol	108-95-2	WATER	Gray fox (water)	690000	6900000	µg/L		WATER_RF(w)_108-95-2
NONRAD	Semivolatile Organic compound	Phenol	108-95-2	WATER	Montane shrew (water)	260000	2600000	µg/L		WATER_MS(w)_108-95-2
NONRAD	Semivolatile Organic compound	Phenol	108-95-2	WATER	Mountain cottontail (water)	610000	6100000	µg/L		WATER_DC(w)_108-95-2
NONRAD	Semivolatile Organic compound	Phenol	108-95-2	WATER	Occult little brown myotis bat (water)	370000	3700000	µg/L		WATER_BA(w)_108-95-2
NONRAD	Volatile Organic Compound	Acetone	67-64-1	AIR	Botta's Pocket Gopher (Burrowing mammal)	530		mg/m^3	MINIMUM	AIR_BPG(a)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	SEDIMENT	Aquatic community organisms - sediment	0.065	0.65	mg/kg	MINIMUM	SEDIMENT_AQ(s)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	17	88	mg/kg		SEDIMENT_BA(i)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	230	2300	mg/kg		SEDIMENT_VGS(i)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	SOIL	American kestrel (Avian top carnivore)	66000	660000	mg/kg		SOIL_AK(f)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	SOIL	American kestrel (insectivore / carnivore)	840	8400	mg/kg		SOIL_AK(fi)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	SOIL	American robin (Avian herbivore)	7.5	75	mg/kg		SOIL_AR(p)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	SOIL	American robin (Avian insectivore)	170	1700	mg/kg		SOIL_AR(i)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	SOIL	American robin (Avian omnivore)	14	140	mg/kg		SOIL_AR(ip)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	SOIL	Deer mouse (Mammalian omnivore)	1.2	6.3	mg/kg	MINIMUM	SOIL_DM(ip)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	SOIL	Gray fox (Mammalian top carnivore)	7800	39000	mg/kg		SOIL_RF(f)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	SOIL	Montane shrew (Mammalian insectivore)	15	79	mg/kg		SOIL_MS(i)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	SOIL	Mountain cottontail (Mammalian herbivore)	1.6	8	mg/kg		SOIL_DC(p)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	WATER	American kestrel (water)	1600000	16000000	µg/L		WATER_AK(w)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	WATER	American robin (water)	1400000	14000000	µg/L		WATER_AR(w)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	WATER	Aquatic community organisms - water	1500	15000	µg/L	MINIMUM	WATER_AQ(w)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	WATER	Deer mouse (water)	52000	260000	µg/L		WATER_DM(w)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	WATER	Gray fox (water)	110000	580000	µg/L		WATER_RF(w)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	WATER	Montane shrew (water)	44000	220000	µg/L		WATER_MS(w)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	WATER	Mountain cottontail (water)	100000	510000	µg/L		WATER_DC(w)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	WATER	Occult little brown myotis bat (water)	62000	310000	µg/L		WATER_BA(w)_67-64-1
NONRAD	Volatile Organic Compound	Acetone	67-64-1	WATER	Violet-green Swallow (water)	830000	8300000	µg/L		WATER_VGS(w)_67-64-1
NONRAD	Volatile Organic Compound	Benzene	71-43-2	AIR	Botta's Pocket Gopher (Burrowing mammal)	25		mg/m^3	MINIMUM	AIR_BPG(a)_71-43-2
NONRAD	Volatile Organic Compound	Benzene	71-43-2	SEDIMENT	Aquatic community organisms - sediment	0.01	0.1	mg/kg	MINIMUM	SEDIMENT_AQ(s)_71-43-2
NONRAD	Volatile Organic Compound	Benzene	71-43-2	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	54	550	mg/kg		SEDIMENT_BA(i)_71-43-2
NONRAD	Volatile Organic Compound	Benzene	71-43-2	SOIL	Deer mouse (Mammalian omnivore)	24	240	mg/kg	MINIMUM	SOIL_DM(ip)_71-43-2
NONRAD	Volatile Organic Compound	Benzene	71-43-2	SOIL	Gray fox (Mammalian top carnivore)	18000	180000	mg/kg		SOIL_RF(f)_71-43-2
NONRAD	Volatile Organic Compound	Benzene	71-43-2	SOIL	Montane shrew (Mammalian insectivore)	49	490	mg/kg		SOIL_MS(i)_71-43-2
NONRAD	Volatile Organic Compound	Benzene	71-43-2	SOIL	Mountain cottontail (Mammalian herbivore)	38	380	mg/kg		SOIL_DC(p)_71-43-2
NONRAD	Volatile Organic Compound	Benzene	71-43-2	WATER	Aquatic community organisms - water	46	460	µg/L	MINIMUM	WATER_AQ(w)_71-43-2
NONRAD	Volatile Organic Compound	Benzene	71-43-2	WATER	Deer mouse (water)	130000	1300000	µg/L		WATER_DM(w)_71-43-2
NONRAD	Volatile Organic Compound	Benzene	71-43-2	WATER	Gray fox (water)	300000	3000000	µg/L		WATER_RF(w)_71-43-2
NONRAD	Volatile Organic Compound	Benzene	71-43-2	WATER	Montane shrew (water)	110000	1100000	µg/L		WATER_MS(w)_71-43-2
NONRAD	Volatile Organic Compound	Benzene	71-43-2	WATER	Mountain cottontail (water)	270000	2700000	µg/L		WATER_DC(w)_71-43-2
NONRAD	Volatile Organic Compound	Benzene	71-43-2	WATER	Occult little brown myotis bat (water)	160000	1600000	µg/L		WATER_BA(w)_71-43-2
NONRAD	Volatile Organic Compound	Benzyl Alcohol	100-51-6	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	300	3000	mg/kg	MINIMUM	SEDIMENT_BA(i)_100-51-6
NONRAD	Volatile Organic Compound	Benzyl Alcohol	100-51-6	SOIL	Deer mouse (Mammalian omnivore)	120	1200	mg/kg	MINIMUM	SOIL_DM(ip)_100-51-6
NONRAD	Volatile Organic Compound	Benzyl Alcohol	100-51-6	SOIL	Gray fox (Mammalian top carnivore)	110000	1100000	mg/kg		SOIL_RF(f)_100-51-6
NONRAD	Volatile Organic Compound	Benzyl Alcohol	100-51-6	SOIL	Montane shrew (Mammalian insectivore)	270	2700	mg/kg		SOIL_MS(i)_100-51-6

NONRAD	Volatile Organic Compound	Benzyl Alcohol	100-51-6	SOIL	Mountain cottontail (Mammalian herbivore)	190	1900	mg/kg		SOIL_DC(p)_100-51-6
NONRAD	Volatile Organic Compound	Butanone[2-]	78-93-3	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	3000	7800	mg/kg	MINIMUM	SEDIMENT_BA(i)_78-93-3
NONRAD	Volatile Organic Compound	Butanone[2-]	78-93-3	SOIL	Deer mouse (Mammalian omnivore)	350	920	mg/kg	MINIMUM	SOIL_DM(ip)_78-93-3
NONRAD	Volatile Organic Compound	Butanone[2-]	78-93-3	SOIL	Gray fox (Mammalian top carnivore)	1300000	3500000	mg/kg		SOIL_RF(f)_78-93-3
NONRAD	Volatile Organic Compound	Butanone[2-]	78-93-3	SOIL	Montane shrew (Mammalian insectivore)	2700	6900	mg/kg		SOIL_MS(i)_78-93-3
NONRAD	Volatile Organic Compound	Butanone[2-]	78-93-3	SOIL	Mountain cottontail (Mammalian herbivore)	470	1200	mg/kg		SOIL_DC(p)_78-93-3
NONRAD	Volatile Organic Compound	Butanone[2-]	78-93-3	WATER	Aquatic community organisms - water	7200	71000	µg/L	MINIMUM	WATER_AQ(w)_78-93-3
NONRAD	Volatile Organic Compound	Butanone[2-]	78-93-3	WATER	Deer mouse (water)	9300000	24000000	µg/L		WATER_DM(w)_78-93-3
NONRAD	Volatile Organic Compound	Butanone[2-]	78-93-3	WATER	Gray fox (water)	20000000	53000000	µg/L		WATER_RF(w)_78-93-3
NONRAD	Volatile Organic Compound	Butanone[2-]	78-93-3	WATER	Montane shrew (water)	7900000	20000000	µg/L		WATER_MS(w)_78-93-3
NONRAD	Volatile Organic Compound	Butanone[2-]	78-93-3	WATER	Mountain cottontail (water)	18000000	47000000	µg/L		WATER_DC(w)_78-93-3
NONRAD	Volatile Organic Compound	Butanone[2-]	78-93-3	WATER	Occult little brown myotis bat (water)	11000000	28000000	µg/L		WATER_BA(w)_78-93-3
NONRAD	Volatile Organic Compound	Carbon Disulfide	75-15-0	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1.3	13	mg/kg	MINIMUM	SEDIMENT_BA(i)_75-15-0
NONRAD	Volatile Organic Compound	Carbon Disulfide	75-15-0	SOIL	Deer mouse (Mammalian omnivore)	0.81	8.1	mg/kg	MINIMUM	SOIL_DM(ip)_75-15-0
NONRAD	Volatile Organic Compound	Carbon Disulfide	75-15-0	SOIL	Gray fox (Mammalian top carnivore)	190	1900	mg/kg		SOIL_RF(f)_75-15-0
NONRAD	Volatile Organic Compound	Carbon Disulfide	75-15-0	SOIL	Montane shrew (Mammalian insectivore)	1.2	12	mg/kg		SOIL_MS(i)_75-15-0
NONRAD	Volatile Organic Compound	Carbon Disulfide	75-15-0	SOIL	Mountain cottontail (Mammalian herbivore)	1.4	14	mg/kg		SOIL_DC(p)_75-15-0
NONRAD	Volatile Organic Compound	Carbon Tetrachloride	56-23-5	AIR	Botta's Pocket Gopher (Burrowing mammal)	5.7		mg/m^3	MINIMUM	AIR_BPG(a)_56-23-5
NONRAD	Volatile Organic Compound	Chloroaniline[4-]	106-47-8	SOIL	Earthworm (Soil-dwelling invertebrate)	1.8	18	mg/kg		SOIL_EW_106-47-8
NONRAD	Volatile Organic Compound	Chloroaniline[4-]	106-47-8	SOIL	Generic plant (Terrestrial autotroph - producer)	1	10	mg/kg	MINIMUM	SOIL_GP_106-47-8
NONRAD	Volatile Organic Compound	Chloroform	67-66-3	AIR	Botta's Pocket Gopher (Burrowing mammal)	20		mg/m^3	MINIMUM	AIR_BPG(a)_67-66-3
NONRAD	Volatile Organic Compound	Chloroform	67-66-3	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	9.2	25	mg/kg	MINIMUM	SEDIMENT_BA(i)_67-66-3
NONRAD	Volatile Organic Compound	Chloroform	67-66-3	SOIL	Deer mouse (Mammalian omnivore)	8	21	mg/kg	MINIMUM	SOIL_DM(ip)_67-66-3
NONRAD	Volatile Organic Compound	Chloroform	67-66-3	SOIL	Gray fox (Mammalian top carnivore)	8900	24000	mg/kg		SOIL_RF(f)_67-66-3
NONRAD	Volatile Organic Compound	Chloroform	67-66-3	SOIL	Montane shrew (Mammalian insectivore)	8.2	22	mg/kg		SOIL_MS(i)_67-66-3
NONRAD	Volatile Organic Compound	Chloroform	67-66-3	SOIL	Mountain cottontail (Mammalian herbivore)	19	52	mg/kg		SOIL_DC(p)_67-66-3
NONRAD	Volatile Organic Compound	Chloroform	67-66-3	WATER	Aquatic community organisms - water	1.8	18	µg/L	MINIMUM	WATER_AQ(w)_67-66-3
NONRAD	Volatile Organic Compound	Chloroform	67-66-3	WATER	Deer mouse (water)	78000	210000	µg/L		WATER_DM(w)_67-66-3
NONRAD	Volatile Organic Compound	Chloroform	67-66-3	WATER	Gray fox (water)	170000	470000	µg/L		WATER_RF(w)_67-66-3
NONRAD	Volatile Organic Compound	Chloroform	67-66-3	WATER	Montane shrew (water)	67000	180000	µg/L		WATER_MS(w)_67-66-3
NONRAD	Volatile Organic Compound	Chloroform	67-66-3	WATER	Mountain cottontail (water)	150000	420000	µg/L		WATER_DC(w)_67-66-3
NONRAD	Volatile Organic Compound	Chloroform	67-66-3	WATER	Occult little brown myotis bat (water)	94000	250000	µg/L		WATER_BA(w)_67-66-3
NONRAD	Volatile Organic Compound	Chloromethane	74-87-3	AIR	Botta's Pocket Gopher (Burrowing mammal)	21		mg/m^3	MINIMUM	AIR_BPG(a)_74-87-3
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,2-]	95-50-1	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1	10	mg/kg	MINIMUM	SEDIMENT_BA(i)_95-50-1
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,2-]	95-50-1	SOIL	Deer mouse (Mammalian omnivore)	1.5	15	mg/kg		SOIL_DM(ip)_95-50-1
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,2-]	95-50-1	SOIL	Gray fox (Mammalian top carnivore)	480	4800	mg/kg		SOIL_RF(f)_95-50-1
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,2-]	95-50-1	SOIL	Montane shrew (Mammalian insectivore)	0.92	9.2	mg/kg	MINIMUM	SOIL_MS(i)_95-50-1
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,2-]	95-50-1	SOIL	Mountain cottontail (Mammalian herbivore)	12	120	mg/kg		SOIL_DC(p)_95-50-1
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,3-]	541-73-1	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.82	8.2	mg/kg	MINIMUM	SEDIMENT_BA(i)_541-73-1
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,3-]	541-73-1	SOIL	Deer mouse (Mammalian omnivore)	1.2	12	mg/kg		SOIL_DM(ip)_541-73-1
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,3-]	541-73-1	SOIL	Gray fox (Mammalian top carnivore)	380	3800	mg/kg		SOIL_RF(f)_541-73-1
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,3-]	541-73-1	SOIL	Montane shrew (Mammalian insectivore)	0.74	7.4	mg/kg	MINIMUM	SOIL_MS(i)_541-73-1
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,3-]	541-73-1	SOIL	Mountain cottontail (Mammalian herbivore)	13	130	mg/kg		SOIL_DC(p)_541-73-1
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,4-]	106-46-7	SEDIMENT	Aquatic community organisms - sediment	0.03	0.3	mg/kg	MINIMUM	SEDIMENT_AQ(s)_106-46-7
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,4-]	106-46-7	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.99	3.9	mg/kg		SEDIMENT_BA(i)_106-46-7
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,4-]	106-46-7	SOIL	Deer mouse (Mammalian omnivore)	1.5	6	mg/kg		SOIL_DM(ip)_106-46-7
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,4-]	106-46-7	SOIL	Earthworm (Soil-dwelling invertebrate)	1.2	12	mg/kg		SOIL_EW_106-46-7
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,4-]	106-46-7	SOIL	Gray fox (Mammalian top carnivore)	470	1800	mg/kg		SOIL_RF(f)_106-46-7
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,4-]	106-46-7	SOIL	Montane shrew (Mammalian insectivore)	0.89	3.5	mg/kg	MINIMUM	SOIL_MS(i)_106-46-7
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,4-]	106-46-7	SOIL	Mountain cottontail (Mammalian herbivore)	12	49	mg/kg		SOIL_DC(p)_106-46-7
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,4-]	106-46-7	WATER	Aquatic community organisms - water	15	150	µg/L	MINIMUM	WATER_AQ(w)_106-46-7
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,4-]	106-46-7	WATER	Deer mouse (water)	13000	52000	µg/L		WATER_DM(w)_106-46-7
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,4-]	106-46-7	WATER	Gray fox (water)	29000	110000	µg/L		WATER_RF(w)_106-46-7
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,4-]	106-46-7	WATER	Montane shrew (water)	11000	44000	µg/L		WATER_MS(w)_106-46-7
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,4-]	106-46-7	WATER	Mountain cottontail (water)	25000	100000	µg/L		WATER_DC(w)_106-46-7
NONRAD	Volatile Organic Compound	Dichlorobenzene[1,4-]	106-46-7	WATER	Occult little brown myotis bat (water)	15000	62000	µg/L		WATER_BA(w)_106-46-7
NONRAD	Volatile Organic Compound	Dichlorodifluoromethane	75-71-8	AIR	Botta's Pocket Gopher (Burrowing mammal)	2600		mg/m^3	MINIMUM	AIR_BPG(a)_75-71-8
NONRAD	Volatile Organic Compound	Dichloroethane[1,1-]	75-34-3	AIR	Botta's Pocket Gopher (Burrowing mammal)	5600		mg/m^3	MINIMUM	AIR_BPG(a)_75-34-3
NONRAD	Volatile Organic Compound	Dichloroethane[1,1-]	75-34-3	SEDIMENT	Aquatic community organisms - sediment	0.02	0.2	mg/kg	MINIMUM	SEDIMENT_AQ(s)_75-34-3
NONRAD	Volatile Organic Compound	Dichloroethane[1,1-]	75-34-3	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	330	3300	mg/kg		SEDIMENT_BA(i)_75-34-3
NONRAD	Volatile Organic Compound	Dichloroethane[1,1-]	75-34-3	SOIL	Deer mouse (Mammalian omnivore)	210	2100	mg/kg	MINIMUM	SOIL_DM(ip)_75-34-3
NONRAD	Volatile Organic Compound	Dichloroethane[1,1-]	75-34-3	SOIL	Gray fox (Mammalian top carnivore)	250000	2500000	mg/kg		SOIL_RF(f)_75-34-3
NONRAD	Volatile Organic Compound	Dichloroethane[1,1-]	75-34-3	SOIL	Montane shrew (Mammalian insectivore)	290	2900	mg/kg		SOIL_MS(i)_75-34-3
NONRAD	Volatile Organic Compound	Dichloroethane[1,1-]	75-34-3	SOIL	Mountain cottontail (Mammalian herbivore)	410	4100	mg/kg		SOIL_DC(p)_75-34-3
NONRAD	Volatile Organic Compound	Dichloroethane[1,1-]	75-34-3	WATER	Aquatic community organisms - water	47	470	µg/L	MINIMUM	WATER_AQ(w)_75-34-3
NONRAD	Volatile Organic Compound	Dichloroethane[1,1-]	75-34-3	WATER	Deer mouse (water)	2000000	20000000	µg/L		WATER_DM(w)_75-34-3
NONRAD	Volatile Organic Compound	Dichloroethane[1,1-]	75-34-3	WATER	Gray fox (water)	4400000	44000000	µg/L		WATER_RF(w)_75-34-3
NONRAD	Volatile Organic Compound	Dichloroethane[1,1-]	75-34-3	WATER	Montane shrew (water)	1700000	17000000	µg/L		WATER_MS(w)_75-34-3

NONRAD	Volatile Organic Compound	Dichloroethane[1,1-]	75-34-3	WATER	Mountain cottontail (water)	3900000	39000000	µg/L		WATER_DC(w)_75-34-3
NONRAD	Volatile Organic Compound	Dichloroethane[1,1-]	75-34-3	WATER	Occult little brown myotis bat (water)	2400000	24000000	µg/L		WATER_BA(w)_75-34-3
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	AIR	Botta's Pocket Gopher (Burrowing mammal)	41		mg/m^3	MINIMUM	AIR_BPG(a)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	100	1000	mg/kg		SEDIMENT_BA(i)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	6.1	12	mg/kg	MINIMUM	SEDIMENT_VGS(i)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	SOIL	American kestrel (Avian top carnivore)	1300	2700	mg/kg		SOIL_AK(f)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	SOIL	American kestrel (insectivore / carnivore)	22	44	mg/kg		SOIL_AK(fi)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	SOIL	American robin (Avian herbivore)	0.85	1.6	mg/kg	MINIMUM	SOIL_AR(p)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	SOIL	American robin (Avian insectivore)	4.5	9	mg/kg		SOIL_AR(i)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	SOIL	American robin (Avian omnivore)	1.4	2.8	mg/kg		SOIL_AR(ip)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	SOIL	Deer mouse (Mammalian omnivore)	27	270	mg/kg		SOIL_DM(ip)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	SOIL	Gray fox (Mammalian top carnivore)	36000	360000	mg/kg		SOIL_RF(f)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	SOIL	Montane shrew (Mammalian insectivore)	91	910	mg/kg		SOIL_MS(i)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	SOIL	Mountain cottontail (Mammalian herbivore)	39	390	mg/kg		SOIL_DC(p)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	WATER	American kestrel (water)	38000	75000	µg/L		WATER_AK(w)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	WATER	American robin (water)	32000	65000	µg/L		WATER_AR(w)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	WATER	Aquatic community organisms - water	100	1000	µg/L	MINIMUM	WATER_AQ(w)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	WATER	Deer mouse (water)	260000	2600000	µg/L		WATER_DM(w)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	WATER	Gray fox (water)	570000	5700000	µg/L		WATER_RF(w)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	WATER	Montane shrew (water)	220000	2200000	µg/L		WATER_MS(w)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	WATER	Mountain cottontail (water)	510000	5100000	µg/L		WATER_DC(w)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	WATER	Occult little brown myotis bat (water)	310000	3100000	µg/L		WATER_BA(w)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethane[1,2-]	107-06-2	WATER	Violet-green Swallow (water)	19000	37000	µg/L		WATER_VGS(w)_107-06-2
NONRAD	Volatile Organic Compound	Dichloroethene[1,1-]	75-35-4	AIR	Botta's Pocket Gopher (Burrowing mammal)	5.7		mg/m^3	MINIMUM	AIR_BPG(a)_75-35-4
NONRAD	Volatile Organic Compound	Dichloroethene[1,1-]	75-35-4	SEDIMENT	Aquatic community organisms - sediment	0.1	1	mg/kg	MINIMUM	SEDIMENT_AQ(s)_75-35-4
NONRAD	Volatile Organic Compound	Dichloroethene[1,1-]	75-35-4	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	13	130	mg/kg		SEDIMENT_BA(i)_75-35-4
NONRAD	Volatile Organic Compound	Dichloroethene[1,1-]	75-35-4	SOIL	Deer mouse (Mammalian omnivore)	14	140	mg/kg		SOIL_DM(ip)_75-35-4
NONRAD	Volatile Organic Compound	Dichloroethene[1,1-]	75-35-4	SOIL	Gray fox (Mammalian top carnivore)	14000	140000	mg/kg		SOIL_RF(f)_75-35-4
NONRAD	Volatile Organic Compound	Dichloroethene[1,1-]	75-35-4	SOIL	Montane shrew (Mammalian insectivore)	11	110	mg/kg	MINIMUM	SOIL_MS(i)_75-35-4
NONRAD	Volatile Organic Compound	Dichloroethene[1,1-]	75-35-4	SOIL	Mountain cottontail (Mammalian herbivore)	44	440	mg/kg		SOIL_DC(p)_75-35-4
NONRAD	Volatile Organic Compound	Dichloroethene[1,1-]	75-35-4	WATER	Aquatic community organisms - water	25	250	µg/L	MINIMUM	WATER_AQ(w)_75-35-4
NONRAD	Volatile Organic Compound	Dichloroethene[1,1-]	75-35-4	WATER	Deer mouse (water)	150000	1500000	µg/L		WATER_DM(w)_75-35-4
NONRAD	Volatile Organic Compound	Dichloroethene[1,1-]	75-35-4	WATER	Gray fox (water)	340000	3400000	µg/L		WATER_RF(w)_75-35-4
NONRAD	Volatile Organic Compound	Dichloroethene[1,1-]	75-35-4	WATER	Montane shrew (water)	130000	1300000	µg/L		WATER_MS(w)_75-35-4
NONRAD	Volatile Organic Compound	Dichloroethene[1,1-]	75-35-4	WATER	Mountain cottontail (water)	300000	3000000	µg/L		WATER_DC(w)_75-35-4
NONRAD	Volatile Organic Compound	Dichloroethene[1,1-]	75-35-4	WATER	Occult little brown myotis bat (water)	180000	1800000	µg/L		WATER_BA(w)_75-35-4
NONRAD	Volatile Organic Compound	Dichloroethene[cis/trans-1,2-]	540-59-0	SEDIMENT	Aquatic community organisms - sediment	0.2	2	mg/kg	MINIMUM	SEDIMENT_AQ(s)_540-59-0
NONRAD	Volatile Organic Compound	Dichloroethene[cis/trans-1,2-]	540-59-0	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	26	260	mg/kg		SEDIMENT_BA(i)_540-59-0
NONRAD	Volatile Organic Compound	Dichloroethene[cis/trans-1,2-]	540-59-0	SOIL	Deer mouse (Mammalian omnivore)	25	250	mg/kg		SOIL_DM(ip)_540-59-0
NONRAD	Volatile Organic Compound	Dichloroethene[cis/trans-1,2-]	540-59-0	SOIL	Gray fox (Mammalian top carnivore)	25000	250000	mg/kg		SOIL_RF(f)_540-59-0
NONRAD	Volatile Organic Compound	Dichloroethene[cis/trans-1,2-]	540-59-0	SOIL	Montane shrew (Mammalian insectivore)	24	240	mg/kg	MINIMUM	SOIL_MS(i)_540-59-0
NONRAD	Volatile Organic Compound	Dichloroethene[cis/trans-1,2-]	540-59-0	SOIL	Mountain cottontail (Mammalian herbivore)	64	640	mg/kg		SOIL_DC(p)_540-59-0
NONRAD	Volatile Organic Compound	Dichloroethene[cis/trans-1,2-]	540-59-0	WATER	Aquatic community organisms - water	590	1100	µg/L	MINIMUM	WATER_AQ(w)_540-59-0
NONRAD	Volatile Organic Compound	Dichloroethene[cis/trans-1,2-]	540-59-0	WATER	Deer mouse (water)	230000	2300000	µg/L		WATER_DM(w)_540-59-0
NONRAD	Volatile Organic Compound	Dichloroethene[cis/trans-1,2-]	540-59-0	WATER	Gray fox (water)	520000	5200000	µg/L		WATER_RF(w)_540-59-0
NONRAD	Volatile Organic Compound	Dichloroethene[cis/trans-1,2-]	540-59-0	WATER	Montane shrew (water)	200000	2000000	µg/L		WATER_MS(w)_540-59-0
NONRAD	Volatile Organic Compound	Dichloroethene[cis/trans-1,2-]	540-59-0	WATER	Mountain cottontail (water)	460000	4600000	µg/L		WATER_DC(w)_540-59-0
NONRAD	Volatile Organic Compound	Dichloroethene[cis/trans-1,2-]	540-59-0	WATER	Occult little brown myotis bat (water)	280000	2800000	µg/L		WATER_BA(w)_540-59-0
NONRAD	Volatile Organic Compound	Diphenylamine	122-39-4	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	13	22	mg/kg	MINIMUM	SEDIMENT_VGS(i)_122-39-4
NONRAD	Volatile Organic Compound	Diphenylamine	122-39-4	SOIL	American kestrel (Avian top carnivore)	3900	6500	mg/kg		SOIL_AK(f)_122-39-4
NONRAD	Volatile Organic Compound	Diphenylamine	122-39-4	SOIL	American kestrel (insectivore / carnivore)	49	81	mg/kg		SOIL_AK(fi)_122-39-4
NONRAD	Volatile Organic Compound	Diphenylamine	122-39-4	SOIL	American robin (Avian herbivore)	78	130	mg/kg		SOIL_AR(p)_122-39-4
NONRAD	Volatile Organic Compound	Diphenylamine	122-39-4	SOIL	American robin (Avian insectivore)	10	16	mg/kg	MINIMUM	SOIL_AR(i)_122-39-4
NONRAD	Volatile Organic Compound	Diphenylamine	122-39-4	SOIL	American robin (Avian omnivore)	17	29	mg/kg		SOIL_AR(ip)_122-39-4
NONRAD	Volatile Organic Compound	Hexachlorobenzene	118-74-1	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.22	2.2	mg/kg		SEDIMENT_BA(i)_118-74-1
NONRAD	Volatile Organic Compound	Hexachlorobenzene	118-74-1	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.1	1	mg/kg	MINIMUM	SEDIMENT_VGS(i)_118-74-1
NONRAD	Volatile Organic Compound	Hexachlorobenzene	118-74-1	SOIL	American kestrel (Avian top carnivore)	12	120	mg/kg		SOIL_AK(f)_118-74-1
NONRAD	Volatile Organic Compound	Hexachlorobenzene	118-74-1	SOIL	American kestrel (insectivore / carnivore)	0.37	3.7	mg/kg		SOIL_AK(fi)_118-74-1
NONRAD	Volatile Organic Compound	Hexachlorobenzene	118-74-1	SOIL	American robin (Avian herbivore)	83	830	mg/kg		SOIL_AR(p)_118-74-1
NONRAD	Volatile Organic Compound	Hexachlorobenzene	118-74-1	SOIL	American robin (Avian insectivore)	0.079	0.79	mg/kg	MINIMUM	SOIL_AR(i)_118-74-1
NONRAD	Volatile Organic Compound	Hexachlorobenzene	118-74-1	SOIL	American robin (Avian omnivore)	0.15	1.5	mg/kg		SOIL_AR(ip)_118-74-1
NONRAD	Volatile Organic Compound	Hexachlorobenzene	118-74-1	SOIL	Deer mouse (Mammalian omnivore)	0.39	3.9	mg/kg		SOIL_DM(ip)_118-74-1
NONRAD	Volatile Organic Compound	Hexachlorobenzene	118-74-1	SOIL	Earthworm (Soil-dwelling invertebrate)	10	100	mg/kg		SOIL_EW_118-74-1
NONRAD	Volatile Organic Compound	Hexachlorobenzene	118-74-1	SOIL	Generic plant (Terrestrial autotroph - producer)	10	100	mg/kg		SOIL_GP_118-74-1
NONRAD	Volatile Organic Compound	Hexachlorobenzene	118-74-1	SOIL	Gray fox (Mammalian top carnivore)	59	590	mg/kg		SOIL_RF(f)_118-74-1
NONRAD	Volatile Organic Compound	Hexachlorobenzene	118-74-1	SOIL	Montane shrew (Mammalian insectivore)	0.2	2	mg/kg		SOIL_MS(i)_118-74-1
NONRAD	Volatile Organic Compound	Hexachlorobenzene	118-74-1	SOIL	Mountain cottontail (Mammalian herbivore)	910	9100	mg/kg		SOIL_DC(p)_118-74-1
NONRAD	Volatile Organic Compound	Hexanone[2-]	591-78-6	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	6	23	mg/kg		SEDIMENT_BA(i)_591-78-6
NONRAD	Volatile Organic Compound	Hexanone[2-]	591-78-6	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.47	4.7	mg/kg	MINIMUM	SEDIMENT_VGS(i)_591-78-6
NONRAD	Volatile Organic Compound	Hexanone[2-]	591-78-6	SOIL	American kestrel (Avian top carnivore)	290	2900	mg/kg		SOIL_AK(f)_591-78-6
NONRAD	Volatile Organic Compound	Hexanone[2-]	591-78-6	SOIL	American kestrel (insectivore / carnivore)	1.7	17	mg/kg		SOIL_AK(fi)_591-78-6

NONRAD	Volatile Organic Compound	Hexanone[2-]	591-78-6	SOIL	American robin (Avian herbivore)	0.47	4.7	mg/kg		SOIL_AR(p)_591-78-6
NONRAD	Volatile Organic Compound	Hexanone[2-]	591-78-6	SOIL	American robin (Avian insectivore)	0.36	3.6	mg/kg	MINIMUM	SOIL_AR(i)_591-78-6
NONRAD	Volatile Organic Compound	Hexanone[2-]	591-78-6	SOIL	American robin (Avian omnivore)	0.41	4.1	mg/kg		SOIL_AR(ip)_591-78-6
NONRAD	Volatile Organic Compound	Hexanone[2-]	591-78-6	SOIL	Deer mouse (Mammalian omnivore)	6.1	23	mg/kg		SOIL_DM(ip)_591-78-6
NONRAD	Volatile Organic Compound	Hexanone[2-]	591-78-6	SOIL	Gray fox (Mammalian top carnivore)	5900	22000	mg/kg		SOIL_RF(f)_591-78-6
NONRAD	Volatile Organic Compound	Hexanone[2-]	591-78-6	SOIL	Montane shrew (Mammalian insectivore)	5.4	20	mg/kg		SOIL_MS(i)_591-78-6
NONRAD	Volatile Organic Compound	Hexanone[2-]	591-78-6	SOIL	Mountain cottontail (Mammalian herbivore)	17	65	mg/kg		SOIL_DC(p)_591-78-6
NONRAD	Volatile Organic Compound	Iodomethane	74-88-4	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.081	0.16	mg/kg	MINIMUM	SEDIMENT_VGS(i)_74-88-4
NONRAD	Volatile Organic Compound	Iodomethane	74-88-4	SOIL	American kestrel (Avian top carnivore)	46	92	mg/kg		SOIL_AK(f)_74-88-4
NONRAD	Volatile Organic Compound	Iodomethane	74-88-4	SOIL	American kestrel (insectivore / carnivore)	0.29	0.59	mg/kg		SOIL_AK(fi)_74-88-4
NONRAD	Volatile Organic Compound	Iodomethane	74-88-4	SOIL	American robin (Avian herbivore)	0.038	0.076	mg/kg	MINIMUM	SOIL_AR(p)_74-88-4
NONRAD	Volatile Organic Compound	Iodomethane	74-88-4	SOIL	American robin (Avian insectivore)	0.062	0.12	mg/kg		SOIL_AR(i)_74-88-4
NONRAD	Volatile Organic Compound	Iodomethane	74-88-4	SOIL	American robin (Avian omnivore)	0.047	0.095	mg/kg		SOIL_AR(ip)_74-88-4
NONRAD	Volatile Organic Compound	Methyl-2-pentanone[4-]	108-10-1	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	17	170	mg/kg	MINIMUM	SEDIMENT_BA(i)_108-10-1
NONRAD	Volatile Organic Compound	Methyl-2-pentanone[4-]	108-10-1	SOIL	Deer mouse (Mammalian omnivore)	9.7	97	mg/kg	MINIMUM	SOIL_DM(ip)_108-10-1
NONRAD	Volatile Organic Compound	Methyl-2-pentanone[4-]	108-10-1	SOIL	Gray fox (Mammalian top carnivore)	18000	180000	mg/kg		SOIL_RF(f)_108-10-1
NONRAD	Volatile Organic Compound	Methyl-2-pentanone[4-]	108-10-1	SOIL	Montane shrew (Mammalian insectivore)	15	150	mg/kg		SOIL_MS(i)_108-10-1
NONRAD	Volatile Organic Compound	Methyl-2-pentanone[4-]	108-10-1	SOIL	Mountain cottontail (Mammalian herbivore)	17	170	mg/kg		SOIL_DC(p)_108-10-1
NONRAD	Volatile Organic Compound	Methylene Chloride	75-09-2	AIR	Botta's Pocket Gopher (Burrowing mammal)	1300		mg/m^3	MINIMUM	AIR_BPG(a)_75-09-2
NONRAD	Volatile Organic Compound	Methylene Chloride	75-09-2	SEDIMENT	Aquatic community organisms - sediment	0.018	0.18	mg/kg	MINIMUM	SEDIMENT_AQ(s)_75-09-2
NONRAD	Volatile Organic Compound	Methylene Chloride	75-09-2	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	10	88	mg/kg		SEDIMENT_BA(i)_75-09-2
NONRAD	Volatile Organic Compound	Methylene Chloride	75-09-2	SOIL	Deer mouse (Mammalian omnivore)	2.6	22	mg/kg	MINIMUM	SOIL_DM(ip)_75-09-2
NONRAD	Volatile Organic Compound	Methylene Chloride	75-09-2	SOIL	Generic plant (Terrestrial autotroph - producer)	1600	16000	mg/kg		SOIL_GP_75-09-2
NONRAD	Volatile Organic Compound	Methylene Chloride	75-09-2	SOIL	Gray fox (Mammalian top carnivore)	4300	36000	mg/kg		SOIL_RF(f)_75-09-2
NONRAD	Volatile Organic Compound	Methylene Chloride	75-09-2	SOIL	Montane shrew (Mammalian insectivore)	9.2	79	mg/kg		SOIL_MS(i)_75-09-2
NONRAD	Volatile Organic Compound	Methylene Chloride	75-09-2	SOIL	Mountain cottontail (Mammalian herbivore)	3.8	32	mg/kg		SOIL_DC(p)_75-09-2
NONRAD	Volatile Organic Compound	Methylene Chloride	75-09-2	WATER	Aquatic community organisms - water	210	2100	µg/L	MINIMUM	WATER_AQ(w)_75-09-2
NONRAD	Volatile Organic Compound	Methylene Chloride	75-09-2	WATER	Deer mouse (water)	30000	260000	µg/L		WATER_DM(w)_75-09-2
NONRAD	Volatile Organic Compound	Methylene Chloride	75-09-2	WATER	Gray fox (water)	68000	580000	µg/L		WATER_RF(w)_75-09-2
NONRAD	Volatile Organic Compound	Methylene Chloride	75-09-2	WATER	Montane shrew (water)	26000	220000	µg/L		WATER_MS(w)_75-09-2
NONRAD	Volatile Organic Compound	Methylene Chloride	75-09-2	WATER	Mountain cottontail (water)	60000	510000	µg/L		WATER_DC(w)_75-09-2
NONRAD	Volatile Organic Compound	Methylene Chloride	75-09-2	WATER	Occult little brown myotis bat (water)	36000	310000	µg/L		WATER_BA(w)_75-09-2
NONRAD	Volatile Organic Compound	Styrene	100-42-5	SOIL	Earthworm (Soil-dwelling invertebrate)	1.2	12	mg/kg	MINIMUM	SOIL_EW_100-42-5
NONRAD	Volatile Organic Compound	Styrene	100-42-5	SOIL	Generic plant (Terrestrial autotroph - producer)	3.2	32	mg/kg		SOIL_GP_100-42-5
NONRAD	Volatile Organic Compound	Tetrachloroethene	127-18-4	AIR	Botta's Pocket Gopher (Burrowing mammal)	73		mg/m^3	MINIMUM	AIR_BPG(a)_127-18-4
NONRAD	Volatile Organic Compound	Tetrachloroethene	127-18-4	SEDIMENT	Aquatic community organisms - sediment	0.002	0.02	mg/kg	MINIMUM	SEDIMENT_AQ(s)_127-18-4
NONRAD	Volatile Organic Compound	Tetrachloroethene	127-18-4	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.2	1	mg/kg		SEDIMENT_BA(i)_127-18-4
NONRAD	Volatile Organic Compound	Tetrachloroethene	127-18-4	SOIL	Deer mouse (Mammalian omnivore)	0.35	1.7	mg/kg		SOIL_DM(ip)_127-18-4
NONRAD	Volatile Organic Compound	Tetrachloroethene	127-18-4	SOIL	Generic plant (Terrestrial autotroph - producer)	10	100	mg/kg		SOIL_GP_127-18-4
NONRAD	Volatile Organic Compound	Tetrachloroethene	127-18-4	SOIL	Gray fox (Mammalian top carnivore)	120	630	mg/kg		SOIL_RF(f)_127-18-4
NONRAD	Volatile Organic Compound	Tetrachloroethene	127-18-4	SOIL	Montane shrew (Mammalian insectivore)	0.18	0.94	mg/kg	MINIMUM	SOIL_MS(i)_127-18-4
NONRAD	Volatile Organic Compound	Tetrachloroethene	127-18-4	SOIL	Mountain cottontail (Mammalian herbivore)	9.5	47	mg/kg		SOIL_DC(p)_127-18-4
NONRAD	Volatile Organic Compound	Tetrachloroethene	127-18-4	WATER	Aquatic community organisms - water	98	830	µg/L	MINIMUM	WATER_AQ(w)_127-18-4
NONRAD	Volatile Organic Compound	Tetrachloroethene	127-18-4	WATER	Deer mouse (water)	10000	52000	µg/L		WATER_DM(w)_127-18-4
NONRAD	Volatile Organic Compound	Tetrachloroethene	127-18-4	WATER	Gray fox (water)	23000	110000	µg/L		WATER_RF(w)_127-18-4
NONRAD	Volatile Organic Compound	Tetrachloroethene	127-18-4	WATER	Montane shrew (water)	8900	44000	µg/L		WATER_MS(w)_127-18-4
NONRAD	Volatile Organic Compound	Tetrachloroethene	127-18-4	WATER	Mountain cottontail (water)	20000	100000	µg/L		WATER_DC(w)_127-18-4
NONRAD	Volatile Organic Compound	Tetrachloroethene	127-18-4	WATER	Occult little brown myotis bat (water)	12000	62000	µg/L		WATER_BA(w)_127-18-4
NONRAD	Volatile Organic Compound	Toluene	108-88-3	AIR	Botta's Pocket Gopher (Burrowing mammal)	60		mg/m^3	MINIMUM	AIR_BPG(a)_108-88-3
NONRAD	Volatile Organic Compound	Toluene	108-88-3	SEDIMENT	Aquatic community organisms - sediment	0.01	0.1	mg/kg	MINIMUM	SEDIMENT_AQ(s)_108-88-3
NONRAD	Volatile Organic Compound	Toluene	108-88-3	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	25	250	mg/kg		SEDIMENT_BA(i)_108-88-3
NONRAD	Volatile Organic Compound	Toluene	108-88-3	SOIL	Deer mouse (Mammalian omnivore)	25	250	mg/kg		SOIL_DM(ip)_108-88-3
NONRAD	Volatile Organic Compound	Toluene	108-88-3	SOIL	Generic plant (Terrestrial autotroph - producer)	200	2000	mg/kg		SOIL_GP_108-88-3
NONRAD	Volatile Organic Compound	Toluene	108-88-3	SOIL	Gray fox (Mammalian top carnivore)	12000	120000	mg/kg		SOIL_RF(f)_108-88-3
NONRAD	Volatile Organic Compound	Toluene	108-88-3	SOIL	Montane shrew (Mammalian insectivore)	23	230	mg/kg	MINIMUM	SOIL_MS(i)_108-88-3
NONRAD	Volatile Organic Compound	Toluene	108-88-3	SOIL	Mountain cottontail (Mammalian herbivore)	66	660	mg/kg		SOIL_DC(p)_108-88-3
NONRAD	Volatile Organic Compound	Toluene	108-88-3	WATER	Aquatic community organisms - water	9.8	98	µg/L	MINIMUM	WATER_AQ(w)_108-88-3
NONRAD	Volatile Organic Compound	Toluene	108-88-3	WATER	Deer mouse (water)	130000	1300000	µg/L		WATER_DM(w)_108-88-3
NONRAD	Volatile Organic Compound	Toluene	108-88-3	WATER	Gray fox (water)	300000	3000000	µg/L		WATER_RF(w)_108-88-3
NONRAD	Volatile Organic Compound	Toluene	108-88-3	WATER	Montane shrew (water)	110000	1100000	µg/L		WATER_MS(w)_108-88-3
NONRAD	Volatile Organic Compound	Toluene	108-88-3	WATER	Mountain cottontail (water)	260000	2600000	µg/L		WATER_DC(w)_108-88-3
NONRAD	Volatile Organic Compound	Toluene	108-88-3	WATER	Occult little brown myotis bat (water)	160000	1600000	µg/L		WATER_BA(w)_108-88-3
NONRAD	Volatile Organic Compound	Trichlorobenzene[1,2,4-]	120-82-1	SEDIMENT	Aquatic community organisms - sediment	0.011	0.11	mg/kg	MINIMUM	SEDIMENT_AQ(s)_120-82-1
NONRAD	Volatile Organic Compound	Trichlorobenzene[1,2,4-]	120-82-1	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.3	3	mg/kg		SEDIMENT_BA(i)_120-82-1
NONRAD	Volatile Organic Compound	Trichlorobenzene[1,2,4-]	120-82-1	SOIL	Deer mouse (Mammalian omnivore)	0.51	5.1	mg/kg		SOIL_DM(ip)_120-82-1
NONRAD	Volatile Organic Compound	Trichlorobenzene[1,2,4-]	120-82-1	SOIL	Earthworm (Soil-dwelling invertebrate)	1.2	12	mg/kg		SOIL_EW_120-82-1
NONRAD	Volatile Organic Compound	Trichlorobenzene[1,2,4-]	120-82-1	SOIL	Gray fox (Mammalian top carnivore)	110	1100	mg/kg		SOIL_RF(f)_120-82-1
NONRAD	Volatile Organic Compound	Trichlorobenzene[1,2,4-]	120-82-1	SOIL	Montane shrew (Mammalian insectivore)	0.27	2.7	mg/kg	MINIMUM	SOIL_MS(i)_120-82-1
NONRAD	Volatile Organic Compound	Trichlorobenzene[1,2,4-]	120-82-1	SOIL	Mountain cottontail (Mammalian herbivore)	12	120	mg/kg		SOIL_DC(p)_120-82-1
NONRAD	Volatile Organic Compound	Trichlorobenzene[1,2,4-]	120-82-1	WATER	Aquatic community organisms - water	24	240	µg/L	MINIMUM	WATER_AQ(w)_120-82-1

NONRAD	Volatile Organic Compound	Trichlorobenzene[1,2,4-]	120-82-1	WATER	Deer mouse (water)	7700	77000	µg/L		WATER_DM(w)_120-82-1
NONRAD	Volatile Organic Compound	Trichlorobenzene[1,2,4-]	120-82-1	WATER	Gray fox (water)	17000	170000	µg/L		WATER_RF(w)_120-82-1
NONRAD	Volatile Organic Compound	Trichlorobenzene[1,2,4-]	120-82-1	WATER	Montane shrew (water)	6600	66000	µg/L		WATER_MS(w)_120-82-1
NONRAD	Volatile Organic Compound	Trichlorobenzene[1,2,4-]	120-82-1	WATER	Mountain cottontail (water)	15000	150000	µg/L		WATER_DC(w)_120-82-1
NONRAD	Volatile Organic Compound	Trichlorobenzene[1,2,4-]	120-82-1	WATER	Occult little brown myotis bat (water)	9300	93000	µg/L		WATER_BA(w)_120-82-1
NONRAD	Volatile Organic Compound	Trichloroethane[1,1,1-]	71-55-6	AIR	Botta's Pocket Gopher (Burrowing mammal)	240		mg/m^3	MINIMUM	AIR_BPG(a)_71-55-6
NONRAD	Volatile Organic Compound	Trichloroethane[1,1,1-]	71-55-6	SEDIMENT	Aquatic community organisms - sediment	0.07	0.7	mg/kg	MINIMUM	SEDIMENT_AQ(s)_71-55-6
NONRAD	Volatile Organic Compound	Trichloroethane[1,1,1-]	71-55-6	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	290	2900	mg/kg		SEDIMENT_BA(i)_71-55-6
NONRAD	Volatile Organic Compound	Trichloroethane[1,1,1-]	71-55-6	SOIL	Deer mouse (Mammalian omnivore)	400	4000	mg/kg		SOIL_DM(ip)_71-55-6
NONRAD	Volatile Organic Compound	Trichloroethane[1,1,1-]	71-55-6	SOIL	Gray fox (Mammalian top carnivore)	310000	3100000	mg/kg		SOIL_RF(f)_71-55-6
NONRAD	Volatile Organic Compound	Trichloroethane[1,1,1-]	71-55-6	SOIL	Montane shrew (Mammalian insectivore)	260	2600	mg/kg	MINIMUM	SOIL_MS(i)_71-55-6
NONRAD	Volatile Organic Compound	Trichloroethane[1,1,1-]	71-55-6	SOIL	Mountain cottontail (Mammalian herbivore)	2000	20000	mg/kg		SOIL_DC(p)_71-55-6
NONRAD	Volatile Organic Compound	Trichloroethane[1,1,1-]	71-55-6	WATER	Aquatic community organisms - water	11	110	µg/L	MINIMUM	WATER_AQ(w)_71-55-6
NONRAD	Volatile Organic Compound	Trichloroethane[1,1,1-]	71-55-6	WATER	Deer mouse (water)	5200000	52000000	µg/L		WATER_DM(w)_71-55-6
NONRAD	Volatile Organic Compound	Trichloroethane[1,1,1-]	71-55-6	WATER	Gray fox (water)	11000000	110000000	µg/L		WATER_RF(w)_71-55-6
NONRAD	Volatile Organic Compound	Trichloroethane[1,1,1-]	71-55-6	WATER	Montane shrew (water)	4400000	44000000	µg/L		WATER_MS(w)_71-55-6
NONRAD	Volatile Organic Compound	Trichloroethane[1,1,1-]	71-55-6	WATER	Mountain cottontail (water)	10000000	100000000	µg/L		WATER_DC(w)_71-55-6
NONRAD	Volatile Organic Compound	Trichloroethane[1,1,1-]	71-55-6	WATER	Occult little brown myotis bat (water)	6200000	62000000	µg/L		WATER_BA(w)_71-55-6
NONRAD	Volatile Organic Compound	Trichloroethene	79-01-6	AIR	Botta's Pocket Gopher (Burrowing mammal)	19		mg/m^3	MINIMUM	AIR_BPG(a)_79-01-6
NONRAD	Volatile Organic Compound	Trichloroethene	79-01-6	SEDIMENT	Aquatic community organisms - sediment	0.078	0.78	mg/kg	MINIMUM	SEDIMENT_AQ(s)_79-01-6
NONRAD	Volatile Organic Compound	Trichloroethene	79-01-6	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	46	460	mg/kg		SEDIMENT_BA(i)_79-01-6
NONRAD	Volatile Organic Compound	Trichloroethene	79-01-6	SOIL	Deer mouse (Mammalian omnivore)	54	540	mg/kg		SOIL_DM(ip)_79-01-6
NONRAD	Volatile Organic Compound	Trichloroethene	79-01-6	SOIL	Gray fox (Mammalian top carnivore)	42000	420000	mg/kg		SOIL_RF(f)_79-01-6
NONRAD	Volatile Organic Compound	Trichloroethene	79-01-6	SOIL	Montane shrew (Mammalian insectivore)	42	420	mg/kg	MINIMUM	SOIL_MS(i)_79-01-6
NONRAD	Volatile Organic Compound	Trichloroethene	79-01-6	SOIL	Mountain cottontail (Mammalian herbivore)	190	1900	mg/kg		SOIL_DC(p)_79-01-6
NONRAD	Volatile Organic Compound	Trichloroethene	79-01-6	WATER	Aquatic community organisms - water	21	210	µg/L	MINIMUM	WATER_AQ(w)_79-01-6
NONRAD	Volatile Organic Compound	Trichloroethene	79-01-6	WATER	Deer mouse (water)	520000	5200000	µg/L		WATER_DM(w)_79-01-6
NONRAD	Volatile Organic Compound	Trichloroethene	79-01-6	WATER	Gray fox (water)	1100000	11000000	µg/L		WATER_RF(w)_79-01-6
NONRAD	Volatile Organic Compound	Trichloroethene	79-01-6	WATER	Montane shrew (water)	440000	4400000	µg/L		WATER_MS(w)_79-01-6
NONRAD	Volatile Organic Compound	Trichloroethene	79-01-6	WATER	Mountain cottontail (water)	1000000	10000000	µg/L		WATER_DC(w)_79-01-6
NONRAD	Volatile Organic Compound	Trichloroethene	79-01-6	WATER	Occult little brown myotis bat (water)	620000	6200000	µg/L		WATER_BA(w)_79-01-6
NONRAD	Volatile Organic Compound	Trichlorofluoromethane	75-69-4	AIR	Botta's Pocket Gopher (Burrowing mammal)	820		mg/m^3	MINIMUM	AIR_BPG(a)_75-69-4
NONRAD	Volatile Organic Compound	Trichlorofluoromethane	75-69-4	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	58	390	mg/kg	MINIMUM	SEDIMENT_BA(i)_75-69-4
NONRAD	Volatile Organic Compound	Trichlorofluoromethane	75-69-4	SOIL	Deer mouse (Mammalian omnivore)	97	650	mg/kg		SOIL_DM(ip)_75-69-4
NONRAD	Volatile Organic Compound	Trichlorofluoromethane	75-69-4	SOIL	Gray fox (Mammalian top carnivore)	62000	420000	mg/kg		SOIL_RF(f)_75-69-4
NONRAD	Volatile Organic Compound	Trichlorofluoromethane	75-69-4	SOIL	Montane shrew (Mammalian insectivore)	52	350	mg/kg	MINIMUM	SOIL_MS(i)_75-69-4
NONRAD	Volatile Organic Compound	Trichlorofluoromethane	75-69-4	SOIL	Mountain cottontail (Mammalian herbivore)	1800	12000	mg/kg		SOIL_DC(p)_75-69-4
NONRAD	Volatile Organic Compound	Vinyl Chloride	75-01-4	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	0.14	1.4	mg/kg	MINIMUM	SEDIMENT_BA(i)_75-01-4
NONRAD	Volatile Organic Compound	Vinyl Chloride	75-01-4	SOIL	Deer mouse (Mammalian omnivore)	0.13	1.3	mg/kg		SOIL_DM(ip)_75-01-4
NONRAD	Volatile Organic Compound	Vinyl Chloride	75-01-4	SOIL	Gray fox (Mammalian top carnivore)	110	1100	mg/kg		SOIL_RF(f)_75-01-4
NONRAD	Volatile Organic Compound	Vinyl Chloride	75-01-4	SOIL	Montane shrew (Mammalian insectivore)	0.12	1.2	mg/kg	MINIMUM	SOIL_MS(i)_75-01-4
NONRAD	Volatile Organic Compound	Vinyl Chloride	75-01-4	SOIL	Mountain cottontail (Mammalian herbivore)	0.34	3.4	mg/kg		SOIL_DC(p)_75-01-4
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	AIR	Botta's Pocket Gopher (Burrowing mammal)	87		mg/m^3	MINIMUM	AIR_BPG(a)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	SEDIMENT	Aquatic community organisms - sediment	0.13	1.3	mg/kg	MINIMUM	SEDIMENT_AQ(s)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1.6	2	mg/kg		SEDIMENT_BA(i)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	53	530	mg/kg		SEDIMENT_VGS(i)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	SOIL	American kestrel (Avian top carnivore)	13000	130000	mg/kg		SOIL_AK(f)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	SOIL	American kestrel (insectivore / carnivore)	190	1900	mg/kg		SOIL_AK(fi)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	SOIL	American robin (Avian herbivore)	89	890	mg/kg		SOIL_AR(p)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	SOIL	American robin (Avian insectivore)	41	410	mg/kg		SOIL_AR(i)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	SOIL	American robin (Avian omnivore)	56	560	mg/kg		SOIL_AR(ip)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	SOIL	Deer mouse (Mammalian omnivore)	1.9	2.4	mg/kg		SOIL_DM(ip)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	SOIL	Generic plant (Terrestrial autotroph - producer)	100	1000	mg/kg		SOIL_GP_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	SOIL	Gray fox (Mammalian top carnivore)	750	930	mg/kg		SOIL_RF(f)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	SOIL	Montane shrew (Mammalian insectivore)	1.4	1.8	mg/kg	MINIMUM	SOIL_MS(i)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	SOIL	Mountain cottontail (Mammalian herbivore)	7.6	9.5	mg/kg		SOIL_DC(p)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	WATER	American kestrel (water)	880000	8900000	µg/L		WATER_AK(w)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	WATER	American robin (water)	760000	7600000	µg/L		WATER_AR(w)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	WATER	Aquatic community organisms - water	13	130	µg/L	MINIMUM	WATER_AQ(w)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	WATER	Deer mouse (water)	11000	1300000	µg/L		WATER_DM(w)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	WATER	Gray fox (water)	24000	3000000	µg/L		WATER_RF(w)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	WATER	Montane shrew (water)	9400	1100000	µg/L		WATER_MS(w)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	WATER	Mountain cottontail (water)	21000	2600000	µg/L		WATER_DC(w)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	WATER	Occult little brown myotis bat (water)	13000	1600000	µg/L		WATER_BA(w)_1330-20-7
NONRAD	Volatile Organic Compound	Xylene (Total)	1330-20-7	WATER	Violet-green Swallow (water)	440000	4400000	µg/L		WATER_VGS(w)_1330-20-7
RAD	Radionuclide	Americium-241	AM-241	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	66000	660000	pCi/g		SEDIMENT_A(s)_AM-241
RAD	Radionuclide	Americium-241	AM-241	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	66000	660000	pCi/g		SEDIMENT_AS(s)_AM-241
RAD	Radionuclide	Americium-241	AM-241	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	66000	660000	pCi/g		SEDIMENT_D(s)_AM-241
RAD	Radionuclide	Americium-241	AM-241	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	66000	660000	pCi/g		SEDIMENT_GF(s)_AM-241

RAD	Radionuclide	Americium-241	AM-241	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	3500	35000	pCi/g		SEDIMENT_BA(i)_AM-241
RAD	Radionuclide	Americium-241	AM-241	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	1000	10000	pCi/g	MINIMUM	SEDIMENT_VGS(i)_AM-241
RAD	Radionuclide	Americium-241	AM-241	SOIL	American kestrel (Avian top carnivore)	57000	570000	pCi/g		SOIL_AK(f)_AM-241
RAD	Radionuclide	Americium-241	AM-241	SOIL	American kestrel (insectivore / carnivore)	43000	430000	pCi/g		SOIL_AK(fi)_AM-241
RAD	Radionuclide	Americium-241	AM-241	SOIL	American robin (Avian herbivore)	4600	46000	pCi/g		SOIL_AR(p)_AM-241
RAD	Radionuclide	Americium-241	AM-241	SOIL	American robin (Avian insectivore)	10000	100000	pCi/g		SOIL_AR(i)_AM-241
RAD	Radionuclide	Americium-241	AM-241	SOIL	American robin (Avian omnivore)	6100	61000	pCi/g		SOIL_AR(ip)_AM-241
RAD	Radionuclide	Americium-241	AM-241	SOIL	Deer mouse (Mammalian omnivore)	33000	330000	pCi/g		SOIL_DM(ip)_AM-241
RAD	Radionuclide	Americium-241	AM-241	SOIL	Earthworm (Soil-dwelling invertebrate)	190	1900	pCi/g	MINIMUM	SOIL_EW_AM-241
RAD	Radionuclide	Americium-241	AM-241	SOIL	Generic plant (Terrestrial autotroph - producer)	500	5000	pCi/g		SOIL_GP_AM-241
RAD	Radionuclide	Americium-241	AM-241	SOIL	Gray fox (Mammalian top carnivore)	26000	260000	pCi/g		SOIL_RF(f)_AM-241
RAD	Radionuclide	Americium-241	AM-241	SOIL	Montane shrew (Mammalian insectivore)	34000	340000	pCi/g		SOIL_MS(i)_AM-241
RAD	Radionuclide	Americium-241	AM-241	SOIL	Mountain cottontail (Mammalian herbivore)	26000	260000	pCi/g		SOIL_DC(p)_AM-241
RAD	Radionuclide	Americium-241	AM-241	WATER	Algae (Aquatic autotroph - producer) - water	5.8	58	pCi/L	MINIMUM	WATER_A(w)_AM-241
RAD	Radionuclide	Americium-241	AM-241	WATER	American kestrel (water)	76000000	760000000	pCi/L		WATER_AK(w)_AM-241
RAD	Radionuclide	Americium-241	AM-241	WATER	American robin (water)	75000000	750000000	pCi/L		WATER_AR(w)_AM-241
RAD	Radionuclide	Americium-241	AM-241	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	170	1700	pCi/L		WATER_AS(w)_AM-241
RAD	Radionuclide	Americium-241	AM-241	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	170	1700	pCi/L		WATER_D(w)_AM-241
RAD	Radionuclide	Americium-241	AM-241	WATER	Deer mouse (water)	1300000000	13000000000	pCi/L		WATER_DM(w)_AM-241
RAD	Radionuclide	Americium-241	AM-241	WATER	Fish (Aquatic intermediate carnivore) - water	170	1700	pCi/L		WATER_GF(w)_AM-241
RAD	Radionuclide	Americium-241	AM-241	WATER	Gray fox (water)	5700000	57000000	pCi/L		WATER_RF(w)_AM-241
RAD	Radionuclide	Americium-241	AM-241	WATER	Montane shrew (water)	780000000	7800000000	pCi/L		WATER_MS(w)_AM-241
RAD	Radionuclide	Americium-241	AM-241	WATER	Mountain cottontail (water)	91000000	910000000	pCi/L		WATER_DC(w)_AM-241
RAD	Radionuclide	Americium-241	AM-241	WATER	Occult little brown myotis bat (water)	170000000	1700000000	pCi/L		WATER_BA(w)_AM-241
RAD	Radionuclide	Americium-241	AM-241	WATER	Violet-green Swallow (water)	180000000	1800000000	pCi/L		WATER_VGS(w)_AM-241
RAD	Radionuclide	Cesium-134	CS-134	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	2200	22000	pCi/g		SEDIMENT_A(s)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	2200	22000	pCi/g		SEDIMENT_AS(s)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	2200	22000	pCi/g		SEDIMENT_D(s)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	2200	22000	pCi/g		SEDIMENT_GF(s)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1200	12000	pCi/g		SEDIMENT_BA(i)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	320	3200	pCi/g	MINIMUM	SEDIMENT_VGS(i)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	SOIL	American kestrel (Avian top carnivore)	980	9800	pCi/g		SOIL_AK(f)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	SOIL	American kestrel (insectivore / carnivore)	1000	10000	pCi/g		SOIL_AK(fi)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	SOIL	American robin (Avian herbivore)	680	6800	pCi/g	MINIMUM	SOIL_AR(p)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	SOIL	American robin (Avian insectivore)	2100	21000	pCi/g		SOIL_AR(i)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	SOIL	American robin (Avian omnivore)	1200	12000	pCi/g		SOIL_AR(ip)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	SOIL	Deer mouse (Mammalian omnivore)	1100	11000	pCi/g		SOIL_DM(ip)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	SOIL	Earthworm (Soil-dwelling invertebrate)	1000	10000	pCi/g		SOIL_EW_CS-134
RAD	Radionuclide	Cesium-134	CS-134	SOIL	Generic plant (Terrestrial autotroph - producer)	700	7000	pCi/g		SOIL_GP_CS-134
RAD	Radionuclide	Cesium-134	CS-134	SOIL	Gray fox (Mammalian top carnivore)	730	7300	pCi/g		SOIL_RF(f)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	SOIL	Montane shrew (Mammalian insectivore)	1100	11000	pCi/g		SOIL_MS(i)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	SOIL	Mountain cottontail (Mammalian herbivore)	790	7900	pCi/g		SOIL_DC(p)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	WATER	Algae (Aquatic autotroph - producer) - water	1900	19000	pCi/L		WATER_A(w)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	WATER	American kestrel (water)	140000000	1400000000	pCi/L		WATER_AK(w)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	WATER	American robin (water)	140000000	1400000000	pCi/L		WATER_AR(w)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	9400	94000	pCi/L		WATER_AS(w)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	9400	94000	pCi/L		WATER_D(w)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	WATER	Deer mouse (water)	330000000	3300000000	pCi/L		WATER_DM(w)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	WATER	Fish (Aquatic intermediate carnivore) - water	470	4700	pCi/L	MINIMUM	WATER_GF(w)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	WATER	Gray fox (water)	7500000	75000000	pCi/L		WATER_RF(w)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	WATER	Montane shrew (water)	300000000	3000000000	pCi/L		WATER_MS(w)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	WATER	Mountain cottontail (water)	27000000	270000000	pCi/L		WATER_DC(w)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	WATER	Occult little brown myotis bat (water)	990000000	9900000000	pCi/L		WATER_BA(w)_CS-134
RAD	Radionuclide	Cesium-134	CS-134	WATER	Violet-green Swallow (water)	270000000	2700000000	pCi/L		WATER_VGS(w)_CS-134
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	5000	50000	pCi/g		SEDIMENT_A(s)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	5000	50000	pCi/g		SEDIMENT_AS(s)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	5000	50000	pCi/g		SEDIMENT_D(s)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	5000	50000	pCi/g		SEDIMENT_GF(s)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	2600	26000	pCi/g		SEDIMENT_BA(i)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	720	7200	pCi/g	MINIMUM	SEDIMENT_VGS(i)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SOIL	American kestrel (Avian top carnivore)	3700	37000	pCi/g		SOIL_AK(f)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SOIL	American kestrel (insectivore / carnivore)	4200	42000	pCi/g		SOIL_AK(fi)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SOIL	American robin (Avian herbivore)	1400	14000	pCi/g	MINIMUM	SOIL_AR(p)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SOIL	American robin (Avian insectivore)	4500	45000	pCi/g		SOIL_AR(i)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SOIL	American robin (Avian omnivore)	2600	26000	pCi/g		SOIL_AR(ip)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SOIL	Deer mouse (Mammalian omnivore)	2300	23000	pCi/g		SOIL_DM(ip)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SOIL	Earthworm (Soil-dwelling invertebrate)	2300	23000	pCi/g		SOIL_EW_CS-137/ BA-137

RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SOIL	Generic plant (Terrestrial autotroph - producer)	1500	15000	pCi/g		SOIL_GP_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SOIL	Gray fox (Mammalian top carnivore)	1500	15000	pCi/g		SOIL_RF(f)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SOIL	Montane shrew (Mammalian insectivore)	2400	24000	pCi/g		SOIL_MS(i)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	SOIL	Mountain cottontail (Mammalian herbivore)	1700	17000	pCi/g		SOIL_DC(p)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	WATER	Algae (Aquatic autotroph - producer) - water	4600	46000	pCi/L		WATER_A(w)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	WATER	American kestrel (water)	310000000	3100000000	pCi/L		WATER_AK(w)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	WATER	American robin (water)	310000000	3100000000	pCi/L		WATER_AR(w)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	23000	230000	pCi/L		WATER_AS(w)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	23000	230000	pCi/L		WATER_D(w)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	WATER	Deer mouse (water)	730000000	7300000000	pCi/L		WATER_DM(w)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	WATER	Fish (Aquatic intermediate carnivore) - water	1100	11000	pCi/L	MINIMUM	WATER_GF(w)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	WATER	Gray fox (water)	16000000	160000000	pCi/L		WATER_RF(w)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	WATER	Montane shrew (water)	650000000	6500000000	pCi/L		WATER_MS(w)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	WATER	Mountain cottontail (water)	59000000	590000000	pCi/L		WATER_DC(w)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	WATER	Occult little brown myotis bat (water)	2100000000	21000000000	pCi/L		WATER_BA(w)_CS-137/ BA-137
RAD	Radionuclide	Cesium-137 + Barium-137	CS-137/ BA-137	WATER	Violet-green Swallow (water)	580000000	5800000000	pCi/L		WATER_VGS(w)_CS-137/ BA-137
RAD	Radionuclide	Cobalt-60	CO-60	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	1400	14000	pCi/g		SEDIMENT_A(s)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	1400	14000	pCi/g		SEDIMENT_AS(s)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	1400	14000	pCi/g		SEDIMENT_D(s)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	1400	14000	pCi/g		SEDIMENT_GF(s)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	760	7600	pCi/g		SEDIMENT_BA(i)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	200	2000	pCi/g	MINIMUM	SEDIMENT_VGS(i)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	SOIL	American kestrel (Avian top carnivore)	1500	15000	pCi/g		SOIL_AK(f)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	SOIL	American kestrel (insectivore / carnivore)	1500	15000	pCi/g		SOIL_AK(fi)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	SOIL	American robin (Avian herbivore)	1500	15000	pCi/g		SOIL_AR(p)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	SOIL	American robin (Avian insectivore)	1500	15000	pCi/g		SOIL_AR(i)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	SOIL	American robin (Avian omnivore)	1500	15000	pCi/g		SOIL_AR(ip)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	SOIL	Deer mouse (Mammalian omnivore)	760	7600	pCi/g	MINIMUM	SOIL_DM(ip)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	SOIL	Earthworm (Soil-dwelling invertebrate)	760	7600	pCi/g	MINIMUM	SOIL_EW_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	SOIL	Generic plant (Terrestrial autotroph - producer)	760	7600	pCi/g	MINIMUM	SOIL_GP_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	SOIL	Gray fox (Mammalian top carnivore)	760	7600	pCi/g	MINIMUM	SOIL_RF(f)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	SOIL	Montane shrew (Mammalian insectivore)	760	7600	pCi/g	MINIMUM	SOIL_MS(i)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	SOIL	Mountain cottontail (Mammalian herbivore)	760	7600	pCi/g	MINIMUM	SOIL_DC(p)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	WATER	Algae (Aquatic autotroph - producer) - water	760	7600	pCi/L		WATER_A(w)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	WATER	American kestrel (water)	1900000000	19000000000	pCi/L		WATER_AK(w)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	WATER	American robin (water)	1800000000	18000000000	pCi/L		WATER_AR(w)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	380	3800	pCi/L	MINIMUM	WATER_AS(w)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	380	3800	pCi/L	MINIMUM	WATER_D(w)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	WATER	Deer mouse (water)	3900000000	39000000000	pCi/L		WATER_DM(w)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	WATER	Fish (Aquatic intermediate carnivore) - water	2300	23000	pCi/L		WATER_GF(w)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	WATER	Gray fox (water)	97000000	970000000	pCi/L		WATER_RF(w)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	WATER	Montane shrew (water)	3700000000	37000000000	pCi/L		WATER_MS(w)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	WATER	Mountain cottontail (water)	330000000	3300000000	pCi/L		WATER_DC(w)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	WATER	Occult little brown myotis bat (water)	12000000000	1.2E+11	pCi/L		WATER_BA(w)_CO-60
RAD	Radionuclide	Cobalt-60	CO-60	WATER	Violet-green Swallow (water)	3400000000	34000000000	pCi/L		WATER_VGS(w)_CO-60
RAD	Radionuclide	Europium-152	EU-152	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	1000	10000	pCi/g		SEDIMENT_A(s)_EU-152
RAD	Radionuclide	Europium-152	EU-152	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	1000	10000	pCi/g		SEDIMENT_AS(s)_EU-152
RAD	Radionuclide	Europium-152	EU-152	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	1000	10000	pCi/g		SEDIMENT_D(s)_EU-152
RAD	Radionuclide	Europium-152	EU-152	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	1000	10000	pCi/g		SEDIMENT_GF(s)_EU-152
RAD	Radionuclide	Europium-152	EU-152	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	120	1200	pCi/g		SEDIMENT_BA(i)_EU-152
RAD	Radionuclide	Europium-152	EU-152	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	34	340	pCi/g	MINIMUM	SEDIMENT_VGS(i)_EU-152
RAD	Radionuclide	Europium-152	EU-152	SOIL	American kestrel (Avian top carnivore)	1000	10000	pCi/g		SOIL_AK(f)_EU-152
RAD	Radionuclide	Europium-152	EU-152	SOIL	American kestrel (insectivore / carnivore)	1000	10000	pCi/g		SOIL_AK(fi)_EU-152
RAD	Radionuclide	Europium-152	EU-152	SOIL	American robin (Avian herbivore)	1000	10000	pCi/g		SOIL_AR(p)_EU-152
RAD	Radionuclide	Europium-152	EU-152	SOIL	American robin (Avian insectivore)	1000	10000	pCi/g		SOIL_AR(i)_EU-152
RAD	Radionuclide	Europium-152	EU-152	SOIL	American robin (Avian omnivore)	1000	10000	pCi/g		SOIL_AR(ip)_EU-152
RAD	Radionuclide	Europium-152	EU-152	SOIL	Deer mouse (Mammalian omnivore)	530	5300	pCi/g		SOIL_DM(ip)_EU-152
RAD	Radionuclide	Europium-152	EU-152	SOIL	Earthworm (Soil-dwelling invertebrate)	530	5300	pCi/g		SOIL_EW_EU-152
RAD	Radionuclide	Europium-152	EU-152	SOIL	Generic plant (Terrestrial autotroph - producer)	520	5200	pCi/g	MINIMUM	SOIL_GP_EU-152
RAD	Radionuclide	Europium-152	EU-152	SOIL	Gray fox (Mammalian top carnivore)	520	5200	pCi/g	MINIMUM	SOIL_RF(f)_EU-152
RAD	Radionuclide	Europium-152	EU-152	SOIL	Montane shrew (Mammalian insectivore)	530	5300	pCi/g		SOIL_MS(i)_EU-152
RAD	Radionuclide	Europium-152	EU-152	SOIL	Mountain cottontail (Mammalian herbivore)	520	5200	pCi/g		SOIL_DC(p)_EU-152
RAD	Radionuclide	Europium-152	EU-152	WATER	Algae (Aquatic autotroph - producer) - water	100	1000	pCi/L	MINIMUM	WATER_A(w)_EU-152

RAD	Radionuclide	Europium-152	EU-152	WATER	American kestrel (water)	220000000	2200000000	pCi/L		WATER_AK(w)_EU-152
RAD	Radionuclide	Europium-152	EU-152	WATER	American robin (water)	220000000	2200000000	pCi/L		WATER_AR(w)_EU-152
RAD	Radionuclide	Europium-152	EU-152	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	170	1700	pCi/L		WATER_AS(w)_EU-152
RAD	Radionuclide	Europium-152	EU-152	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	170	1700	pCi/L		WATER_D(w)_EU-152
RAD	Radionuclide	Europium-152	EU-152	WATER	Deer mouse (water)	1200000000	12000000000	pCi/L		WATER_DM(w)_EU-152
RAD	Radionuclide	Europium-152	EU-152	WATER	Fish (Aquatic intermediate carnivore) - water	1700	17000	pCi/L		WATER_GF(w)_EU-152
RAD	Radionuclide	Europium-152	EU-152	WATER	Gray fox (water)	12000000	120000000	pCi/L		WATER_RF(w)_EU-152
RAD	Radionuclide	Europium-152	EU-152	WATER	Montane shrew (water)	830000000	8300000000	pCi/L		WATER_MS(w)_EU-152
RAD	Radionuclide	Europium-152	EU-152	WATER	Mountain cottontail (water)	90000000	900000000	pCi/L		WATER_DC(w)_EU-152
RAD	Radionuclide	Europium-152	EU-152	WATER	Occult little brown myotis bat (water)	1400000000	14000000000	pCi/L		WATER_BA(w)_EU-152
RAD	Radionuclide	Europium-152	EU-152	WATER	Violet-green Swallow (water)	420000000	4200000000	pCi/L		WATER_VGS(w)_EU-152
RAD	Radionuclide	Lead-210	PB-210	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	9000	90000	pCi/g		SEDIMENT_A(s)_PB-210
RAD	Radionuclide	Lead-210	PB-210	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	9000	90000	pCi/g		SEDIMENT_AS(s)_PB-210
RAD	Radionuclide	Lead-210	PB-210	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	9000	90000	pCi/g		SEDIMENT_D(s)_PB-210
RAD	Radionuclide	Lead-210	PB-210	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	9000	90000	pCi/g		SEDIMENT_GF(s)_PB-210
RAD	Radionuclide	Lead-210	PB-210	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	7400	74000	pCi/g		SEDIMENT_BA(i)_PB-210
RAD	Radionuclide	Lead-210	PB-210	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	2100	21000	pCi/g	MINIMUM	SEDIMENT_VGS(i)_PB-210
RAD	Radionuclide	Lead-210	PB-210	SOIL	American kestrel (Avian top carnivore)	8900	88000	pCi/g		SOIL_AK(f)_PB-210
RAD	Radionuclide	Lead-210	PB-210	SOIL	American kestrel (insectivore / carnivore)	8500	85000	pCi/g		SOIL_AK(fi)_PB-210
RAD	Radionuclide	Lead-210	PB-210	SOIL	American robin (Avian herbivore)	6000	60000	pCi/g		SOIL_AR(p)_PB-210
RAD	Radionuclide	Lead-210	PB-210	SOIL	American robin (Avian insectivore)	6200	61000	pCi/g		SOIL_AR(i)_PB-210
RAD	Radionuclide	Lead-210	PB-210	SOIL	American robin (Avian omnivore)	5600	56000	pCi/g		SOIL_AR(ip)_PB-210
RAD	Radionuclide	Lead-210	PB-210	SOIL	Deer mouse (Mammalian omnivore)	4500	45000	pCi/g		SOIL_DM(ip)_PB-210
RAD	Radionuclide	Lead-210	PB-210	SOIL	Earthworm (Soil-dwelling invertebrate)	1200	12000	pCi/g	MINIMUM	SOIL_EW_PB-210
RAD	Radionuclide	Lead-210	PB-210	SOIL	Generic plant (Terrestrial autotroph - producer)	3400	34000	pCi/g		SOIL_GP_PB-210
RAD	Radionuclide	Lead-210	PB-210	SOIL	Gray fox (Mammalian top carnivore)	4400	44000	pCi/g		SOIL_RF(f)_PB-210
RAD	Radionuclide	Lead-210	PB-210	SOIL	Montane shrew (Mammalian insectivore)	4500	45000	pCi/g		SOIL_MS(i)_PB-210
RAD	Radionuclide	Lead-210	PB-210	SOIL	Mountain cottontail (Mammalian herbivore)	4400	44000	pCi/g		SOIL_DC(p)_PB-210
RAD	Radionuclide	Lead-210	PB-210	WATER	Algae (Aquatic autotroph - producer) - water	250	2500	pCi/L	MINIMUM	WATER_A(w)_PB-210
RAD	Radionuclide	Lead-210	PB-210	WATER	American kestrel (water)	290000000	2900000000	pCi/L		WATER_AK(w)_PB-210
RAD	Radionuclide	Lead-210	PB-210	WATER	American robin (water)	280000000	2800000000	pCi/L		WATER_AR(w)_PB-210
RAD	Radionuclide	Lead-210	PB-210	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	1000	10000	pCi/L		WATER_AS(w)_PB-210
RAD	Radionuclide	Lead-210	PB-210	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	1000	10000	pCi/L		WATER_D(w)_PB-210
RAD	Radionuclide	Lead-210	PB-210	WATER	Deer mouse (water)	2700000000	27000000000	pCi/L		WATER_DM(w)_PB-210
RAD	Radionuclide	Lead-210	PB-210	WATER	Fish (Aquatic intermediate carnivore) - water	250	2500	pCi/L	MINIMUM	WATER_GF(w)_PB-210
RAD	Radionuclide	Lead-210	PB-210	WATER	Gray fox (water)	17000000	170000000	pCi/L		WATER_RF(w)_PB-210
RAD	Radionuclide	Lead-210	PB-210	WATER	Montane shrew (water)	1600000000	16000000000	pCi/L		WATER_MS(w)_PB-210
RAD	Radionuclide	Lead-210	PB-210	WATER	Mountain cottontail (water)	190000000	1900000000	pCi/L		WATER_DC(w)_PB-210
RAD	Radionuclide	Lead-210	PB-210	WATER	Occult little brown myotis bat (water)	1600000000	16000000000	pCi/L		WATER_BA(w)_PB-210
RAD	Radionuclide	Lead-210	PB-210	WATER	Violet-green Swallow (water)	590000000	5900000000	pCi/L		WATER_VGS(w)_PB-210
RAD	Radionuclide	Neptunium-237	NP-237	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	7600	76000	pCi/g		SEDIMENT_A(s)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	7600	76000	pCi/g		SEDIMENT_AS(s)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	7600	76000	pCi/g		SEDIMENT_D(s)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	7600	76000	pCi/g		SEDIMENT_GF(s)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	190	1900	pCi/g		SEDIMENT_BA(i)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	56	560	pCi/g	MINIMUM	SEDIMENT_VGS(i)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	SOIL	American kestrel (Avian top carnivore)	1700	17000	pCi/g		SOIL_AK(f)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	SOIL	American kestrel (insectivore / carnivore)	1100	11000	pCi/g		SOIL_AK(fi)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	SOIL	American robin (Avian herbivore)	590	5900	pCi/g		SOIL_AR(p)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	SOIL	American robin (Avian insectivore)	210	2100	pCi/g		SOIL_AR(i)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	SOIL	American robin (Avian omnivore)	200	2000	pCi/g		SOIL_AR(ip)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	SOIL	Deer mouse (Mammalian omnivore)	3300	33000	pCi/g		SOIL_DM(ip)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	SOIL	Earthworm (Soil-dwelling invertebrate)	50	500	pCi/g	MINIMUM	SOIL_EW_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	SOIL	Generic plant (Terrestrial autotroph - producer)	2700	27000	pCi/g		SOIL_GP_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	SOIL	Gray fox (Mammalian top carnivore)	740	7400	pCi/g		SOIL_RF(f)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	SOIL	Montane shrew (Mammalian insectivore)	3600	36000	pCi/g		SOIL_MS(i)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	SOIL	Mountain cottontail (Mammalian herbivore)	3200	32000	pCi/g		SOIL_DC(p)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	WATER	Algae (Aquatic autotroph - producer) - water	65	650	pCi/L		WATER_A(w)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	WATER	American kestrel (water)	4100000	41000000	pCi/L		WATER_AK(w)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	WATER	American robin (water)	4000000	40000000	pCi/L		WATER_AR(w)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	650	6500	pCi/L		WATER_AS(w)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	650	6500	pCi/L		WATER_D(w)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	WATER	Deer mouse (water)	75000000	750000000	pCi/L		WATER_DM(w)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	WATER	Fish (Aquatic intermediate carnivore) - water	7.9	79	pCi/L	MINIMUM	WATER_GF(w)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	WATER	Gray fox (water)	310000	3100000	pCi/L		WATER_RF(w)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	WATER	Montane shrew (water)	43000000	430000000	pCi/L		WATER_MS(w)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	WATER	Mountain cottontail (water)	5100000	51000000	pCi/L		WATER_DC(w)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	WATER	Occult little brown myotis bat (water)	8900000	89000000	pCi/L		WATER_BA(w)_NP-237
RAD	Radionuclide	Neptunium-237	NP-237	WATER	Violet-green Swallow (water)	9900000	99000000	pCi/L		WATER_VGS(w)_NP-237
RAD	Radionuclide	Plutonium-238	PU-238	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	400000	4000000	pCi/g		SEDIMENT_A(s)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	400000	4000000	pCi/g		SEDIMENT_AS(s)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	400000	4000000	pCi/g		SEDIMENT_D(s)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	400000	4000000	pCi/g		SEDIMENT_GF(s)_PU-238

RAD	Radionuclide	Plutonium-238	PU-238	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1700	17000	pCi/g		SEDIMENT_BA(i)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	500	5000	pCi/g	MINIMUM	SEDIMENT_VGS(i)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	SOIL	American kestrel (Avian top carnivore)	110000	1100000	pCi/g		SOIL_AK(f)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	SOIL	American kestrel (insectivore / carnivore)	100000	1000000	pCi/g		SOIL_AK(fi)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	SOIL	American robin (Avian herbivore)	4300	43000	pCi/g		SOIL_AR(p)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	SOIL	American robin (Avian insectivore)	10000	100000	pCi/g		SOIL_AR(i)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	SOIL	American robin (Avian omnivore)	5900	59000	pCi/g		SOIL_AR(ip)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	SOIL	Deer mouse (Mammalian omnivore)	170000	1700000	pCi/g		SOIL_DM(ip)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	SOIL	Earthworm (Soil-dwelling invertebrate)	820	8200	pCi/g	MINIMUM	SOIL_EW_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	SOIL	Generic plant (Terrestrial autotroph - producer)	1800	18000	pCi/g		SOIL_GP_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	SOIL	Gray fox (Mammalian top carnivore)	45000	450000	pCi/g		SOIL_RF(f)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	SOIL	Montane shrew (Mammalian insectivore)	190000	1900000	pCi/g		SOIL_MS(i)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	SOIL	Mountain cottontail (Mammalian herbivore)	75000	750000	pCi/g		SOIL_DC(p)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	WATER	Algae (Aquatic autotroph - producer) - water	19	190	pCi/L	MINIMUM	WATER_A(w)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	WATER	American kestrel (water)	37000000	370000000	pCi/L		WATER_AK(w)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	WATER	American robin (water)	37000000	370000000	pCi/L		WATER_AR(w)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	170	1700	pCi/L		WATER_AS(w)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	170	1700	pCi/L		WATER_D(w)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	WATER	Deer mouse (water)	660000000	6600000000	pCi/L		WATER_DM(w)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	WATER	Fish (Aquatic intermediate carnivore) - water	69	690	pCi/L		WATER_GF(w)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	WATER	Gray fox (water)	2800000	28000000	pCi/L		WATER_RF(w)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	WATER	Montane shrew (water)	380000000	3800000000	pCi/L		WATER_MS(w)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	WATER	Mountain cottontail (water)	45000000	450000000	pCi/L		WATER_DC(w)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	WATER	Occult little brown myotis bat (water)	85000000	850000000	pCi/L		WATER_BA(w)_PU-238
RAD	Radionuclide	Plutonium-238	PU-238	WATER	Violet-green Swallow (water)	89000000	890000000	pCi/L		WATER_VGS(w)_PU-238
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	710000	7100000	pCi/g		SEDIMENT_A(s)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	710000	7100000	pCi/g		SEDIMENT_AS(s)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	710000	7100000	pCi/g		SEDIMENT_D(s)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	710000	7100000	pCi/g		SEDIMENT_GF(s)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1800	18000	pCi/g		SEDIMENT_BA(i)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	520	5200	pCi/g	MINIMUM	SEDIMENT_VGS(i)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SOIL	American kestrel (Avian top carnivore)	130000	1300000	pCi/g		SOIL_AK(f)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SOIL	American kestrel (insectivore / carnivore)	120000	1200000	pCi/g		SOIL_AK(fi)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SOIL	American robin (Avian herbivore)	4400	44000	pCi/g		SOIL_AR(p)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SOIL	American robin (Avian insectivore)	10000	100000	pCi/g		SOIL_AR(i)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SOIL	American robin (Avian omnivore)	6100	61000	pCi/g		SOIL_AR(ip)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SOIL	Deer mouse (Mammalian omnivore)	280000	2800000	pCi/g		SOIL_DM(ip)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SOIL	Earthworm (Soil-dwelling invertebrate)	870	8700	pCi/g	MINIMUM	SOIL_EW_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SOIL	Generic plant (Terrestrial autotroph - producer)	1900	19000	pCi/g		SOIL_GP_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SOIL	Gray fox (Mammalian top carnivore)	51000	510000	pCi/g		SOIL_RF(f)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SOIL	Montane shrew (Mammalian insectivore)	320000	3200000	pCi/g		SOIL_MS(i)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	SOIL	Mountain cottontail (Mammalian herbivore)	94000	930000	pCi/g		SOIL_DC(p)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	WATER	Algae (Aquatic autotroph - producer) - water	20	200	pCi/L	MINIMUM	WATER_A(w)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	WATER	American kestrel (water)	38000000	380000000	pCi/L		WATER_AK(w)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	WATER	American robin (water)	37000000	370000000	pCi/L		WATER_AR(w)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	180	1800	pCi/L		WATER_AS(w)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	180	1800	pCi/L		WATER_D(w)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	WATER	Deer mouse (water)	700000000	7000000000	pCi/L		WATER_DM(w)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	WATER	Fish (Aquatic intermediate carnivore) - water	74	740	pCi/L		WATER_GF(w)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	WATER	Gray fox (water)	2900000	29000000	pCi/L		WATER_RF(w)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	WATER	Montane shrew (water)	400000000	4000000000	pCi/L		WATER_MS(w)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	WATER	Mountain cottontail (water)	48000000	480000000	pCi/L		WATER_DC(w)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	WATER	Occult little brown myotis bat (water)	81000000	810000000	pCi/L		WATER_BA(w)_PU-239/240
RAD	Radionuclide	Plutonium-239, 240	PU-239/240	WATER	Violet-green Swallow (water)	92000000	920000000	pCi/L		WATER_VGS(w)_PU-239/240
RAD	Radionuclide	Plutonium-241	PU-241	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	760000	7600000	pCi/g		SEDIMENT_A(s)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	760000	7600000	pCi/g		SEDIMENT_AS(s)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	760000	7600000	pCi/g		SEDIMENT_D(s)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	760000	7600000	pCi/g		SEDIMENT_GF(s)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1000000	10000000	pCi/g		SEDIMENT_BA(i)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	270000	2700000	pCi/g	MINIMUM	SEDIMENT_VGS(i)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	SOIL	American kestrel (Avian top carnivore)	730000	7300000	pCi/g		SOIL_AK(f)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	SOIL	American kestrel (insectivore / carnivore)	730000	7300000	pCi/g		SOIL_AK(fi)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	SOIL	American robin (Avian herbivore)	700000	7000000	pCi/g		SOIL_AR(p)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	SOIL	American robin (Avian insectivore)	720000	7200000	pCi/g		SOIL_AR(i)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	SOIL	American robin (Avian omnivore)	710000	7100000	pCi/g		SOIL_AR(ip)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	SOIL	Deer mouse (Mammalian omnivore)	370000	3700000	pCi/g		SOIL_DM(ip)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	SOIL	Earthworm (Soil-dwelling invertebrate)	17000	170000	pCi/g	MINIMUM	SOIL_EW_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	SOIL	Generic plant (Terrestrial autotroph - producer)	36000	360000	pCi/g		SOIL_GP_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	SOIL	Gray fox (Mammalian top carnivore)	360000	3600000	pCi/g		SOIL_RF(f)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	SOIL	Montane shrew (Mammalian insectivore)	370000	3700000	pCi/g		SOIL_MS(i)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	SOIL	Mountain cottontail (Mammalian herbivore)	360000	3600000	pCi/g		SOIL_DC(p)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	WATER	Algae (Aquatic autotroph - producer) - water	420	4200	pCi/L	MINIMUM	WATER_A(w)_PU-241

RAD	Radionuclide	Plutonium-241	PU-241	WATER	American kestrel (water)	1.2E+11	1.2E+12	pCi/L		WATER_AK(w)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	WATER	American robin (water)	1.2E+11	1.2E+12	pCi/L		WATER_AR(w)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	3700	37000	pCi/L		WATER_AS(w)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	3700	37000	pCi/L		WATER_D(w)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	WATER	Deer mouse (water)	2.5E+11	2.5E+12	pCi/L		WATER_DM(w)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	WATER	Fish (Aquatic intermediate carnivore) - water	1500	15000	pCi/L		WATER_GF(w)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	WATER	Gray fox (water)	6400000000	64000000000	pCi/L		WATER_RF(w)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	WATER	Montane shrew (water)	2.4E+11	2.4E+12	pCi/L		WATER_MS(w)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	WATER	Mountain cottontail (water)	22000000000	2.2E+11	pCi/L		WATER_DC(w)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	WATER	Occult little brown myotis bat (water)	8.4E+11	8.4E+12	pCi/L		WATER_BA(w)_PU-241
RAD	Radionuclide	Plutonium-241	PU-241	WATER	Violet-green Swallow (water)	2.2E+11	2.2E+12	pCi/L		WATER_VGS(w)_PU-241
RAD	Radionuclide	Radium-226	RA-226	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	1400	14000	pCi/g		SEDIMENT_A(s)_RA-226
RAD	Radionuclide	Radium-226	RA-226	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	1400	14000	pCi/g		SEDIMENT_AS(s)_RA-226
RAD	Radionuclide	Radium-226	RA-226	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	1400	14000	pCi/g		SEDIMENT_D(s)_RA-226
RAD	Radionuclide	Radium-226	RA-226	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	1400	14000	pCi/g		SEDIMENT_GF(s)_RA-226
RAD	Radionuclide	Radium-226	RA-226	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	3.2	32	pCi/g		SEDIMENT_BA(i)_RA-226
RAD	Radionuclide	Radium-226	RA-226	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.94	9.4	pCi/g	MINIMUM	SEDIMENT_VGS(i)_RA-226
RAD	Radionuclide	Radium-226	RA-226	SOIL	American kestrel (Avian top carnivore)	870	8700	pCi/g		SOIL_AK(f)_RA-226
RAD	Radionuclide	Radium-226	RA-226	SOIL	American kestrel (insectivore / carnivore)	61	610	pCi/g		SOIL_AK(fi)_RA-226
RAD	Radionuclide	Radium-226	RA-226	SOIL	American robin (Avian herbivore)	34	340	pCi/g		SOIL_AR(p)_RA-226
RAD	Radionuclide	Radium-226	RA-226	SOIL	American robin (Avian insectivore)	8.2	82	pCi/g		SOIL_AR(i)_RA-226
RAD	Radionuclide	Radium-226	RA-226	SOIL	American robin (Avian omnivore)	8.4	84	pCi/g		SOIL_AR(ip)_RA-226
RAD	Radionuclide	Radium-226	RA-226	SOIL	Deer mouse (Mammalian omnivore)	380	3800	pCi/g		SOIL_DM(ip)_RA-226
RAD	Radionuclide	Radium-226	RA-226	SOIL	Earthworm (Soil-dwelling invertebrate)	1.5	15	pCi/g	MINIMUM	SOIL_EW_RA-226
RAD	Radionuclide	Radium-226	RA-226	SOIL	Generic plant (Terrestrial autotroph - producer)	54	540	pCi/g		SOIL_GP_RA-226
RAD	Radionuclide	Radium-226	RA-226	SOIL	Gray fox (Mammalian top carnivore)	370	3700	pCi/g		SOIL_RF(f)_RA-226
RAD	Radionuclide	Radium-226	RA-226	SOIL	Montane shrew (Mammalian insectivore)	510	5100	pCi/g		SOIL_MS(i)_RA-226
RAD	Radionuclide	Radium-226	RA-226	SOIL	Mountain cottontail (Mammalian herbivore)	340	3400	pCi/g		SOIL_DC(p)_RA-226
RAD	Radionuclide	Radium-226	RA-226	WATER	Algae (Aquatic autotroph - producer) - water	0.1	1	pCi/L	MINIMUM	WATER_A(w)_RA-226
RAD	Radionuclide	Radium-226	RA-226	WATER	American kestrel (water)	750000	7500000	pCi/L		WATER_AK(w)_RA-226
RAD	Radionuclide	Radium-226	RA-226	WATER	American robin (water)	740000	7400000	pCi/L		WATER_AR(w)_RA-226
RAD	Radionuclide	Radium-226	RA-226	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	3.2	32	pCi/L		WATER_AS(w)_RA-226
RAD	Radionuclide	Radium-226	RA-226	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	3.2	32	pCi/L		WATER_D(w)_RA-226
RAD	Radionuclide	Radium-226	RA-226	WATER	Deer mouse (water)	12000000	120000000	pCi/L		WATER_DM(w)_RA-226
RAD	Radionuclide	Radium-226	RA-226	WATER	Fish (Aquatic intermediate carnivore) - water	64	640	pCi/L		WATER_GF(w)_RA-226
RAD	Radionuclide	Radium-226	RA-226	WATER	Gray fox (water)	55000	550000	pCi/L		WATER_RF(w)_RA-226
RAD	Radionuclide	Radium-226	RA-226	WATER	Montane shrew (water)	7200000	72000000	pCi/L		WATER_MS(w)_RA-226
RAD	Radionuclide	Radium-226	RA-226	WATER	Mountain cottontail (water)	850000	8500000	pCi/L		WATER_DC(w)_RA-226
RAD	Radionuclide	Radium-226	RA-226	WATER	Occult little brown myotis bat (water)	2000000	20000000	pCi/L		WATER_BA(w)_RA-226
RAD	Radionuclide	Radium-226	RA-226	WATER	Violet-green Swallow (water)	1700000	17000000	pCi/L		WATER_VGS(w)_RA-226
RAD	Radionuclide	Radium-228	RA-228	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	2800	28000	pCi/g		SEDIMENT_A(s)_RA-228
RAD	Radionuclide	Radium-228	RA-228	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	2800	28000	pCi/g		SEDIMENT_AS(s)_RA-228
RAD	Radionuclide	Radium-228	RA-228	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	2800	28000	pCi/g		SEDIMENT_D(s)_RA-228
RAD	Radionuclide	Radium-228	RA-228	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	2800	28000	pCi/g		SEDIMENT_GF(s)_RA-228
RAD	Radionuclide	Radium-228	RA-228	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	2.9	29	pCi/g		SEDIMENT_BA(i)_RA-228
RAD	Radionuclide	Radium-228	RA-228	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	0.85	8.5	pCi/g	MINIMUM	SEDIMENT_VGS(i)_RA-228
RAD	Radionuclide	Radium-228	RA-228	SOIL	American kestrel (Avian top carnivore)	1400	14000	pCi/g		SOIL_AK(f)_RA-228
RAD	Radionuclide	Radium-228	RA-228	SOIL	American kestrel (insectivore / carnivore)	83	830	pCi/g		SOIL_AK(fi)_RA-228
RAD	Radionuclide	Radium-228	RA-228	SOIL	American robin (Avian herbivore)	46	460	pCi/g		SOIL_AR(p)_RA-228
RAD	Radionuclide	Radium-228	RA-228	SOIL	American robin (Avian insectivore)	11	110	pCi/g		SOIL_AR(i)_RA-228
RAD	Radionuclide	Radium-228	RA-228	SOIL	American robin (Avian omnivore)	11	110	pCi/g		SOIL_AR(ip)_RA-228
RAD	Radionuclide	Radium-228	RA-228	SOIL	Deer mouse (Mammalian omnivore)	490	4900	pCi/g		SOIL_DM(ip)_RA-228
RAD	Radionuclide	Radium-228	RA-228	SOIL	Earthworm (Soil-dwelling invertebrate)	1.2	12	pCi/g	MINIMUM	SOIL_EW_RA-228
RAD	Radionuclide	Radium-228	RA-228	SOIL	Generic plant (Terrestrial autotroph - producer)	48	480	pCi/g		SOIL_GP_RA-228
RAD	Radionuclide	Radium-228	RA-228	SOIL	Gray fox (Mammalian top carnivore)	560	5600	pCi/g		SOIL_RF(f)_RA-228
RAD	Radionuclide	Radium-228	RA-228	SOIL	Montane shrew (Mammalian insectivore)	770	7700	pCi/g		SOIL_MS(i)_RA-228
RAD	Radionuclide	Radium-228	RA-228	SOIL	Mountain cottontail (Mammalian herbivore)	420	4200	pCi/g		SOIL_DC(p)_RA-228
RAD	Radionuclide	Radium-228	RA-228	WATER	Algae (Aquatic autotroph - producer) - water	0.09	0.9	pCi/L	MINIMUM	WATER_A(w)_RA-228
RAD	Radionuclide	Radium-228	RA-228	WATER	American kestrel (water)	1000000	10000000	pCi/L		WATER_AK(w)_RA-228
RAD	Radionuclide	Radium-228	RA-228	WATER	American robin (water)	990000	9900000	pCi/L		WATER_AR(w)_RA-228
RAD	Radionuclide	Radium-228	RA-228	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	2.7	27	pCi/L		WATER_AS(w)_RA-228
RAD	Radionuclide	Radium-228	RA-228	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	2.7	27	pCi/L		WATER_D(w)_RA-228
RAD	Radionuclide	Radium-228	RA-228	WATER	Deer mouse (water)	11000000	110000000	pCi/L		WATER_DM(w)_RA-228
RAD	Radionuclide	Radium-228	RA-228	WATER	Fish (Aquatic intermediate carnivore) - water	54	540	pCi/L		WATER_GF(w)_RA-228
RAD	Radionuclide	Radium-228	RA-228	WATER	Gray fox (water)	64000	640000	pCi/L		WATER_RF(w)_RA-228
RAD	Radionuclide	Radium-228	RA-228	WATER	Montane shrew (water)	6700000	67000000	pCi/L		WATER_MS(w)_RA-228
RAD	Radionuclide	Radium-228	RA-228	WATER	Mountain cottontail (water)	760000	7600000	pCi/L		WATER_DC(w)_RA-228
RAD	Radionuclide	Radium-228	RA-228	WATER	Occult little brown myotis bat (water)	5100000	51000000	pCi/L		WATER_BA(w)_RA-228
RAD	Radionuclide	Radium-228	RA-228	WATER	Violet-green Swallow (water)	2100000	21000000	pCi/L		WATER_VGS(w)_RA-228
RAD	Radionuclide	Sodium-22	NA-22	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	18000	180000	pCi/g		SEDIMENT_A(s)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	18000	180000	pCi/g		SEDIMENT_AS(s)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	18000	180000	pCi/g		SEDIMENT_D(s)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	18000	180000	pCi/g		SEDIMENT_GF(s)_NA-22

RAD	Radionuclide	Sodium-22	NA-22	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	38000	380000	pCi/g		SEDIMENT_BA(i)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	10000	100000	pCi/g	MINIMUM	SEDIMENT_VGS(i)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	SOIL	American kestrel (Avian top carnivore)	11000	110000	pCi/g		SOIL_AK(f)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	SOIL	American kestrel (insectivore / carnivore)	14000	140000	pCi/g		SOIL_AK(fi)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	SOIL	American robin (Avian herbivore)	17000	170000	pCi/g		SOIL_AR(p)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	SOIL	American robin (Avian insectivore)	16000	160000	pCi/g		SOIL_AR(i)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	SOIL	American robin (Avian omnivore)	16000	160000	pCi/g		SOIL_AR(ip)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	SOIL	Deer mouse (Mammalian omnivore)	9000	90000	pCi/g		SOIL_DM(ip)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	SOIL	Earthworm (Soil-dwelling invertebrate)	6500	65000	pCi/g		SOIL_EW_NA-22
RAD	Radionuclide	Sodium-22	NA-22	SOIL	Generic plant (Terrestrial autotroph - producer)	8900	89000	pCi/g		SOIL_GP_NA-22
RAD	Radionuclide	Sodium-22	NA-22	SOIL	Gray fox (Mammalian top carnivore)	4600	46000	pCi/g	MINIMUM	SOIL_RF(f)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	SOIL	Montane shrew (Mammalian insectivore)	9000	90000	pCi/g		SOIL_MS(i)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	SOIL	Mountain cottontail (Mammalian herbivore)	9000	90000	pCi/g		SOIL_DC(p)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	WATER	Algae (Aquatic autotroph - producer) - water	90000	900000	pCi/L	MINIMUM	WATER_A(w)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	WATER	American kestrel (water)	4800000000	48000000000	pCi/L		WATER_AK(w)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	WATER	American robin (water)	4700000000	47000000000	pCi/L		WATER_AR(w)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	90000	900000	pCi/L	MINIMUM	WATER_AS(w)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	90000	900000	pCi/L	MINIMUM	WATER_D(w)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	WATER	Deer mouse (water)	10000000000	1E+11	pCi/L		WATER_DM(w)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	WATER	Fish (Aquatic intermediate carnivore) - water	90000	900000	pCi/L	MINIMUM	WATER_GF(w)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	WATER	Gray fox (water)	240000000	2400000000	pCi/L		WATER_RF(w)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	WATER	Montane shrew (water)	9600000000	96000000000	pCi/L		WATER_MS(w)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	WATER	Mountain cottontail (water)	850000000	8500000000	pCi/L		WATER_DC(w)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	WATER	Occult little brown myotis bat (water)	32000000000	3.2E+11	pCi/L		WATER_BA(w)_NA-22
RAD	Radionuclide	Sodium-22	NA-22	WATER	Violet-green Swallow (water)	8800000000	88000000000	pCi/L		WATER_VGS(w)_NA-22
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	3400	34000	pCi/g		SEDIMENT_A(s)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	3400	34000	pCi/g		SEDIMENT_AS(s)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	3400	34000	pCi/g		SEDIMENT_D(s)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	3400	34000	pCi/g		SEDIMENT_GF(s)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	2100	21000	pCi/g		SEDIMENT_BA(i)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	630	6300	pCi/g	MINIMUM	SEDIMENT_VGS(i)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SOIL	American kestrel (Avian top carnivore)	1700	17000	pCi/g		SOIL_AK(f)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SOIL	American kestrel (insectivore / carnivore)	2400	24000	pCi/g		SOIL_AK(fi)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SOIL	American robin (Avian herbivore)	340	3400	pCi/g	MINIMUM	SOIL_AR(p)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SOIL	American robin (Avian insectivore)	2800	28000	pCi/g		SOIL_AR(i)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SOIL	American robin (Avian omnivore)	790	7900	pCi/g		SOIL_AR(ip)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SOIL	Deer mouse (Mammalian omnivore)	1600	16000	pCi/g		SOIL_DM(ip)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SOIL	Earthworm (Soil-dwelling invertebrate)	1700	17000	pCi/g		SOIL_EW_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SOIL	Generic plant (Terrestrial autotroph - producer)	1100	11000	pCi/g		SOIL_GP_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SOIL	Gray fox (Mammalian top carnivore)	800	8000	pCi/g		SOIL_RF(f)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SOIL	Montane shrew (Mammalian insectivore)	1700	17000	pCi/g		SOIL_MS(i)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	SOIL	Mountain cottontail (Mammalian herbivore)	1300	13000	pCi/g		SOIL_DC(p)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	WATER	Algae (Aquatic autotroph - producer) - water	570	5700	pCi/L	MINIMUM	WATER_A(w)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	WATER	American kestrel (water)	52000000	520000000	pCi/L		WATER_AK(w)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	WATER	American robin (water)	51000000	510000000	pCi/L		WATER_AR(w)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	17000	170000	pCi/L		WATER_AS(w)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	17000	170000	pCi/L		WATER_D(w)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	WATER	Deer mouse (water)	830000000	8300000000	pCi/L		WATER_DM(w)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	WATER	Fish (Aquatic intermediate carnivore) - water	33000	330000	pCi/L		WATER_GF(w)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	WATER	Gray fox (water)	3800000	38000000	pCi/L		WATER_RF(w)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	WATER	Montane shrew (water)	480000000	4800000000	pCi/L		WATER_MS(w)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	WATER	Mountain cottontail (water)	57000000	570000000	pCi/L		WATER_DC(w)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	WATER	Occult little brown myotis bat (water)	150000000	1500000000	pCi/L		WATER_BA(w)_SR-90/ Y-90
RAD	Radionuclide	Strontium-90 + Yittrium-90	SR-90/ Y-90	WATER	Violet-green Swallow (water)	120000000	1200000000	pCi/L		WATER_VGS(w)_SR-90/ Y-90
RAD	Radionuclide	Thorium-228	TH-228	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	1600	16000	pCi/g		SEDIMENT_A(s)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	1600	16000	pCi/g		SEDIMENT_AS(s)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	1600	16000	pCi/g		SEDIMENT_D(s)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	1600	16000	pCi/g		SEDIMENT_GF(s)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	2200	22000	pCi/g		SEDIMENT_BA(i)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	640	6400	pCi/g	MINIMUM	SEDIMENT_VGS(i)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	SOIL	American kestrel (Avian top carnivore)	1600	16000	pCi/g		SOIL_AK(f)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	SOIL	American kestrel (insectivore / carnivore)	1600	16000	pCi/g		SOIL_AK(fi)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	SOIL	American robin (Avian herbivore)	1100	11000	pCi/g		SOIL_AR(p)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	SOIL	American robin (Avian insectivore)	1300	13000	pCi/g		SOIL_AR(i)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	SOIL	American robin (Avian omnivore)	1200	12000	pCi/g		SOIL_AR(ip)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	SOIL	Deer mouse (Mammalian omnivore)	820	8200	pCi/g		SOIL_DM(ip)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	SOIL	Earthworm (Soil-dwelling invertebrate)	43	430	pCi/g	MINIMUM	SOIL_EW_TH-228
RAD	Radionuclide	Thorium-228	TH-228	SOIL	Generic plant (Terrestrial autotroph - producer)	140	1400	pCi/g		SOIL_GP_TH-228
RAD	Radionuclide	Thorium-228	TH-228	SOIL	Gray fox (Mammalian top carnivore)	830	8300	pCi/g		SOIL_RF(f)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	SOIL	Montane shrew (Mammalian insectivore)	830	8300	pCi/g		SOIL_MS(i)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	SOIL	Mountain cottontail (Mammalian herbivore)	800	8000	pCi/g		SOIL_DC(p)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	WATER	Algae (Aquatic autotroph - producer) - water	5.9	59	pCi/L	MINIMUM	WATER_A(w)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	WATER	American kestrel (water)	120000000	1200000000	pCi/L		WATER_AK(w)_TH-228

RAD	Radionuclide	Thorium-228	TH-228	WATER	American robin (water)	120000000	1200000000	pCi/L		WATER_AR(w)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	170	1700	pCi/L		WATER_AS(w)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	170	1700	pCi/L		WATER_D(w)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	WATER	Deer mouse (water)	800000000	8000000000	pCi/L		WATER_DM(w)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	WATER	Fish (Aquatic intermediate carnivore) - water	170	1700	pCi/L		WATER_GF(w)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	WATER	Gray fox (water)	6800000	68000000	pCi/L		WATER_RF(w)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	WATER	Montane shrew (water)	520000000	5200000000	pCi/L		WATER_MS(w)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	WATER	Mountain cottontail (water)	57000000	570000000	pCi/L		WATER_DC(w)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	WATER	Occult little brown myotis bat (water)	800000000	8000000000	pCi/L		WATER_BA(w)_TH-228
RAD	Radionuclide	Thorium-228	TH-228	WATER	Violet-green Swallow (water)	230000000	2300000000	pCi/L		WATER_VGS(w)_TH-228
RAD	Radionuclide	Thorium-229	TH-229	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	3200	32000	pCi/g		SEDIMENT_A(s)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	3200	32000	pCi/g		SEDIMENT_AS(s)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	3200	32000	pCi/g		SEDIMENT_D(s)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	3200	32000	pCi/g		SEDIMENT_GF(s)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1800	18000	pCi/g		SEDIMENT_BA(i)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	540	5400	pCi/g	MINIMUM	SEDIMENT_VGS(i)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	SOIL	American kestrel (Avian top carnivore)	3100	31000	pCi/g		SOIL_AK(f)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	SOIL	American kestrel (insectivore / carnivore)	2600	26000	pCi/g		SOIL_AK(fi)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	SOIL	American robin (Avian herbivore)	850	8500	pCi/g		SOIL_AR(p)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	SOIL	American robin (Avian insectivore)	1200	12000	pCi/g		SOIL_AR(i)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	SOIL	American robin (Avian omnivore)	950	9500	pCi/g		SOIL_AR(ip)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	SOIL	Deer mouse (Mammalian omnivore)	1500	15000	pCi/g		SOIL_DM(ip)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	SOIL	Earthworm (Soil-dwelling invertebrate)	47	470	pCi/g	MINIMUM	SOIL_EW_TH-229
RAD	Radionuclide	Thorium-229	TH-229	SOIL	Generic plant (Terrestrial autotroph - producer)	170	1700	pCi/g		SOIL_GP_TH-229
RAD	Radionuclide	Thorium-229	TH-229	SOIL	Gray fox (Mammalian top carnivore)	1500	15000	pCi/g		SOIL_RF(f)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	SOIL	Montane shrew (Mammalian insectivore)	1500	15000	pCi/g		SOIL_MS(i)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	SOIL	Mountain cottontail (Mammalian herbivore)	1400	14000	pCi/g		SOIL_DC(p)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	WATER	Algae (Aquatic autotroph - producer) - water	6.3	63	pCi/L	MINIMUM	WATER_A(w)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	WATER	American kestrel (water)	39000000	390000000	pCi/L		WATER_AK(w)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	WATER	American robin (water)	39000000	390000000	pCi/L		WATER_AR(w)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	180	1800	pCi/L		WATER_AS(w)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	180	1800	pCi/L		WATER_D(w)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	WATER	Deer mouse (water)	720000000	7200000000	pCi/L		WATER_DM(w)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	WATER	Fish (Aquatic intermediate carnivore) - water	180	1800	pCi/L		WATER_GF(w)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	WATER	Gray fox (water)	3000000	30000000	pCi/L		WATER_RF(w)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	WATER	Montane shrew (water)	410000000	4100000000	pCi/L		WATER_MS(w)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	WATER	Mountain cottontail (water)	49000000	490000000	pCi/L		WATER_DC(w)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	WATER	Occult little brown myotis bat (water)	85000000	850000000	pCi/L		WATER_BA(w)_TH-229
RAD	Radionuclide	Thorium-229	TH-229	WATER	Violet-green Swallow (water)	95000000	950000000	pCi/L		WATER_VGS(w)_TH-229
RAD	Radionuclide	Thorium-230	TH-230	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	270000	2700000	pCi/g		SEDIMENT_A(s)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	270000	2700000	pCi/g		SEDIMENT_AS(s)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	270000	2700000	pCi/g		SEDIMENT_D(s)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	270000	2700000	pCi/g		SEDIMENT_GF(s)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	2000	20000	pCi/g		SEDIMENT_BA(i)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	580	5800	pCi/g	MINIMUM	SEDIMENT_VGS(i)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	SOIL	American kestrel (Avian top carnivore)	170000	1700000	pCi/g		SOIL_AK(f)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	SOIL	American kestrel (insectivore / carnivore)	17000	170000	pCi/g		SOIL_AK(fi)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	SOIL	American robin (Avian herbivore)	1200	12000	pCi/g		SOIL_AR(p)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	SOIL	American robin (Avian insectivore)	2200	22000	pCi/g		SOIL_AR(i)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	SOIL	American robin (Avian omnivore)	1400	14000	pCi/g		SOIL_AR(ip)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	SOIL	Deer mouse (Mammalian omnivore)	78000	780000	pCi/g		SOIL_DM(ip)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	SOIL	Earthworm (Soil-dwelling invertebrate)	52	520	pCi/g	MINIMUM	SOIL_EW_TH-230
RAD	Radionuclide	Thorium-230	TH-230	SOIL	Generic plant (Terrestrial autotroph - producer)	200	2000	pCi/g		SOIL_GP_TH-230
RAD	Radionuclide	Thorium-230	TH-230	SOIL	Gray fox (Mammalian top carnivore)	68000	680000	pCi/g		SOIL_RF(f)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	SOIL	Montane shrew (Mammalian insectivore)	110000	1100000	pCi/g		SOIL_MS(i)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	SOIL	Mountain cottontail (Mammalian herbivore)	21000	210000	pCi/g		SOIL_DC(p)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	WATER	Algae (Aquatic autotroph - producer) - water	6.8	68	pCi/L	MINIMUM	WATER_A(w)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	WATER	American kestrel (water)	42000000	420000000	pCi/L		WATER_AK(w)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	WATER	American robin (water)	42000000	420000000	pCi/L		WATER_AR(w)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	200	2000	pCi/L		WATER_AS(w)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	200	2000	pCi/L		WATER_D(w)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	WATER	Deer mouse (water)	780000000	7800000000	pCi/L		WATER_DM(w)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	WATER	Fish (Aquatic intermediate carnivore) - water	200	2000	pCi/L		WATER_GF(w)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	WATER	Gray fox (water)	3200000	32000000	pCi/L		WATER_RF(w)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	WATER	Montane shrew (water)	450000000	4500000000	pCi/L		WATER_MS(w)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	WATER	Mountain cottontail (water)	53000000	530000000	pCi/L		WATER_DC(w)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	WATER	Occult little brown myotis bat (water)	90000000	900000000	pCi/L		WATER_BA(w)_TH-230
RAD	Radionuclide	Thorium-230	TH-230	WATER	Violet-green Swallow (water)	100000000	1000000000	pCi/L		WATER_VGS(w)_TH-230
RAD	Radionuclide	Thorium-232	TH-232	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	320000	3200000	pCi/g		SEDIMENT_A(s)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	320000	3200000	pCi/g		SEDIMENT_AS(s)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	320000	3200000	pCi/g		SEDIMENT_D(s)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	320000	3200000	pCi/g		SEDIMENT_GF(s)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	240	2400	pCi/g		SEDIMENT_BA(i)_TH-232

RAD	Radionuclide	Thorium-232	TH-232	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	69	690	pCi/g	MINIMUM	SEDIMENT_VGS(i)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	SOIL	American kestrel (Avian top carnivore)	50000	500000	pCi/g		SOIL_AK(f)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	SOIL	American kestrel (insectivore / carnivore)	2200	22000	pCi/g		SOIL_AK(fi)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	SOIL	American robin (Avian herbivore)	150	1500	pCi/g		SOIL_AR(p)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	SOIL	American robin (Avian insectivore)	260	2600	pCi/g		SOIL_AR(i)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	SOIL	American robin (Avian omnivore)	170	1700	pCi/g		SOIL_AR(ip)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	SOIL	Deer mouse (Mammalian omnivore)	19000	190000	pCi/g		SOIL_DM(ip)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	SOIL	Earthworm (Soil-dwelling invertebrate)	6.2	62	pCi/g	MINIMUM	SOIL_EW_TH-232
RAD	Radionuclide	Thorium-232	TH-232	SOIL	Generic plant (Terrestrial autotroph - producer)	24	240	pCi/g		SOIL_GP_TH-232
RAD	Radionuclide	Thorium-232	TH-232	SOIL	Gray fox (Mammalian top carnivore)	14000	140000	pCi/g		SOIL_RF(f)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	SOIL	Montane shrew (Mammalian insectivore)	49000	490000	pCi/g		SOIL_MS(i)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	SOIL	Mountain cottontail (Mammalian herbivore)	2900	29000	pCi/g		SOIL_DC(p)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	WATER	Algae (Aquatic autotroph - producer) - water	0.81	8.1	pCi/L	MINIMUM	WATER_A(w)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	WATER	American kestrel (water)	5000000	50000000	pCi/L		WATER_AK(w)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	WATER	American robin (water)	5000000	50000000	pCi/L		WATER_AR(w)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	24	240	pCi/L		WATER_AS(w)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	24	240	pCi/L		WATER_D(w)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	WATER	Deer mouse (water)	92000000	920000000	pCi/L		WATER_DM(w)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	WATER	Fish (Aquatic intermediate carnivore) - water	24	240	pCi/L		WATER_GF(w)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	WATER	Gray fox (water)	380000	3800000	pCi/L		WATER_RF(w)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	WATER	Montane shrew (water)	53000000	530000000	pCi/L		WATER_MS(w)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	WATER	Mountain cottontail (water)	6300000	63000000	pCi/L		WATER_DC(w)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	WATER	Occult little brown myotis bat (water)	10000000	100000000	pCi/L		WATER_BA(w)_TH-232
RAD	Radionuclide	Thorium-232	TH-232	WATER	Violet-green Swallow (water)	12000000	120000000	pCi/L		WATER_VGS(w)_TH-232
RAD	Radionuclide	Tritium	H-3	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	660000	6600000	pCi/g		SEDIMENT_A(s)_H-3
RAD	Radionuclide	Tritium	H-3	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	660000	6600000	pCi/g		SEDIMENT_AS(s)_H-3
RAD	Radionuclide	Tritium	H-3	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	660000	6600000	pCi/g	MINIMUM	SEDIMENT_D(s)_H-3
RAD	Radionuclide	Tritium	H-3	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	660000	6600000	pCi/g		SEDIMENT_GF(s)_H-3
RAD	Radionuclide	Tritium	H-3	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	1000000000	10000000000	pCi/g		SEDIMENT_BA(i)_H-3
RAD	Radionuclide	Tritium	H-3	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	290000000	2900000000	pCi/g		SEDIMENT_VGS(i)_H-3
RAD	Radionuclide	Tritium	H-3	SOIL	American kestrel (Avian top carnivore)	550000	5500000	pCi/g		SOIL_AK(f)_H-3
RAD	Radionuclide	Tritium	H-3	SOIL	American kestrel (insectivore / carnivore)	610000	6100000	pCi/g		SOIL_AK(fi)_H-3
RAD	Radionuclide	Tritium	H-3	SOIL	American robin (Avian herbivore)	300000	3000000	pCi/g		SOIL_AR(p)_H-3
RAD	Radionuclide	Tritium	H-3	SOIL	American robin (Avian insectivore)	600000	6000000	pCi/g		SOIL_AR(i)_H-3
RAD	Radionuclide	Tritium	H-3	SOIL	American robin (Avian omnivore)	440000	4400000	pCi/g		SOIL_AR(ip)_H-3
RAD	Radionuclide	Tritium	H-3	SOIL	Deer mouse (Mammalian omnivore)	330000	3300000	pCi/g		SOIL_DM(ip)_H-3
RAD	Radionuclide	Tritium	H-3	SOIL	Earthworm (Soil-dwelling invertebrate)	48000	480000	pCi/g		SOIL_EW_H-3
RAD	Radionuclide	Tritium	H-3	SOIL	Generic plant (Terrestrial autotroph - producer)	36000	360000	pCi/g	MINIMUM	SOIL_GP_H-3
RAD	Radionuclide	Tritium	H-3	SOIL	Gray fox (Mammalian top carnivore)	240000	2400000	pCi/g		SOIL_RF(f)_H-3
RAD	Radionuclide	Tritium	H-3	SOIL	Montane shrew (Mammalian insectivore)	340000	3400000	pCi/g		SOIL_MS(i)_H-3
RAD	Radionuclide	Tritium	H-3	SOIL	Mountain cottontail (Mammalian herbivore)	270000	2700000	pCi/g		SOIL_DC(p)_H-3
RAD	Radionuclide	Tritium	H-3	WATER	Algae (Aquatic autotroph - producer) - water	160000000	1600000000	pCi/L	MINIMUM	WATER_A(w)_H-3
RAD	Radionuclide	Tritium	H-3	WATER	American kestrel (water)	1.3E+12	1.3E+13	pCi/L		WATER_AK(w)_H-3
RAD	Radionuclide	Tritium	H-3	WATER	American robin (water)	1.3E+12	1.3E+13	pCi/L	MINIMUM	WATER_AR(w)_H-3
RAD	Radionuclide	Tritium	H-3	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	160000000	1600000000	pCi/L	MINIMUM	WATER_AS(w)_H-3
RAD	Radionuclide	Tritium	H-3	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	160000000	1600000000	pCi/L	MINIMUM	WATER_D(w)_H-3
RAD	Radionuclide	Tritium	H-3	WATER	Deer mouse (water)	2.7E+12	2.7E+13	pCi/L		WATER_DM(w)_H-3
RAD	Radionuclide	Tritium	H-3	WATER	Fish (Aquatic intermediate carnivore) - water	160000000	1600000000	pCi/L	MINIMUM	WATER_GF(w)_H-3
RAD	Radionuclide	Tritium	H-3	WATER	Gray fox (water)	68000000000	6.8E+11	pCi/L		WATER_RF(w)_H-3
RAD	Radionuclide	Tritium	H-3	WATER	Montane shrew (water)	2.6E+12	2.6E+13	pCi/L		WATER_MS(w)_H-3
RAD	Radionuclide	Tritium	H-3	WATER	Mountain cottontail (water)	2.3E+11	2.3E+12	pCi/L		WATER_DC(w)_H-3
RAD	Radionuclide	Tritium	H-3	WATER	Occult little brown myotis bat (water)	9E+12	9E+13	pCi/L		WATER_BA(w)_H-3
RAD	Radionuclide	Tritium	H-3	WATER	Violet-green Swallow (water)	2.4E+12	2.4E+13	pCi/L		WATER_VGS(w)_H-3
RAD	Radionuclide	Uranium-233	U-233	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	1000000	10000000	pCi/g		SEDIMENT_A(s)_U-233
RAD	Radionuclide	Uranium-233	U-233	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	1000000	10000000	pCi/g		SEDIMENT_AS(s)_U-233
RAD	Radionuclide	Uranium-233	U-233	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	1000000	10000000	pCi/g		SEDIMENT_D(s)_U-233
RAD	Radionuclide	Uranium-233	U-233	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	1000000	10000000	pCi/g		SEDIMENT_GF(s)_U-233
RAD	Radionuclide	Uranium-233	U-233	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	2200	22000	pCi/g		SEDIMENT_BA(i)_U-233
RAD	Radionuclide	Uranium-233	U-233	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	610	6100	pCi/g	MINIMUM	SEDIMENT_VGS(i)_U-233
RAD	Radionuclide	Uranium-233	U-233	SOIL	American kestrel (Avian top carnivore)	680000	6800000	pCi/g		SOIL_AK(f)_U-233
RAD	Radionuclide	Uranium-233	U-233	SOIL	American kestrel (insectivore / carnivore)	660000	6600000	pCi/g		SOIL_AK(fi)_U-233
RAD	Radionuclide	Uranium-233	U-233	SOIL	American robin (Avian herbivore)	14000	140000	pCi/g		SOIL_AR(p)_U-233
RAD	Radionuclide	Uranium-233	U-233	SOIL	American robin (Avian insectivore)	82000	820000	pCi/g		SOIL_AR(i)_U-233
RAD	Radionuclide	Uranium-233	U-233	SOIL	American robin (Avian omnivore)	28000	280000	pCi/g		SOIL_AR(ip)_U-233
RAD	Radionuclide	Uranium-233	U-233	SOIL	Deer mouse (Mammalian omnivore)	290000	2900000	pCi/g		SOIL_DM(ip)_U-233
RAD	Radionuclide	Uranium-233	U-233	SOIL	Earthworm (Soil-dwelling invertebrate)	2200	22000	pCi/g		SOIL_EW_U-233
RAD	Radionuclide	Uranium-233	U-233	SOIL	Generic plant (Terrestrial autotroph - producer)	440	4400	pCi/g	MINIMUM	SOIL_GP_U-233
RAD	Radionuclide	Uranium-233	U-233	SOIL	Gray fox (Mammalian top carnivore)	230000	2300000	pCi/g		SOIL_RF(f)_U-233
RAD	Radionuclide	Uranium-233	U-233	SOIL	Montane shrew (Mammalian insectivore)	500000	5000000	pCi/g		SOIL_MS(i)_U-233
RAD	Radionuclide	Uranium-233	U-233	SOIL	Mountain cottontail (Mammalian herbivore)	43000	430000	pCi/g		SOIL_DC(p)_U-233
RAD	Radionuclide	Uranium-233	U-233	WATER	Algae (Aquatic autotroph - producer) - water	22	220	pCi/L	MINIMUM	WATER_A(w)_U-233
RAD	Radionuclide	Uranium-233	U-233	WATER	American kestrel (water)	270000000	2700000000	pCi/L		WATER_AK(w)_U-233
RAD	Radionuclide	Uranium-233	U-233	WATER	American robin (water)	260000000	2600000000	pCi/L		WATER_AR(w)_U-233

RAD	Radionuclide	Uranium-233	U-233	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	190	1900	pCi/L		WATER_AS(w)_U-233
RAD	Radionuclide	Uranium-233	U-233	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	190	1900	pCi/L		WATER_D(w)_U-233
RAD	Radionuclide	Uranium-233	U-233	WATER	Deer mouse (water)	610000000	6100000000	pCi/L		WATER_DM(w)_U-233
RAD	Radionuclide	Uranium-233	U-233	WATER	Fish (Aquatic intermediate carnivore) - water	39	390	pCi/L		WATER_GF(w)_U-233
RAD	Radionuclide	Uranium-233	U-233	WATER	Gray fox (water)	14000000	140000000	pCi/L		WATER_RF(w)_U-233
RAD	Radionuclide	Uranium-233	U-233	WATER	Montane shrew (water)	550000000	5500000000	pCi/L		WATER_MS(w)_U-233
RAD	Radionuclide	Uranium-233	U-233	WATER	Mountain cottontail (water)	50000000	500000000	pCi/L		WATER_DC(w)_U-233
RAD	Radionuclide	Uranium-233	U-233	WATER	Occult little brown myotis bat (water)	1800000000	18000000000	pCi/L		WATER_BA(w)_U-233
RAD	Radionuclide	Uranium-233	U-233	WATER	Violet-green Swallow (water)	500000000	5000000000	pCi/L		WATER_VGS(w)_U-233
RAD	Radionuclide	Uranium-234	U-234	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	300000	3000000	pCi/g		SEDIMENT_A(s)_U-234
RAD	Radionuclide	Uranium-234	U-234	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	300000	3000000	pCi/g		SEDIMENT_AS(s)_U-234
RAD	Radionuclide	Uranium-234	U-234	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	300000	3000000	pCi/g		SEDIMENT_D(s)_U-234
RAD	Radionuclide	Uranium-234	U-234	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	300000	3000000	pCi/g		SEDIMENT_GF(s)_U-234
RAD	Radionuclide	Uranium-234	U-234	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	2200	22000	pCi/g		SEDIMENT_BA(i)_U-234
RAD	Radionuclide	Uranium-234	U-234	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	610	6100	pCi/g	MINIMUM	SEDIMENT_VGS(i)_U-234
RAD	Radionuclide	Uranium-234	U-234	SOIL	American kestrel (Avian top carnivore)	260000	2600000	pCi/g		SOIL_AK(f)_U-234
RAD	Radionuclide	Uranium-234	U-234	SOIL	American kestrel (insectivore / carnivore)	260000	2600000	pCi/g		SOIL_AK(fi)_U-234
RAD	Radionuclide	Uranium-234	U-234	SOIL	American robin (Avian herbivore)	14000	140000	pCi/g		SOIL_AR(p)_U-234
RAD	Radionuclide	Uranium-234	U-234	SOIL	American robin (Avian insectivore)	69000	690000	pCi/g		SOIL_AR(i)_U-234
RAD	Radionuclide	Uranium-234	U-234	SOIL	American robin (Avian omnivore)	27000	270000	pCi/g		SOIL_AR(ip)_U-234
RAD	Radionuclide	Uranium-234	U-234	SOIL	Deer mouse (Mammalian omnivore)	120000	1200000	pCi/g		SOIL_DM(ip)_U-234
RAD	Radionuclide	Uranium-234	U-234	SOIL	Earthworm (Soil-dwelling invertebrate)	2200	22000	pCi/g		SOIL_EW_U-234
RAD	Radionuclide	Uranium-234	U-234	SOIL	Generic plant (Terrestrial autotroph - producer)	440	4400	pCi/g	MINIMUM	SOIL_GP_U-234
RAD	Radionuclide	Uranium-234	U-234	SOIL	Gray fox (Mammalian top carnivore)	110000	1100000	pCi/g		SOIL_RF(f)_U-234
RAD	Radionuclide	Uranium-234	U-234	SOIL	Montane shrew (Mammalian insectivore)	140000	1400000	pCi/g		SOIL_MS(i)_U-234
RAD	Radionuclide	Uranium-234	U-234	SOIL	Mountain cottontail (Mammalian herbivore)	36000	360000	pCi/g		SOIL_DC(p)_U-234
RAD	Radionuclide	Uranium-234	U-234	WATER	Algae (Aquatic autotroph - producer) - water	22	220	pCi/L	MINIMUM	WATER_A(w)_U-234
RAD	Radionuclide	Uranium-234	U-234	WATER	American kestrel (water)	270000000	2700000000	pCi/L		WATER_AK(w)_U-234
RAD	Radionuclide	Uranium-234	U-234	WATER	American robin (water)	260000000	2600000000	pCi/L		WATER_AR(w)_U-234
RAD	Radionuclide	Uranium-234	U-234	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	190	1900	pCi/L		WATER_AS(w)_U-234
RAD	Radionuclide	Uranium-234	U-234	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	190	1900	pCi/L		WATER_D(w)_U-234
RAD	Radionuclide	Uranium-234	U-234	WATER	Deer mouse (water)	610000000	6100000000	pCi/L		WATER_DM(w)_U-234
RAD	Radionuclide	Uranium-234	U-234	WATER	Fish (Aquatic intermediate carnivore) - water	39	390	pCi/L		WATER_GF(w)_U-234
RAD	Radionuclide	Uranium-234	U-234	WATER	Gray fox (water)	14000000	140000000	pCi/L		WATER_RF(w)_U-234
RAD	Radionuclide	Uranium-234	U-234	WATER	Montane shrew (water)	550000000	5500000000	pCi/L		WATER_MS(w)_U-234
RAD	Radionuclide	Uranium-234	U-234	WATER	Mountain cottontail (water)	50000000	500000000	pCi/L		WATER_DC(w)_U-234
RAD	Radionuclide	Uranium-234	U-234	WATER	Occult little brown myotis bat (water)	1800000000	18000000000	pCi/L		WATER_BA(w)_U-234
RAD	Radionuclide	Uranium-234	U-234	WATER	Violet-green Swallow (water)	500000000	5000000000	pCi/L		WATER_VGS(w)_U-234
RAD	Radionuclide	Uranium-235	U-235	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	10000	100000	pCi/g		SEDIMENT_A(s)_U-235
RAD	Radionuclide	Uranium-235	U-235	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	10000	100000	pCi/g		SEDIMENT_AS(s)_U-235
RAD	Radionuclide	Uranium-235	U-235	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	10000	100000	pCi/g		SEDIMENT_D(s)_U-235
RAD	Radionuclide	Uranium-235	U-235	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	10000	100000	pCi/g		SEDIMENT_GF(s)_U-235
RAD	Radionuclide	Uranium-235	U-235	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	2400	24000	pCi/g		SEDIMENT_BA(i)_U-235
RAD	Radionuclide	Uranium-235	U-235	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	660	6600	pCi/g	MINIMUM	SEDIMENT_VGS(i)_U-235
RAD	Radionuclide	Uranium-235	U-235	SOIL	American kestrel (Avian top carnivore)	10000	100000	pCi/g		SOIL_AK(f)_U-235
RAD	Radionuclide	Uranium-235	U-235	SOIL	American kestrel (insectivore / carnivore)	10000	100000	pCi/g		SOIL_AK(fi)_U-235
RAD	Radionuclide	Uranium-235	U-235	SOIL	American robin (Avian herbivore)	6300	63000	pCi/g		SOIL_AR(p)_U-235
RAD	Radionuclide	Uranium-235	U-235	SOIL	American robin (Avian insectivore)	9500	95000	pCi/g		SOIL_AR(i)_U-235
RAD	Radionuclide	Uranium-235	U-235	SOIL	American robin (Avian omnivore)	7900	79000	pCi/g		SOIL_AR(ip)_U-235
RAD	Radionuclide	Uranium-235	U-235	SOIL	Deer mouse (Mammalian omnivore)	5200	52000	pCi/g		SOIL_DM(ip)_U-235
RAD	Radionuclide	Uranium-235	U-235	SOIL	Earthworm (Soil-dwelling invertebrate)	1600	16000	pCi/g		SOIL_EW_U-235
RAD	Radionuclide	Uranium-235	U-235	SOIL	Generic plant (Terrestrial autotroph - producer)	440	4400	pCi/g	MINIMUM	SOIL_GP_U-235
RAD	Radionuclide	Uranium-235	U-235	SOIL	Gray fox (Mammalian top carnivore)	5200	52000	pCi/g		SOIL_RF(f)_U-235
RAD	Radionuclide	Uranium-235	U-235	SOIL	Montane shrew (Mammalian insectivore)	5200	52000	pCi/g		SOIL_MS(i)_U-235
RAD	Radionuclide	Uranium-235	U-235	SOIL	Mountain cottontail (Mammalian herbivore)	4700	47000	pCi/g		SOIL_DC(p)_U-235
RAD	Radionuclide	Uranium-235	U-235	WATER	Algae (Aquatic autotroph - producer) - water	24	240	pCi/L	MINIMUM	WATER_A(w)_U-235
RAD	Radionuclide	Uranium-235	U-235	WATER	American kestrel (water)	290000000	2900000000	pCi/L		WATER_AK(w)_U-235
RAD	Radionuclide	Uranium-235	U-235	WATER	American robin (water)	290000000	2900000000	pCi/L		WATER_AR(w)_U-235
RAD	Radionuclide	Uranium-235	U-235	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	210	2100	pCi/L		WATER_AS(w)_U-235
RAD	Radionuclide	Uranium-235	U-235	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	210	2100	pCi/L		WATER_D(w)_U-235
RAD	Radionuclide	Uranium-235	U-235	WATER	Deer mouse (water)	660000000	6600000000	pCi/L		WATER_DM(w)_U-235
RAD	Radionuclide	Uranium-235	U-235	WATER	Fish (Aquatic intermediate carnivore) - water	43	430	pCi/L		WATER_GF(w)_U-235
RAD	Radionuclide	Uranium-235	U-235	WATER	Gray fox (water)	15000000	150000000	pCi/L		WATER_RF(w)_U-235
RAD	Radionuclide	Uranium-235	U-235	WATER	Montane shrew (water)	600000000	6000000000	pCi/L		WATER_MS(w)_U-235
RAD	Radionuclide	Uranium-235	U-235	WATER	Mountain cottontail (water)	54000000	540000000	pCi/L		WATER_DC(w)_U-235
RAD	Radionuclide	Uranium-235	U-235	WATER	Occult little brown myotis bat (water)	2000000000	20000000000	pCi/L		WATER_BA(w)_U-235
RAD	Radionuclide	Uranium-235	U-235	WATER	Violet-green Swallow (water)	540000000	5400000000	pCi/L		WATER_VGS(w)_U-235
RAD	Radionuclide	Uranium-236	U-236	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment			pCi/g		SEDIMENT_A(s)_U-236
RAD	Radionuclide	Uranium-236	U-236	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment			pCi/g		SEDIMENT_AS(s)_U-236
RAD	Radionuclide	Uranium-236	U-236	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment			pCi/g		SEDIMENT_D(s)_U-236
RAD	Radionuclide	Uranium-236	U-236	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment			pCi/g		SEDIMENT_GF(s)_U-236
RAD	Radionuclide	Uranium-236	U-236	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	2400	24000	pCi/g		SEDIMENT_BA(i)_U-236
RAD	Radionuclide	Uranium-236	U-236	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	660	6600	pCi/g	MINIMUM	SEDIMENT_VGS(i)_U-236

RAD	Radionuclide	Uranium-236	U-236	SOIL	American kestrel (Avian top carnivore)	2100000	21000000	pCi/g		SOIL_AK(f)_U-236
RAD	Radionuclide	Uranium-236	U-236	SOIL	American kestrel (insectivore / carnivore)	1900000	19000000	pCi/g		SOIL_AK(fi)_U-236
RAD	Radionuclide	Uranium-236	U-236	SOIL	American robin (Avian herbivore)	15000	150000	pCi/g		SOIL_AR(p)_U-236
RAD	Radionuclide	Uranium-236	U-236	SOIL	American robin (Avian insectivore)	96000	950000	pCi/g		SOIL_AR(i)_U-236
RAD	Radionuclide	Uranium-236	U-236	SOIL	American robin (Avian omnivore)	31000	310000	pCi/g		SOIL_AR(ip)_U-236
RAD	Radionuclide	Uranium-236	U-236	SOIL	Deer mouse (Mammalian omnivore)	720000	7200000	pCi/g		SOIL_DM(ip)_U-236
RAD	Radionuclide	Uranium-236	U-236	SOIL	Earthworm (Soil-dwelling invertebrate)	2400	24000	pCi/g		SOIL_EW_U-236
RAD	Radionuclide	Uranium-236	U-236	SOIL	Generic plant (Terrestrial autotroph - producer)	470	4700	pCi/g	MINIMUM	SOIL_GP_U-236
RAD	Radionuclide	Uranium-236	U-236	SOIL	Gray fox (Mammalian top carnivore)	440000	4400000	pCi/g		SOIL_RF(f)_U-236
RAD	Radionuclide	Uranium-236	U-236	SOIL	Montane shrew (Mammalian insectivore)	15000000	150000000	pCi/g		SOIL_MS(i)_U-236
RAD	Radionuclide	Uranium-236	U-236	SOIL	Mountain cottontail (Mammalian herbivore)	50000	500000	pCi/g		SOIL_DC(p)_U-236
RAD	Radionuclide	Uranium-236	U-236	WATER	Algae (Aquatic autotroph - producer) - water	23	230	pCi/L	MINIMUM	WATER_A(w)_U-236
RAD	Radionuclide	Uranium-236	U-236	WATER	American kestrel (water)	290000000	2900000000	pCi/L		WATER_AK(w)_U-236
RAD	Radionuclide	Uranium-236	U-236	WATER	American robin (water)	280000000	2800000000	pCi/L		WATER_AR(w)_U-236
RAD	Radionuclide	Uranium-236	U-236	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	210	2100	pCi/L		WATER_AS(w)_U-236
RAD	Radionuclide	Uranium-236	U-236	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	210	2100	pCi/L		WATER_D(w)_U-236
RAD	Radionuclide	Uranium-236	U-236	WATER	Deer mouse (water)	650000000	6500000000	pCi/L		WATER_DM(w)_U-236
RAD	Radionuclide	Uranium-236	U-236	WATER	Fish (Aquatic intermediate carnivore) - water	42	420	pCi/L		WATER_GF(w)_U-236
RAD	Radionuclide	Uranium-236	U-236	WATER	Gray fox (water)	15000000	150000000	pCi/L		WATER_RF(w)_U-236
RAD	Radionuclide	Uranium-236	U-236	WATER	Montane shrew (water)	590000000	5900000000	pCi/L		WATER_MS(w)_U-236
RAD	Radionuclide	Uranium-236	U-236	WATER	Mountain cottontail (water)	53000000	530000000	pCi/L		WATER_DC(w)_U-236
RAD	Radionuclide	Uranium-236	U-236	WATER	Occult little brown myotis bat (water)	1900000000	19000000000	pCi/L		WATER_BA(w)_U-236
RAD	Radionuclide	Uranium-236	U-236	WATER	Violet-green Swallow (water)	530000000	5300000000	pCi/L		WATER_VGS(w)_U-236
RAD	Radionuclide	Uranium-238	U-238	SEDIMENT	Algae (Aquatic autotroph - producer) - sediment	4300	43000	pCi/g		SEDIMENT_A(s)_U-238
RAD	Radionuclide	Uranium-238	U-238	SEDIMENT	Aquatic snails (Aquatic herbivore - grazer) - sediment	4300	43000	pCi/g		SEDIMENT_AS(s)_U-238
RAD	Radionuclide	Uranium-238	U-238	SEDIMENT	Daphnids (Aquatic omnivore/ herbivore) - sediment	4300	43000	pCi/g		SEDIMENT_D(s)_U-238
RAD	Radionuclide	Uranium-238	U-238	SEDIMENT	Fish (Aquatic intermediate carnivore) - sediment	4300	43000	pCi/g		SEDIMENT_GF(s)_U-238
RAD	Radionuclide	Uranium-238	U-238	SEDIMENT	Occult little brown myotis bat (Mammalian aerial insectivore)	2500	25000	pCi/g		SEDIMENT_BA(i)_U-238
RAD	Radionuclide	Uranium-238	U-238	SEDIMENT	Violet-green Swallow (Avian aerial insectivore)	670	6700	pCi/g	MINIMUM	SEDIMENT_VGS(i)_U-238
RAD	Radionuclide	Uranium-238	U-238	SOIL	American kestrel (Avian top carnivore)	4200	42000	pCi/g		SOIL_AK(f)_U-238
RAD	Radionuclide	Uranium-238	U-238	SOIL	American kestrel (insectivore / carnivore)	4200	42000	pCi/g		SOIL_AK(fi)_U-238
RAD	Radionuclide	Uranium-238	U-238	SOIL	American robin (Avian herbivore)	3300	33000	pCi/g		SOIL_AR(p)_U-238
RAD	Radionuclide	Uranium-238	U-238	SOIL	American robin (Avian insectivore)	4000	40000	pCi/g		SOIL_AR(i)_U-238
RAD	Radionuclide	Uranium-238	U-238	SOIL	American robin (Avian omnivore)	3700	37000	pCi/g		SOIL_AR(ip)_U-238
RAD	Radionuclide	Uranium-238	U-238	SOIL	Deer mouse (Mammalian omnivore)	2100	21000	pCi/g		SOIL_DM(ip)_U-238
RAD	Radionuclide	Uranium-238	U-238	SOIL	Earthworm (Soil-dwelling invertebrate)	1100	11000	pCi/g		SOIL_EW_U-238
RAD	Radionuclide	Uranium-238	U-238	SOIL	Generic plant (Terrestrial autotroph - producer)	400	4000	pCi/g	MINIMUM	SOIL_GP_U-238
RAD	Radionuclide	Uranium-238	U-238	SOIL	Gray fox (Mammalian top carnivore)	2100	21000	pCi/g		SOIL_RF(f)_U-238
RAD	Radionuclide	Uranium-238	U-238	SOIL	Montane shrew (Mammalian insectivore)	2100	21000	pCi/g		SOIL_MS(i)_U-238
RAD	Radionuclide	Uranium-238	U-238	SOIL	Mountain cottontail (Mammalian herbivore)	2000	20000	pCi/g		SOIL_DC(p)_U-238
RAD	Radionuclide	Uranium-238	U-238	WATER	Algae (Aquatic autotroph - producer) - water	24	240	pCi/L	MINIMUM	WATER_A(w)_U-238
RAD	Radionuclide	Uranium-238	U-238	WATER	American kestrel (water)	300000000	3000000000	pCi/L		WATER_AK(w)_U-238
RAD	Radionuclide	Uranium-238	U-238	WATER	American robin (water)	290000000	2900000000	pCi/L		WATER_AR(w)_U-238
RAD	Radionuclide	Uranium-238	U-238	WATER	Aquatic snails (Aquatic herbivore - grazer) - water	220	2200	pCi/L		WATER_AS(w)_U-238
RAD	Radionuclide	Uranium-238	U-238	WATER	Daphnids (Aquatic omnivore/ herbivore) - water	220	2200	pCi/L		WATER_D(w)_U-238
RAD	Radionuclide	Uranium-238	U-238	WATER	Deer mouse (water)	680000000	6800000000	pCi/L		WATER_DM(w)_U-238
RAD	Radionuclide	Uranium-238	U-238	WATER	Fish (Aquatic intermediate carnivore) - water	44	440	pCi/L		WATER_GF(w)_U-238
RAD	Radionuclide	Uranium-238	U-238	WATER	Gray fox (water)	15000000	150000000	pCi/L		WATER_RF(w)_U-238
RAD	Radionuclide	Uranium-238	U-238	WATER	Montane shrew (water)	610000000	6100000000	pCi/L		WATER_MS(w)_U-238
RAD	Radionuclide	Uranium-238	U-238	WATER	Mountain cottontail (water)	55000000	550000000	pCi/L		WATER_DC(w)_U-238
RAD	Radionuclide	Uranium-238	U-238	WATER	Occult little brown myotis bat (water)	2000000000	20000000000	pCi/L		WATER_BA(w)_U-238
RAD	Radionuclide	Uranium-238	U-238	WATER	Violet-green Swallow (water)	550000000	5500000000	pCi/L		WATER_VGS(w)_U-238

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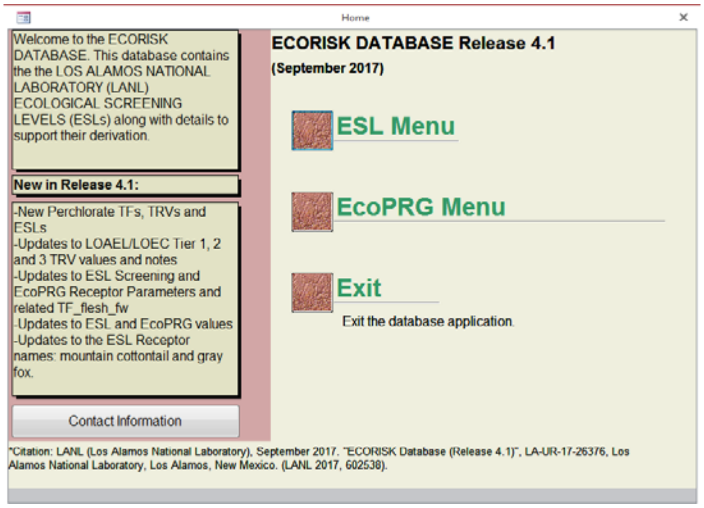
ECORISK Database
Quick Start Guide, Revision 1

Los Alamos
NATIONAL LABORATORY

Prepared by the Environmental Programs Directorate

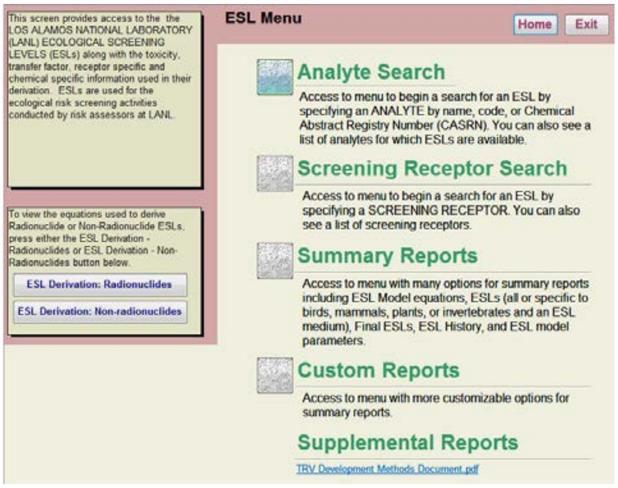
OVERVIEW

This quick start guide is a companion to the full documentation of database operation provided by the user guide and is applicable to release 4.1 of the ECORISK Database. The database and guides are available for download at http://www.lanl.gov/environment/protection/eco-risk-assessment.php. The ECORISK Database is a tool developed by Los Alamos National Laboratory to support the evaluation of the impacts on the ecology associated with solid waste management units or areas of concern. The database contains ecological screening levels (ESLs) and ecological preliminary remediation goals (EcoPRGs) for terrestrial and aquatic organisms, including birds, mammals, invertebrates, and plants. There are ESLs and EcoPRGs for inorganic chemicals and organic chemicals, as well as ESLs for radionuclides. The ESLs are used to screen environmental data (soil, sediment, water, and air) for the potential for adverse effects on biota. Ecological exposure models used for calculation of ESLs for ecological risk-screening assessments have been modified to derive soil EcoPRGs for representative assessment endpoint receptors. The ECORISK Database provides the models and inputs for calculating ESLs and EcoPRGs. Among the key inputs to these ESLs are literature searches and subsequent in-depth reviews of ecotoxicological information.



Home Screen

The home screen of the ECORISK Database provides a menu to access the search and report menu for ESLs (ESL Menu) and EcoPRGs (EcoPRG Menu), a summary of what is new in the latest release of the database, database contact information (contact information), and an exit database application command (exit).

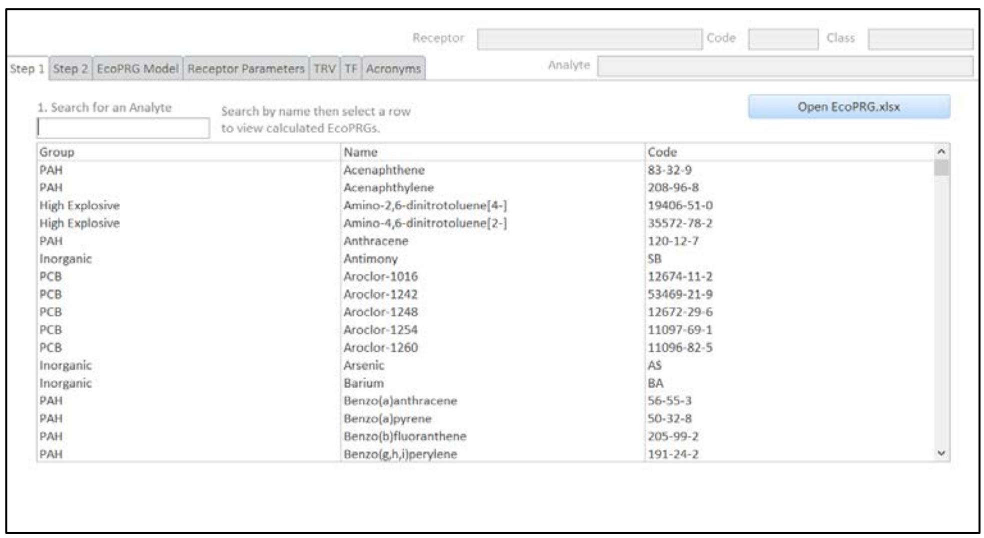


ESL Main Menu

The main menu provides an interface to perform ESL and supporting documentation searches by analyte or receptor and provides access to summary, custom, and supplemental reports. The main menu screen also provides access to the ESL derivation models for radionuclides and nonradionuclides.

EcoPRG Main Menu

The main menu provides an interface to perform EcoPRG and supporting documentation searches by analyte and provides access to summary reports. The main menu screen also provides access to the EcoPRG models for nonradionuclides.



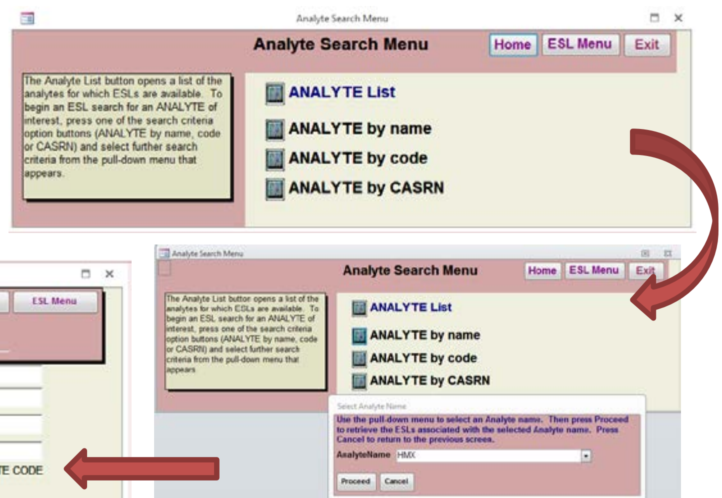
BASIC SEARCH INSTRUCTIONS FOR ESLS

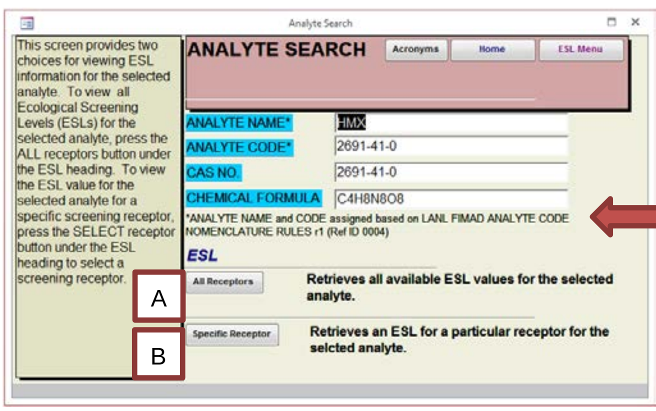
The ESL main menu screen is used to select the analyte search menu. Search option 1 for ESL and supporting documentation is the single analyte search, which allows the user to select a specific analyte of interest from a list of chemicals in the ECORISK Database. Search option 2 is the single screening receptor search, which allows the user to select a specific screening receptor of interest from a list of screening receptors in the ECORISK Database.

Search Option 1: By Analyte

1. Select Analyte

The user can search for a specific analyte by name, code, or Chemical Abstracts Service registry number (CASRN).

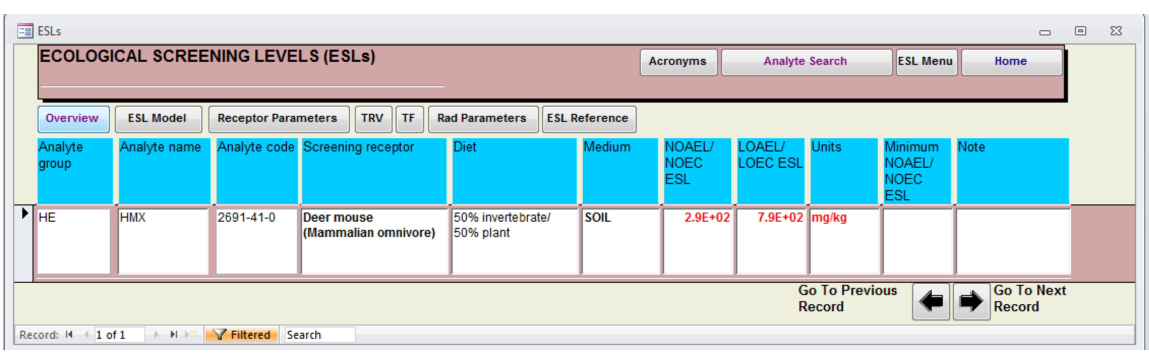




2. Select Receptor

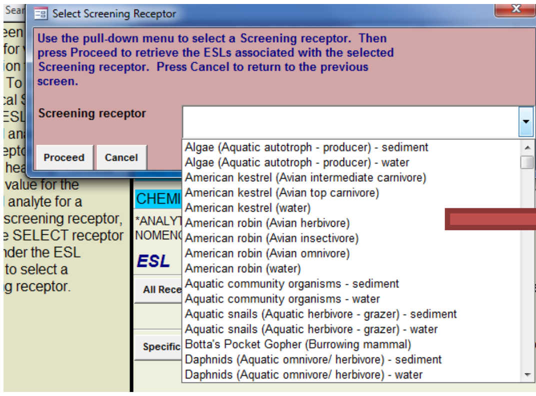
Following the selection of an analyte of interest, the user chooses to view ESL records for all receptors (marked with an A above) or for a specific receptor (B) for the analyte.

3. Retrieve ESL Records (for all receptors [A])

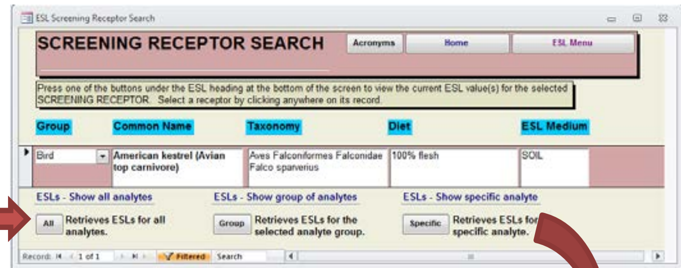


Search Option 2: By Screening Receptor

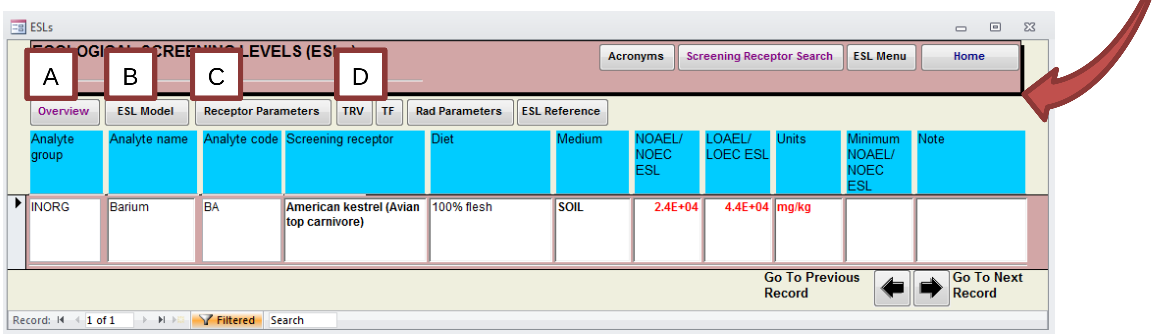
1. Select a Specific Receptor



2. Select Analyte (all, group, or specific)



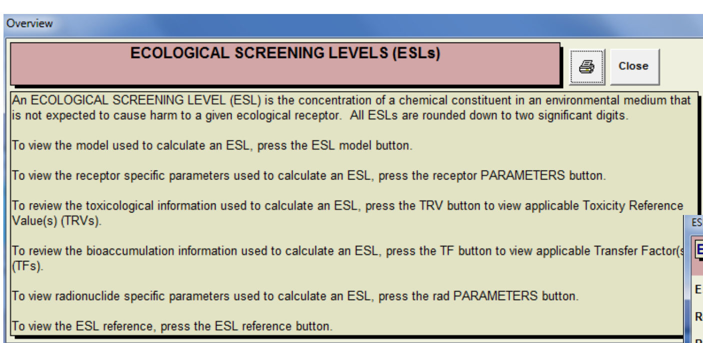
3. Retrieve ESL Records (for a specific analyte)



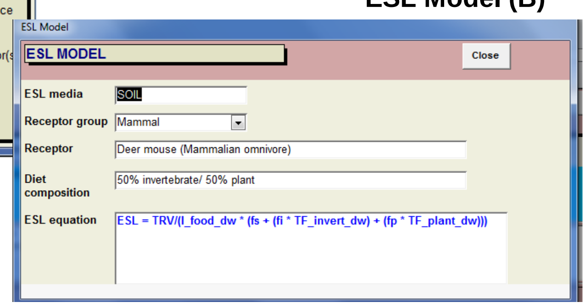
Retrieve ESL Supporting Documentation

The following information highlights the ESLs and supporting information available from the ESL screen, such as the overview (marked with an A above), ESL model (B), receptor parameters (C), and toxicity reference values (TRVs) (D).

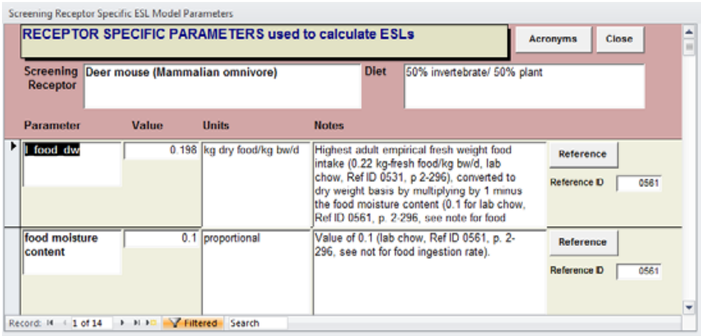
ESL Overview Screen (A)



ESL Model (B)

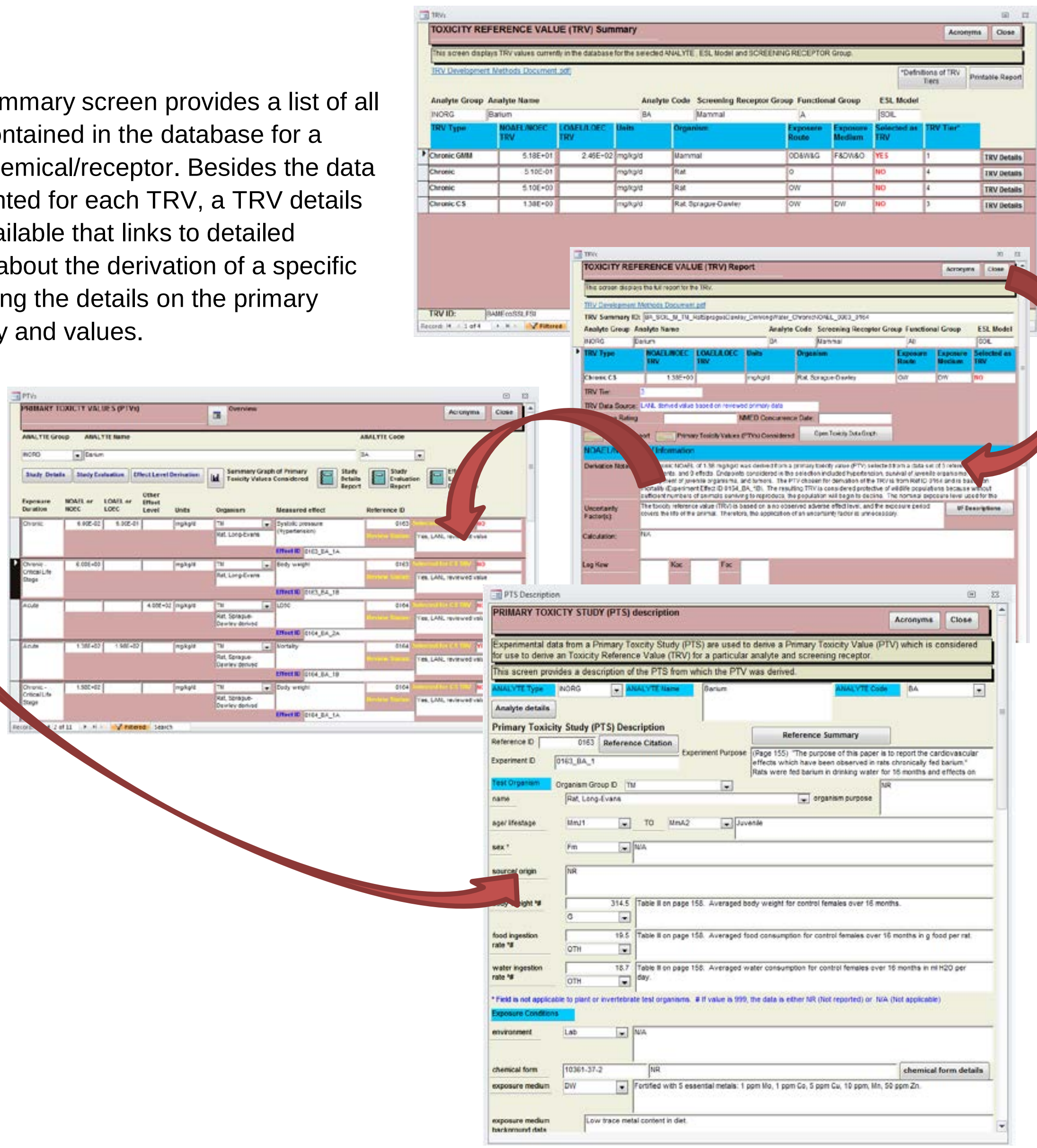


Receptor Parameters (C)



TRVs (D)

The TRV summary screen provides a list of all the TRVs contained in the database for a particular chemical/receptor. Besides the data fields presented for each TRV, a TRV details button is available that links to detailed information about the derivation of a specific TRV, including the details on the primary toxicity study and values.

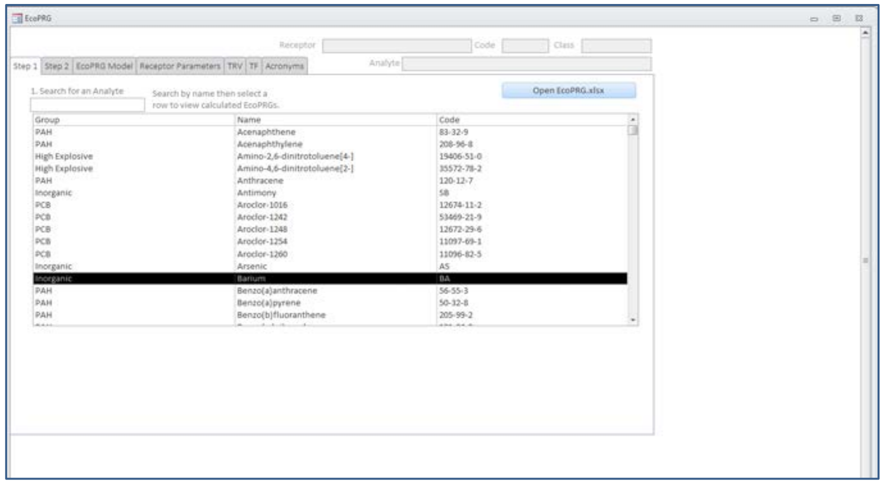


BASIC SEARCH INSTRUCTIONS FOR ECOPRGS

The EcoPRG main menu screen (Step 1) is used to select the analyte of interest. The user may select a specific analyte of interest from a list of chemicals in the ECORISK Database.

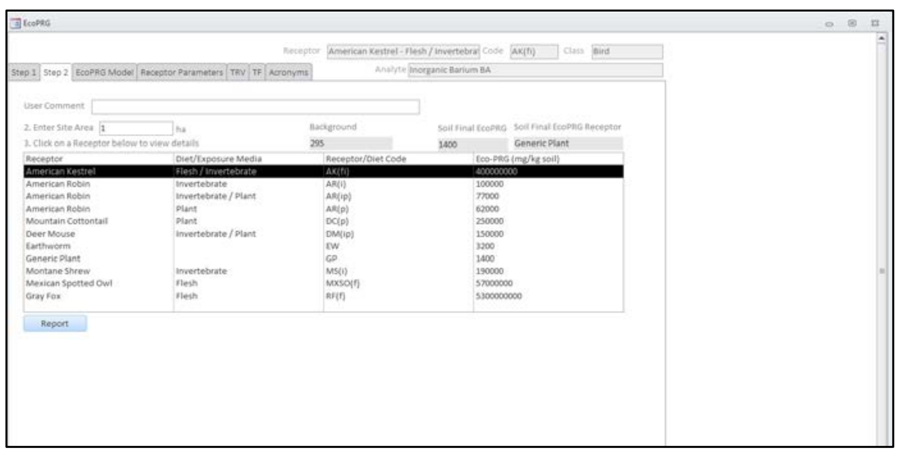
1. Select Analyte

The user can search for a specific analyte by name either by typing the name or selecting the analyte from the list in Step 1.



2. Select Receptor

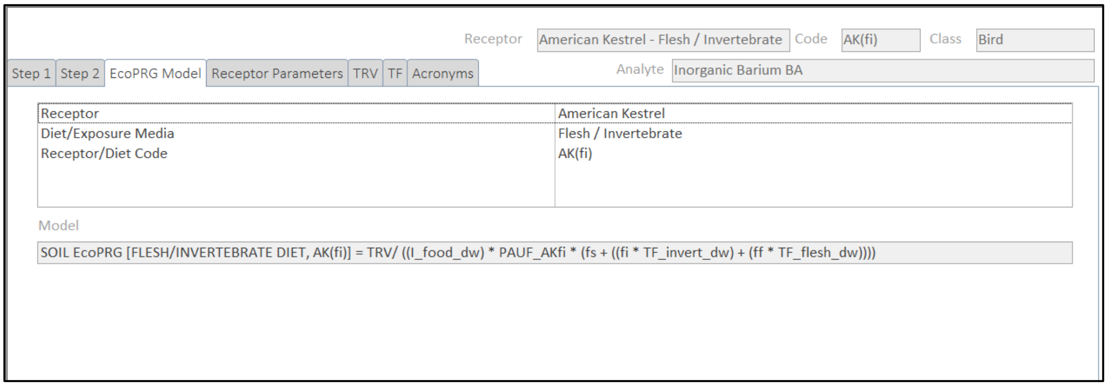
Following the selection of an analyte, the database will advance to the Step 2 tab where a list of receptors are shown. The EcoPRG is also provided for each receptor. The default site area is 1 ha. This site area can be changed when choosing a receptor to update the EcoPRGs and associated documentation. Choose a receptor by highlighting the receptor name. The background value is provided for comparison purposes.



3. Retrieve EcoPRG Supporting Documentation

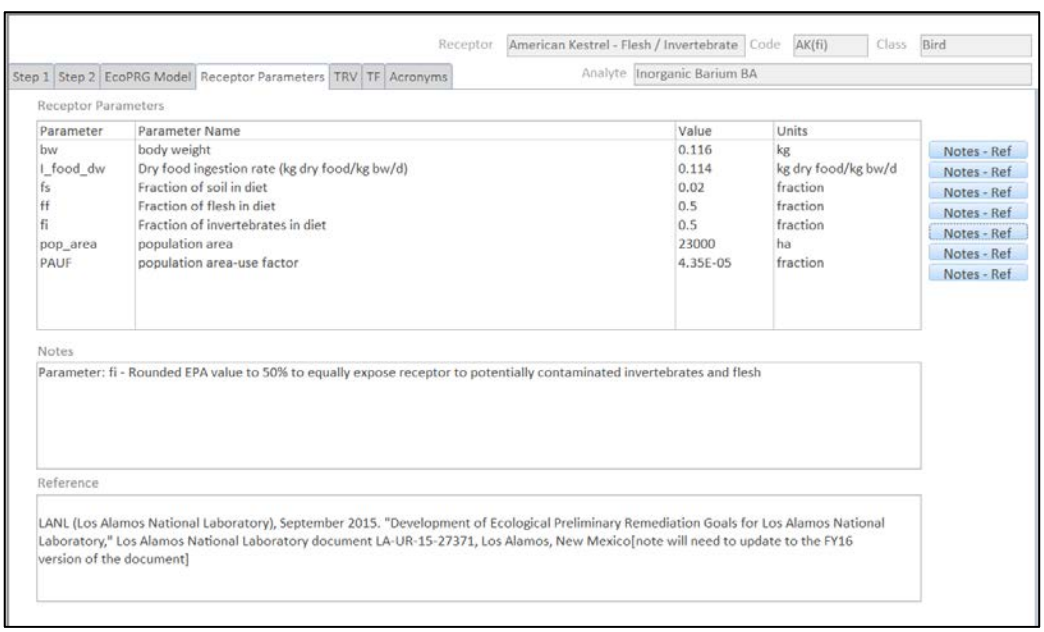
EcoPRG Model

The EcoPRG Model screen displays the receptor and diet that was chosen in Step 2. If a model exists, it will also be displayed on this screen.



Receptor Parameters

The receptor parameters screen lists each parameter used to calculate an EcoPRG for a particular ecological receptor. Besides the parameter and parameter name, the screen displays the parameter value and units. A “Notes-Ref” button is available to the right of each parameter. By clicking this button next to the parameter of interest, the corresponding notes and reference will be displayed at the bottom of the screen.

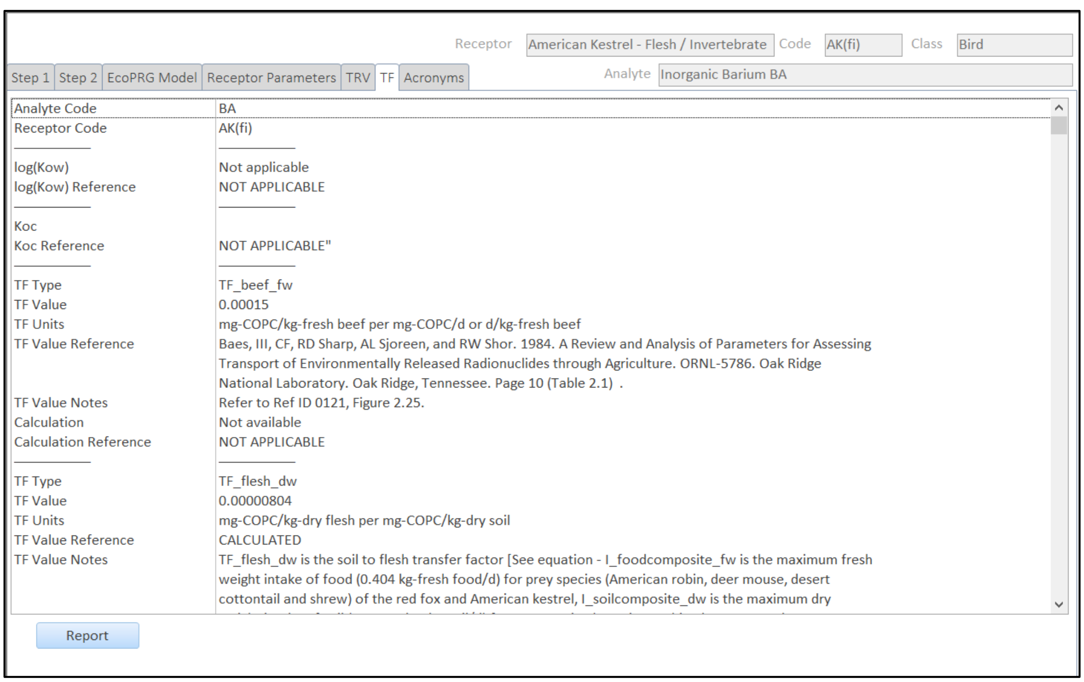


TRV

The TRV screen, which provides the TRV for the selected analyte and receptor, contains the COPEC group, receptor class, TRV value and units. Additional information for the TRV are provided in the details and reference boxes.

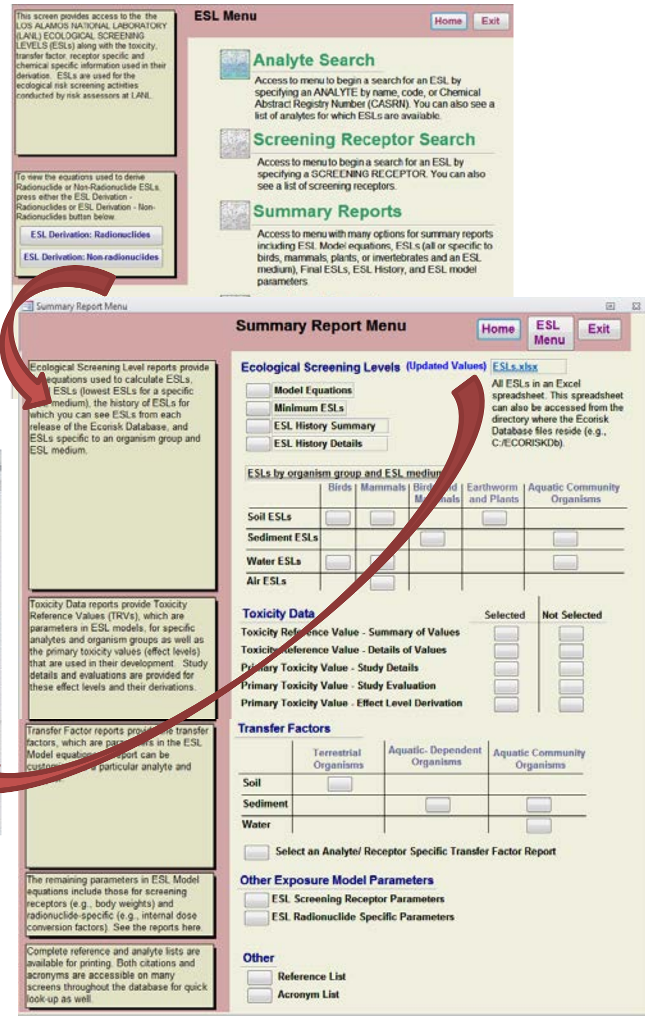
TF

The TF screen, which provides a list of all the TFs associated with the calculation of a particular EcoPRG, provides access to the log(Kow), Koc, calculation, references, and other notes related to the TF.



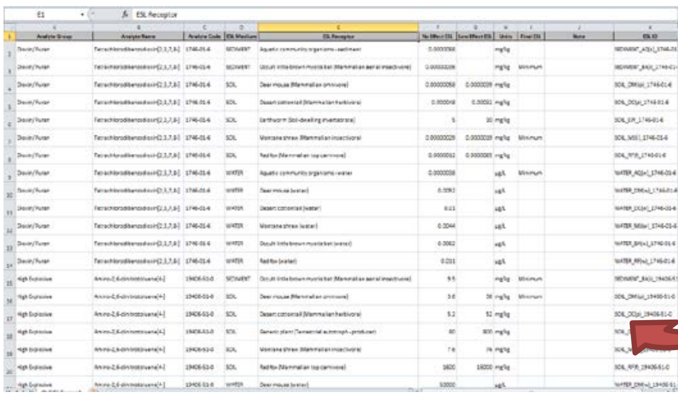
ESL REPORT OPTIONS

Clicking on the summary reports button on the ESL main menu screen brings up a selection of database reports.



Summary Reports

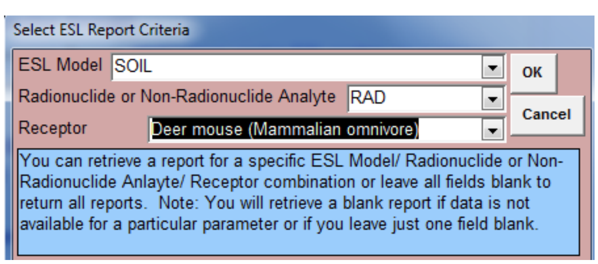
Several summary reports are offered, but the most likely of interest to users is the ESL Microsoft Excel report, ESLs.xlsx, which displays all available ESLs.



The other ESL reports offer the minimum ESLs for each analyte and media, or reports can be downloaded separately for each medium and receptor group. There are also toxicity data, transfer factor, other exposure model parameter, and other reports available.

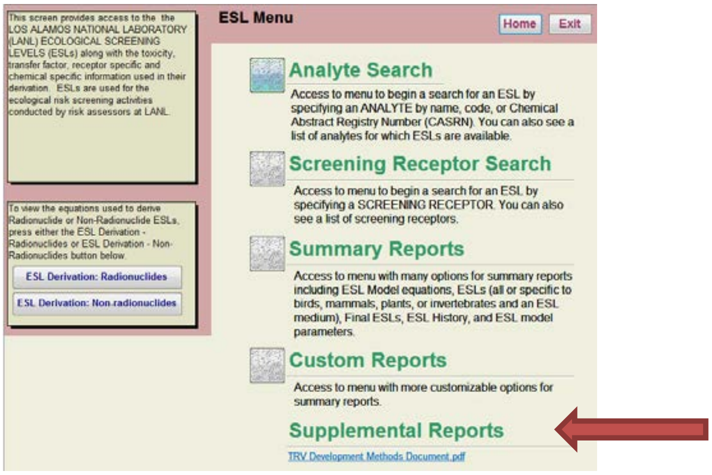
Custom Reports

The custom reports menu allows the user to select search criteria to filter the information in the ESL, toxicity data, transfer factor, other ESL model parameter, and other reports from the summary reports section.



Supplemental Reports

Supplemental reports are technical reports (included as Adobe Acrobat pdf documents) that are linked to the database that offer additional documentation related to methods used and details of the data within the database.



ECOPRG REPORT OPTIONS

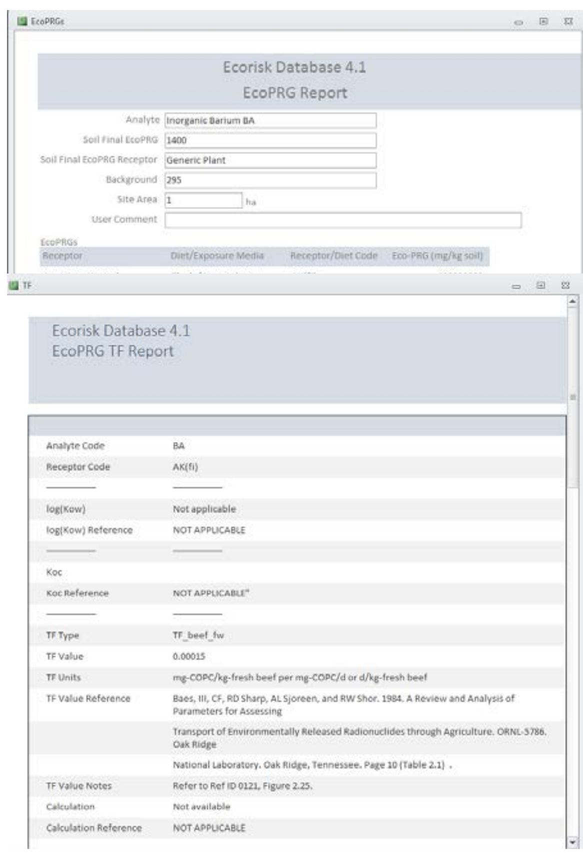
There are two summary report options within the EcoPRG main menu screens.

EcoPRG Summary Report

On the Step 2 screen, the "Report" button will generate a summary report of all EcoPRGs for the selected analyte. The analyte, Soil Final EcoPRG, Soil Final receptor, background, site area, and user comment are also included on the report. A user comment may be entered on the Step 2 screen before the report is generated to include project, site, or other user notes on the report.

TF Summary Report

On the TF screen, the "Report" button generates a report for the selected analyte and receptor which includes the log (Kow), Koc, all TF types with associated values, units, references, calculations, and notes.



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February 2014
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Toxicity Reference Value Development Methods for the Los Alamos National Laboratory, Revision 1

Los Alamos
NATIONAL LABORATORY
EST. 1943

Prepared by the Environmental Programs Directorate

CONTENTS

Acronyms and Abbreviations

C-CL	chronic-critical life stage
COPC	chemical of potential concern
COPEC	chemical of potential ecological concern
CS	critical study
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethane
DDT	dichlorodiphenyltrichloroethane
EC_{xx}	effective concentration for xx% of the population
Eco-SSL	ecological soil screening level
ED_{xx}	effective dose for xx% of the population
EP	Environmental Programs (Directorate)
EPA	U.S. Environmental Protection Agency
ESL	ecological screening level
GMM	geometric mean
HI	hazard index
HQ	hazard quotient
LANL or the Laboratory	Los Alamos National Laboratory
LC_{xx}	lethal concentration for xx% of the population
LD_{xx}	lethal dose for xx% of the population
LOAEL	lowest observed adverse effect level
LOEC	lowest observed effect concentration
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
PAH	polycyclic aromatic hydrocarbon
PTSE	primary toxicity study evaluation
PTV	primary toxicity value
SLERA	screening-level ecological risk assessment
TRV	toxicity reference value
UF	uncertainty factor

1.0 INTRODUCTION

This document details the process used to develop toxicity reference values (TRVs) for various chemical exposure pathways for selected wildlife at the Los Alamos National Laboratory (LANL or the Laboratory). These TRVs are used in ecological screening level (ESL) models representing the following exposure media for various chemicals to receptors.

- *Air.* Inhalation exposure pathway for burrowing mammals (volatile organic compounds only)
- *Soil and sediment.* Direct and food chain exposure pathways to birds and mammals
- *Water.* Drinking water ingestion to birds and mammals
- *Soil.* Direct exposure pathways to invertebrates (e.g., earthworms) and plants
- *Water and sediment.* Direct exposure pathways to aquatic community organisms

ESLs are used in screening-level ecological risk assessments (SLERAs) at the Laboratory. The TRVs, ESLs, model parameters, and all supporting documentation are archived in the Laboratory's ECORISK Database (LANL 2012, 226667). The SLERA methodology is documented in "Screening-Level Ecological Risk Assessment Methods, Revision 3" (LANL 2012, 226715).

This document serves as guidance for risk assessors, risk managers, and others who wish to understand the logic behind the literature, evaluations, and documentation that leads to the development of TRVs used to calculate or assign ESLs for SLERAs at the Laboratory.

Section 2 of this document provides a summary of ESL development and use. Section 3 provides a summary of TRV development. It includes the working definition of a TRV at the Laboratory for sediment and water ESLs (section 3.1) and soil ESLs (section 3.2) and definitions relevant to deriving TRVs for soil ESLs (section 3.3). Section 4 provides a detailed description of each of the four tiers of TRVs for soil ESLs: Tier 1 (national value), Tier 2 (Laboratory-derived geometric mean [GMM] TRV), Tier 3 (Laboratory-derived critical study TRV), and Tier 4 (non-Laboratory-derived critical study TRV). Section 5 describes the conversion of TRVs to soil ESLs.

Appendix A contains the primary toxicity study evaluation (PTSE) methods used to develop Laboratory TRVs. The PTSE process is used to develop the Laboratory's Tier 2 and Tier 3 TRVs from the primary toxicity literature. Appendix A contains data sources and a detailed step-by-step process for data entry for the PTSE databases created in Microsoft Access for documentation purposes.

Note: This document best describes the PTSE process for ECORISK Database Release 3.1 (LANL 2012, 226667). Any updates/revisions to the methods can be obtained from the current Risk Assessment Team Leader for the Laboratory's Environmental Programs (EP) Directorate.

Appendix B contains the process used to develop GMM TRVs for polycyclic aromatic hydrocarbons (PAHs) and dichlorodiphenyltrichloroethane (DDT) and metabolites using datasets from the U.S. Environmental Protection Agency's (EPA's) ecological soil screening levels (Eco-SSLs) and the Laboratory. This process was necessary to develop single chemical TRVs/ESLs for individual PAHs (e.g., benzo[a]pyrene) and DDT and each of its metabolites (dichlorodiphenyldichloroethane [DDD] and dichlorodiphenyldichloroethane [DDE]). EPA did not develop Eco-SSLs for individual chemicals, so their data set was sorted and used to develop individual chemical TRVs for soil ESLs.

2.0 SUMMARY OF ESL DEVELOPMENT AND USE

ESLs are used to evaluate potential hazards associated with chemicals and radionuclides found at the Laboratory. The Laboratory has developed chemical-, media-, and receptor-specific ESLs using a tiered TRV development approach, as described in section 4 of this document. ESLs are developed and maintained by the Laboratory as part of the ECORISK Database, which archives the ESLs, TRVs, associated exposure parameters, and all supporting documentation. The ECORISK Database was initially developed in 1998, with the most current release (3.1) provided in September 2012.

The development of an ESL is a two-step process. The first step involves identifying or developing a TRV. In the second step, the TRV and exposure parameters, if applicable, are used to calculate or assign ESLs for chemicals and ecological receptors representative of the ecosystems at the Laboratory. Eleven different receptors were selected to be representative of mammals, birds, plants, and invertebrates inhabiting terrestrial and aquatic ecosystems at the Laboratory. At the time of this publication, 182 analytes, including inorganic chemicals, organic chemicals, and radionuclides, have ESLs documented in the database.

2.1 Goals of the Risk Assessment Process at the Laboratory

The goals of the risk assessment process are two-fold: (1) to quantify hazards to the environment and associated exposure to radioactive and chemical wastes from past treatment, storage, and disposal practices and (2) to facilitate meeting the environmental cleanup requirements of the Laboratory's permit to operate hazardous waste facilities.

In accordance with these goals, the SLERA is used to determine whether there is a potential ecological risk that needs to be more fully considered in a baseline ecological risk assessment.

2.2 The Screening-Level Ecological Risk Assessment Process

The purpose of the screening assessment is to provide information to risk managers so that informed risk management decisions can be made. The SLERA process follows the EPA's "Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments" (EPA 1997, 059370) and the "Guidelines for Ecological Risk Assessment" (EPA 1998, 062809). The SLERA process uses information on the environmental setting, contaminant fate and transport, exposure pathways, and functional food webs to establish a conceptual site model that can be assessed for impacts using assessment endpoints and a select group of screening receptors. The SLERA process then uses ESLs as threshold values to aid in determining whether a chemical is of potential ecological concern and requires further investigation. The ESLs are developed for individual chemicals and are medium and receptor specific. If a site has levels of a chemical above the ESL in any medium, then this site may pose a potential risk to ecological receptors. To evaluate the potential risk for each chemical of potential concern (COPC), the ESL and the representative site concentration are used to calculate the hazard quotient (HQ). If the HQ for a COPC is greater than 1.0 at a site with only a single COPC, or the HQ for a COPC is greater than 0.3 for a site with multiple COPCs, then that chemical is identified as a chemical of potential ecological concern (COPEC) and evaluated further.

ESLs are specific to each medium (air, soil, sediment, and water) and do not account for exposure to multiple media. A method to account for wildlife exposure to multiple media includes a multimedia exposure calculation that results in a hazard index (HI) value for each wildlife receptor. The HI is a sum of HQ values. HQs are calculated for each screening receptor and each contaminant and may be thought of as a ratio of a receptor's exposure at the site to an acceptable effect level. If the HI is greater than 1.0, then the site may pose an ecological risk. An uncertainty analysis follows COPEC identification and can result in adding chemicals to, or removing them from, the list of COPECs. The SLERA process is described in detail in “Screening-Level Ecological Risk Assessment Methods, Revision 3” (LANL 2012, 226715).

2.3 Description of Ecological Screening Levels

ESLs are media- and receptor-specific values. Air, soil, sediment, and water ESLs are calculated for ecological screening receptors in various functional feeding guilds (e.g., carnivores, herbivores, insectivores). The ESLs are calculated using ecological exposure parameters (e.g., ingestion rate and bioconcentration factors) and the TRV. The ESL calculations are described in detail in “Screening-Level Ecological Risk Assessment Methods, Revision 3” (LANL 2012, 226715), and ESL values are archived in the ECORISK Database along with the models and model parameter values, including the TRVs.

2.4 Description of the ECORISK Database

The ECORISK Database was created in 1998 as a user-friendly database application to document and archive information for the ESLs and associated parameters, including TRVs. The ECORISK Database also provides detailed documentation for justifying the type of information collected and used and illustrates how values are calculated. The database can be searched by chemical or screening receptor and generates on-screen and printable reports for all ESLs, TRVs, and exposure parameters. The database is a Microsoft Access file that is distributed to all project risk assessors and is provided upon request to federal and state agencies and other contractors, both nationally and internationally.

2.5 Update of ESLs and the ECORISK Database

The selection of the specific chemicals for which ESLs are derived is primarily dependent upon project needs. ESLs are updated based on changes to the ESL equations, the calculation or source of ESL parameters, and more recent or updated TRVs. The need for ESLs is reviewed to determine priorities for TRV development. If new ESLs are not needed, then existing TRVs are reviewed to determine priorities for retrieving and reviewing new literature to supplement information in the database.

A new release of the database is provided as necessary. All new/updated ESL parameters and TRVs are recorded in the database, and the new ESLs are calculated. All ESLs, TRVs, and calculations undergo quality assurance checks. Each database release contains an ESL history report that documents any changes made to data or the database interface since the last release.

2.6 Interim and Surrogate ESLs/TRVs

Interim and surrogate ESLs/TRVs are also included along with the most recent release of the ECORISK Database. Interim values are those that have not been formally peer reviewed by the EP Directorate’s Risk Assessment Team. Interim values are provided to risk assessors as needed between database releases.

Surrogate ESLs/TRVs are used for chemicals lacking toxicity data but are structurally similar to, or a degradation product of, chemicals with an ESL/TRV.

3.0 SUMMARY OF TRV DEVELOPMENT

TRV development at the Laboratory encompasses either assigning or deriving a TRV based on review of relevant regulatory guidance and the toxicological literature. At the Laboratory, the term TRV includes dose rates (rad/d for radionuclides or mg/kg/d for nonradionuclides) and environmental media concentrations or benchmarks (mg/kg soil or sediment or µg/L water). Table 3.0-1 shows the types of toxicity data used for the various ESL media, receptor groups, and chemical classes (radionuclides versus nonradionuclides).

Table 3.0-1
Types of Toxicity Data Used for ESLs by Media, Receptor Group, and Chemical Class

	ESL Media						
	Soil		Sediment		Water		Air
Chemical Class	Plants and Invertebrates	Wildlife	Aquatic Community Organisms	Wildlife	Aquatic Community Organisms	Wildlife (drinking water)	Wildlife
Radionuclide	Dose rate (rad/d)	Dose rate (rad/d)	Dose rate (rad/d)	Dose rate (rad/d)	Dose rate (rad/d)	Dose rate (rad/d)	n/a*
Nonradionuclide	TRV (mg/kg soil)	TRV (mg/kg/d)	Benchmark (mg/kg sediment)	TRV (mg/kg/d)	Benchmark (µg/L water)	TRV (mg/kg/d)	TRV (mg/kg/d)

*n/a = Not applicable.

The following sections outline the processes used to assign or derive TRVs for sediment and water ESLs (section 3.1) and for soil ESLs (section 3.2). The remainder of section 3 describes the definitions relevant to deriving TRVs for soil ESLs (section 3.3).

3.1 TRVs for Sediment and Water ESLs

The process for assigning/selecting TRVs for sediment and soil ESLs is described in detail in “Screening-Level Ecological Risk Assessment Methods, Revision 3,” Appendix A, and is not described here. Please refer to the SLERA methodology document for details.

3.2 TRVs for Soil ESLs

A TRV represents an exposure rate associated with an acceptable risk from chronic exposure of an ecological receptor to a specific contaminant via a specific exposure pathway. In other words, exposures exceeding the TRV may pose adverse effects to wildlife species, while exposures below the TRV are not expected to result in adverse effects (EPA 2005, 089448).

TRVs are important parameters in ESL calculations because “they represent the component of the model that determines whether or not a contaminant in a media may present potential harm to ecological receptors in the area” (Podolsky et al. 2001, 072586). For any given chemical, TRV values vary among government agencies and private sectors because the methods used to develop them vary according to the site-specific concerns of the organization that developed them (i.e., receptor species, chemical, type of exposure pathway, type and magnitude of uncertainty factors [UFs] applied).

The ideal TRV for ecological risk screening assessments at the Laboratory is one that is based on literature representing the most ecologically relevant effects (reproduction/development, survival and/or adult weight/size change), exposure routes (oral ingestion via food or drinking water for birds and mammals, inhalation for mammals, uptake via seed coat and/or roots for plants, and direct contact exposure for invertebrates and aquatic community organisms), exposure media (food and drinking water for birds and mammals, air for mammals, soil for plants and invertebrates, and water and sediment for aquatic community organisms), exposure period (chronic), and effect levels (no observed adverse effect level [NOAEL] for vertebrates or no observed effect concentration [NOEC] for plants and invertebrates). A TRV based on these characteristics is considered protective of the wildlife; aquatic community organism, plant, and invertebrate populations; and sensitive individuals because it represents an exposure that is not associated with adverse impacts of low-level, long-term chemical effects (i.e., adverse effects on ability of individuals to develop into viable organisms, search for mates, breed successfully, and produce live and equally viable offspring).

3.3 Definitions

3.3.1 Ecologically Relevant Effects

An ecologically relevant toxicity study effect is defined as a measurement that is considered most closely related to population effects, i.e., an effect that directly influences reproductive success and survival. Reproduction, development, survival, and weight/size change measurements are considered to be more ecologically relevant than biochemical, physiological, or cancer measurements because they more closely reflect effects on population health/size (EPA 2005, 089448); thus, the former are selected for use in developing TRVs at the Laboratory.

3.3.2 Ecologically Relevant Media and Exposure Routes

An ecologically relevant toxicity study exposure medium/route is defined as one that is most closely related to that which is found in the natural environment of concern.

Wildlife receptors are exposed to chemicals in their natural environment primarily through their diet, so ingestion of food or food-like substances is considered the most ecologically relevant toxicity study exposure medium/route for developing TRVs at the Laboratory for wildlife. Oral exposure using capsules, gavage, or intubation is considered similar to ingestion of food and thus also ecologically relevant. Wildlife receptors are also exposed, although to a lesser degree, to chemicals through ingestion of drinking water and, under special circumstances, through the inhalation of air (e.g., burrowing mammal), so separate TRVs are developed with toxicity data for chemicals being ingested in drinking water, and separate TRVs are developed for chemicals inhaled in air. Because of differences in bioavailability of chemicals depending on the exposure media/routes, those that do not represent chemical exposure through the digestive system or through the lungs are not considered ecologically relevant, e.g., intraperitoneal, intravenous, or intramuscular. Wildlife receptors are also exposed dermally to chemicals, but this exposure route is not considered for TRV development because the contribution of dermal exposure to the overall exposure is considered minimal compared with the other exposure scenarios mentioned above (i.e., fur and feathers as barrier, dermal exposure less significant than oral exposure [EPA 2005, 089448]).

Terrestrial plants and worms are exposed to chemicals in their natural environment primarily through direct uptake from soil, which is the most ecologically relevant toxicity study exposure medium/route for developing TRVs for plants and worms at the Laboratory. Because of differences in the bioavailability of chemicals in different exposure media, exposure in solution or on filter paper is not considered ecologically relevant. Also, worms ingest chemicals in soil in their natural environment, but this exposure medium/route is not considered separately. The contribution to the overall exposure from ingestion is difficult to discern because the worm's alimentary tract is in contact with soil the majority of the time as well.

Aquatic community organisms are exposed to chemicals in their natural environment primarily through direct contact with water and sediment, which are the most ecologically relevant toxicity study exposure media/routes for developing TRVs at the Laboratory for aquatic community organisms. Also, some aquatic community organisms may ingest chemicals in water and/or sediment in their natural environment, but this exposure medium/route is not considered because the contribution to the overall exposure is considered minimal compared with the direct contact uptake because the organism's body is in complete contact with the water and/or sediment at all times.

3.3.3 Ecologically Relevant Test Organisms (species)

An ecologically relevant toxicity study test organism (species) is defined as one that represents the ecological receptor of concern at least at the taxonomic class level, e.g., mammal, bird, plant, or earthworm class. Although there are species differences within a class, the toxicity data are generally not robust enough to evaluate such differences, except qualitatively.

3.3.4 Exposure Duration Categories

To be ecologically relevant, the toxicity study exposure duration is defined as one with a chemical exposure encompassing the majority of the test organism's lifespan or the critical period/life stage of reproduction. The definition of chronic varies depending on the interpretation of lifespan data, and the definition of chronic critical life stage varies depending on the interpretation of life stage data. The Laboratory uses the definitions stated in EPA's "Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities" (EPA 1999, 070923).

Because not all toxicity studies are chronic or focused on a critical life stage, less than chronic data are used after the application of appropriate UFs to extrapolate data to a chronic value. UFs for subchronic, acute, and single-dose exposures are described in more detail in section 3.3.7, Uncertainty Factors. Less than chronic data are deemed appropriate for use to increase the size of otherwise limited data sets.

3.3.5 Selection of Dose Calculation

To be ecologically relevant, a dose calculation parameter for wildlife exposure models such as body weight, ingestion, or inhalation rate is defined as one that best matches the age/life stage of the test organism, as well as best reflects the entire chemical administration period of the toxicity study. Furthermore, food ingestion rates in units of dry weight are preferred in order to normalize the rate for moisture content of different dietary items.

3.3.6 Dose Calculation

An ecologically relevant dose calculation for wildlife exposure models is defined as one that is continuous/daily because this best represents a chronic exposure, which is generally the exposure of concern in SLERAs. If a datum from an intermittent dosing design is used to develop a toxicity value, it is normalized to a continuous rate before calculating a toxicity value (e.g., normalizing an intermittent inhalation study design to a continuous/daily dose).

3.3.7 Uncertainty Factors

In order to best represent an ecologically relevant TRV, UFs are used to extrapolate toxicity values from studies with less than chronic exposure durations, as well as from toxicity values representing effect levels other than a NOAEL/NOEC, such as a lowest observed adverse effect level/lowest observed effect concentration (LOAEL/LOEC), median lethal dose (lethal dose for 50% of the population [LD_{50}]), or median lethal concentration (lethal concentration for 50% of the population [LC_{50}]). UF application allows the use of more data to increase an otherwise limited data set available for developing a TRV. UFs are generally based on the relationship identified between no effect and low or lethal effect levels as well as best risk management practices. The Laboratory uses UFs as defined in EPA's "Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities" (EPA 1999, 070923).

4.0 TIERED TRV APPROACH FOR SOIL ESLs

TRVs are identified/developed in one of four ways. Depending on how it is developed, the TRV is assigned a tier of 1 to 4. A Tier 1 TRV has the most certainty in the toxicity data used to derive it, and a Tier 4 TRV has the least certainty in its derivation. This tiered process reduces data gaps by allowing for the maximal use of available toxicity data by considering a variety of sources, while at the same time communicating the degree of certainty in the data supporting the value.

Tiers are presented in the order of preference and confidence used to derive the TRVs and are as follows:

- *Tier 1.* A published, nationally accepted TRV such as an EPA Eco-SSL TRV or International Atomic Energy Agency radionuclide dose limit of 0.1 rad/d for the protection of ecological receptors at the population level.
- *Tier 2.* A TRV equal to the GMM of ecologically relevant NOAEL- or NOEC-based effect levels derived from review of the primary toxicity literature by the Laboratory (three or more data points are available) using the PTSE process (see Appendix A).
- *Tier 3.* A critical study (CS) TRV, which is based on an ecologically relevant maximum NOAEL- or NOEC-based effect level that is lower than the lowest reported LOAEL- or LOEC-based effect level derived from review of the primary toxicity literature by the Laboratory using the PTSE process (see Appendix A).
- *Tier 4.* A CS TRV derived using ecologically relevant primary toxicity values (PTVs) or TRVs reported by a secondary data source such as Oak Ridge National Laboratory, Sandia National Laboratories, U.S. Army Center for Health Promotion and Preventive Medicine, or EPA Region 5 environmental data quality levels.

Tier 1 TRVs are considered to have the greatest certainty because of the rigorous national peer review they have undergone before publication. The certainty associated with the Tier 2 and Tier 3 TRVs is based on the ecological relevance of available toxicity information based on the internal peer review by the Laboratory. Tier 2 TRVs have more certainty than Tier 3 TRVs because they are based on more toxicity information from the literature. Tier 4 TRVs are considered to have the most uncertainty because these secondary compilations of the literature do not provide as much documentation as is available for Tiers 1, 2, or 3.

5.0 CONVERSION OF TRVs TO SOIL ESLs

ESLs are chemical- and medium-specific screening levels pertaining to a given receptor (e.g., avian omnivore, earthworm) and medium (sediment, soil, water, and/or air). The TRV is used in the receptor-specific ESL calculation, which converts the toxicity value from a dose (mg-contaminant/kg body weight/d) to an environmental concentration (e.g., mg-contaminant/kg-soil) using factors to estimate the transfer of chemical from soil, sediment, or water to dietary media (e.g., soil-to-plant transfer factor) and receptor-specific exposure parameters (e.g., ingestion/inhalation rates and body weight). In the case of plants, earthworms, and aquatic organisms, the TRV is equal to the ESL because the toxicity value is already in environmental concentration units.

6.0 OVERVIEW OF APPENDIX A

The Laboratory's PTSE process is used to develop Tier 2 and Tier 3 TRVs. Because this process is detailed and the supporting documentation is contained in a standardized format within the ECORISK Database, a document that explains the field names, standardized or explanatory data entries, and justification thereof is needed for risk assessors and managers to understand the foundation of the values being used in SLERAs.

Appendix A also provides detailed instructions for performing PTSEs of the literature on the toxicity of chemicals to terrestrial birds, mammals, invertebrates (earthworms), and plants. The data obtained through the PTSE process are used to calculate PTVs. A PTV or group of PTVs is used to derive a Tier 3 CS TRV or Tier 2 GMM TRV, respectively, depending on the size of the data set available.

In the case of birds or mammals, a PTV is a daily dose rate (mg chemical/kg body weight/d) derived from the experiment and based on up to three dose rate parameters: (1) the concentration of the chemical administered in the study, (2) the food or water ingestion rate or inhalation rate of the test organism, and (3) the body weight of the test organism. In the case of plants or invertebrates, a PTV is a soil concentration (mg chemical/kg soil) based on the concentration of the chemical administered in the study. A PTV can be designated as a certain effect level (e.g., NOAEL or LC_{50}), depending on whether and to what extent the daily dose rate potentially leads to adverse effects in the test organisms.

The PTSE process consists of the following four main steps: (1) data extraction, (2) study evaluation and PTV calculation, (3) TRV development, and (4) TRV peer review and approval. Each of the first three steps has their own data-entry database to facilitate the evaluation and to document the process. The fourth step is peer review by the EP Directorate's Risk Assessment Team of each TRV derived through the PTSE process. Once a TRV is approved, the new PTSE TRV and all supporting data are incorporated into the ECORISK Database for calculating appropriate ESLs for specific chemicals, exposure pathways, and screening receptors. These ESLs are ultimately used in SLERAs. Although the TRVs are just one component of the ECORISK Database, they play a crucial role in the derivation of ESLs. Much consideration of the toxicological data takes place during TRV development to best estimate the exposure concentration in environmental media that will not harm key screening receptors and possibly other organisms in the Laboratory's environment.

"Data" represents toxicity information from the scientific literature such as details of the study design, test organism, or toxicological effects.

In summary, Appendix A includes guidelines for the literature search and collection, data extraction, default value assignment, and exception ruling for various fields of data entry in customized PTSE databases, PTV calculation, and TRV derivation. Before performing a PTSE, the primary toxicity literature for the organism and for the exposure pathway and chemical scenario of concern must be identified and collected. As a result, the appendix begins with guidelines for literature searches and retrieval.

7.0 OVERVIEW OF APPENDIX B

In 2007, the EPA Eco-SSL workgroup published chemical-group TRVs for high and low molecular weight PAHs and DDT and metabolites, however, these values were not adopted by the Laboratory because in accordance with the Laboratory's SLERA methods, TRVs used to calculate Laboratory-specific receptor ESLs are generated for individual chemicals and not chemical-groups. The process described in Appendix B was used to develop TRVs for individual PAHs and DDT and metabolites (DDD and DDE) using the toxicity data published in 2007 by EPA's Eco-SSL workgroup..

Because the EPA generates nationally accepted Eco-SSLs/TRVs through Eco-SSL methodology, and these toxicity values are considered to have a high confidence rating compared with other sources, the Eco-SSL dataset is appropriate for use in the Laboratory's PTSE method, which is similar in many respects to the Eco-SSL method. The Laboratory used the primary toxicity data for birds, mammals, plants, and invertebrates (earthworms) for reproduction/development, growth, and survival endpoints that the EPA compiled with Eco-SSL methodology to derive Laboratory TRVs and ESLs per Laboratory methods. These EPA PTVs were used to augment existing Laboratory PTVs compiled using the Laboratory's PTSE method or to fill data gaps using the Laboratory's PTSE method for Laboratory COPECs.

8.0 REFERENCES

The following list includes all documents cited in this report. Parenthetical information following each reference provides the author(s), publication date, and ER ID. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

EPA (U.S. Environmental Protection Agency), June 5, 1997. "Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final," Office of Emergency and Remedial Response, Washington, D.C. (EPA 1997, 059370)

EPA (U.S. Environmental Protection Agency), April 1998. "Guidelines for Ecological Risk Assessment," EPA/630/R-95/002F, Risk Assessment Forum, Washington, D.C. (EPA 1998, 062809)

EPA (U.S. Environmental Protection Agency), August 1999. "Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities," Volume One, peer review draft, EPA530-D-99-001A, Office of Solid Waste and Emergency Response, Washington, D.C. (EPA 1999, 070923)

EPA (U.S. Environmental Protection Agency), February 2005. "Guidance for Developing Ecological Soil Screening Levels," OSWER Directive No. 9285.7-55, Office of Solid Waste and Emergency Response, Washington, D.C. (EPA 2005, 089448)

LANL (Los Alamos National Laboratory), October 2012. "ECORISK Database (Release 3.1)," on CD, LA-UR-12-24548, Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2012, 226667)

LANL (Los Alamos National Laboratory), November 2012. "Screening-Level Ecological Risk Assessment Methods, Revision 3," Los Alamos National Laboratory document LA-UR-12-24152, Los Alamos, New Mexico. (LANL 2012, 226715)

Podolsky, J.S., P.G. Newell, and O.B. Myers, 2001. "A Comparison of Toxicity Reference Values and Their Derivation Methods: Implications for Ecological Risk Assessment," Los Alamos National Laboratory presentation LA-UR-01-6503, Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2001, 072586)

Appendix A

Primary Toxicity Study Evaluation Methods Used to Develop Los Alamos National Laboratory Toxicity Reference Values

CONTENTS

Figures

Tables

Examples

Attachments

Acronyms and Abbreviations

ATSDR	Agency for Toxic Substances and Disease Registry
C-CL	chronic-critical life stage
Cal/Ecotox	California OHHEA Wildlife Biology, Exposure Factor, and Toxicity Database
CASRN	Chemical Abstracts Service Registry Number
CEC	cation exchange capacity
CL	critical life stage
CS	critical study

DART/ETIC	Development and Reproductive Toxicology/Environmental Teratology Information Center
EC_{xx}	effective concentration for xx% of the population
Eco-SSL	ecological soil screening level
ECOTOX	Ecotoxicology (database)
ED_{xx}	effective dose for xx% of the population
EP	Environmental Programs (Directorate)
EPA	U.S. Environmental Protection Agency
ERED	Environmental Residue-Effects Database
ESL	ecological screening level
ETWS	equivalent total weighted score
EXTOXNET	Extension Toxicology Network
Fm	female
GMM	geometric mean
GSD	geometric standard deviation
HMX	1,3,5,7-tetranitro-1,3,5,7-tetrazocine
IRIS	Integrated Risk Information System
ITER	International Toxicity Estimates for Risk
LANL	Los Alamos National Laboratory
LC_{xx}	lethal concentration for xx% of the population
LD_{xx}	lethal dose for xx% of the population
LOAEL	lowest observed adverse effect level
LOEC	lowest observed effect concentration
LOEL	lowest observed effect level
%MTWS	percent of maximum total weighted score
MF	male and female
Ml	male
N/A	not applicable
NLM	National Library of Medicine
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
NR	not reported
O	other

OC	organic carbon
OECD	Organisation for Economic Co-operation and Development
OHHEA	Office of Environmental Health Hazard Assessment (state of California)
OM	organic matter
ORNL	Oak Ridge National Laboratory
PAN	Pesticide Action Network
PTSE	primary toxicity study evaluation
PTV	primary toxicity value
R/D	reproduction/development
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
Ref ID	reference identification
RfC	reference concentration
RfD	reference dose
S	survival
SNL	Sandia National Laboratories
SzC	size change (adult)
T&E	threatened and endangered
TOXLINE	Toxicology Literature Online
TOXNET	Toxicology Data Network
TRV	toxicity reference value
UF	uncertainty factor
USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
USGS	U.S. Geological Society
WC	weight change (adult)

A-1.0 PRIMARY TOXICITY STUDY EVALUATION METHODS

A-1.1 Primary Toxicity Literature Search and Retrieval

Before a primary toxicity study evaluation (PTSE) can be started, the primary toxicity literature for the organism, exposure pathway, and chemical scenario of concern (e.g., plant root uptake of barium from soil) must be collected.

A literature search consists of the following two components: (1) an online search of databases that contain citations for primary toxicity literature (see Table A-1), and (2) a review of bibliographies of secondary toxicity data literature that has been identified either through online searches or the risk assessment community (see Table A-2). Each piece of literature (reference) identified is assigned a unique ECORISK Database reference identification (Ref ID) number for identification, tracking, and citation during the literature search, review, and evaluation process. These numbers will be included throughout this document.[1]

Keyword searches are performed. For example, if the title of a reference in a bibliography (or an online literature search result) indicates that the reference contains the sought-after toxicity information, a paper copy of the reference is retrieved. The abstracts are then reviewed to verify that the reference contains applicable toxicity data for the derivation of a toxicity reference value (TRV). Verification of applicable contents requires scanning the reference for relevant measurement endpoints (including reproduction, development, survival, adult weight changes, and adult size changes) that are considered to have a direct link to the fitness of an organism and its contribution toward population health. Focusing on ecologically relevant endpoints ensures that all levels of ecological organization are considered in the screening process (LANL 2012, 226715, Ref ID 2014). If the reference contains ecologically relevant data, then a PTSE can be performed. In cases where ecologically relevant endpoints are not available for certain chemicals and organism groups, a PTSE may be performed on references with endpoints having a less direct link to the fitness of an organism and its contribution toward population health, such as endpoints associated with physiological functions, cancer, histopathology, clinical observations, and behavioral changes. Values based on endpoints other than reproduction/development, survival, or weight or size change are to be used with caution given the uncertainty surrounding their impact on population health (LANL 2012, 226715, Ref ID 2014).

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[1] Initially, the construction of the ECORISK Database took precedence over performing extensive toxicity data literature retrieval. The initial literature search for bird, mammal, invertebrate (earthworm), and plant toxicity data was limited to reviewing reference lists in secondary references and conducting minimal searches of online literature databases. As the ECORISK Database underwent further development, literature searches became more comprehensive and included more extensive online literature searches and reviews of related bibliographies.

Table A-1
Online Databases and Search Engines to Search for Primary Toxicity Data Literature

Internet Source	Site Contents / Database Name	Web Address
Australian Government, Department of the Environment and Heritage	National Pollutant Inventory database	http://www.npi.gov.au/index.html
First Search	Literature search engine	http://www.oclc.org/firstsearch/
Google	Internet search engine	http://www.google.com
Los Alamos National Laboratory (LANL)	External and internal access to library catalogs	http://lib-www.lanl.gov/
National Library of Medicine (NLM)	MEDLINE/PubMed literature search engine	http://www.ncbi.nlm.nih.gov/PubMed/
	Toxicology Data Network (TOXNET) literature search engine (includes Toxicology Literature Online [TOXLINE], Integrated Risk Information System [IRIS], and several other databases)	http://toxnet.nlm.nih.gov/
TOXNET	TOXNET is a cluster of databases covering toxicology, hazardous chemicals, environmental health, and related areas. It is managed by the Toxicology and Environmental Health Information Program in the Division of Specialized Information Services of the NLM. International Toxicity Estimates for Risk (ITER) is a database that contains risk information for over 600 chemicals from authoritative groups worldwide.	http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?iter
	Development and Reproductive Toxicology/Environmental Teratology Information Center (DART/ETIC) is a bibliographic database covering literature on reproductive and developmental toxicology. DART is managed by NLM and funded by the U.S. Environmental Protection Agency (EPA), the National Institute of Environmental Health Sciences and NLM. DART/ETIC contains references to reproductive and developmental toxicology literature published since 1965.	http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?DARTETIC
	TOXLINE is a bibliographic database providing comprehensive coverage of the biochemical, pharmacological, physiological, and toxicological effects of drugs and other chemicals from 1965 to the present. TOXLINE contains over 3 million citations, almost all with abstracts and/or index terms and Chemical Abstracts Service Registry Numbers (CASRNs).	http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?TOXLINE

Table A-1 (continued)

Internet Source	Site Contents / Database Name	Web Address
Integrated Risk Information System	IRIS is an electronic database containing information on human health effects that may result from exposure to various substances in the environment. IRIS is prepared and maintained by the EPA's National Center for Environmental Assessment within the Office of Research and Development. *Noncancer effects:* Oral reference doses (RfDs) and inhalation reference concentrations (RfCs) for effects known or assumed to be produced through a nonlinear (possibly threshold) mode of action. In most instances, RfDs and RfCs are developed for the noncarcinogenic effects of substances. *Cancer effects:* Descriptors that characterize the weight of evidence for human carcinogenicity, oral slope factors, and oral and inhalation unit risks for carcinogenic effects. Where a nonlinear mode of action is established, RfD and RfC values may be used. Primary toxicity study references for mammalian test species are reported and include body weight and survival data.	http://www.epa.gov/ncea/iris/search_keyword.htm
National Technical Information Service	Source of government-funded information	http://www.ntis.gov/search/index.aspx
Pacific Northwest National Laboratory	External access to Pacific Northwest National Laboratory publication catalog	http://www.pnl.gov/main/publications/index.asp
Web of Science	Literature search engine (accessed via Colorado State University)	http://libguides.colostate.edu/content.php?pid=30095&sid=220274
U.S. Geological Society (USGS)	USGS Contaminant Exposure and Effects–Terrestrial Vertebrates database contains contaminant exposure and effects information for terrestrial vertebrates (birds, mammals, amphibians, and reptiles) that reside in estuarine and coastal habitats along the Atlantic, Gulf, and Pacific Coasts, including Alaska and Hawaii, and in the Great Lakes Region.	http://www.pwrc.usgs.gov/contaminants-online/pages/CEETV/CEETVintro.htm
U.S. Environmental Protection Agency (EPA) Office of Pesticide Programs	EPA Office of Pesticide Programs' Aquatic Life Benchmarks.	http://www.epa.gov/oppefed1/ecorisk_ders/aquatic_life_benchmark.htm

Table A-1 (continued)

Internet Source	Site Contents / Database Name	Web Address
Pesticide Action Network (PAN)	The PAN Pesticide Database is a one-stop location for toxicity and regulatory information for pesticides. The PAN Pesticide Database brings together a diverse array of information on pesticides from many different sources, providing human toxicity (chronic and acute), ecotoxicity, and regulatory information for about 6400 pesticide active ingredients and their transformation products, as well as adjuvants and solvents used in pesticide products. Only aquatic ecotoxicity data are reported.	http://www.pesticideinfo.org/Search_Ecotoxicity.jsp
EPA Ecotoxicology (ECOTOX) Database	The ECOTOX database provides single chemical toxicity information for aquatic and terrestrial life. Values reported include the lethal concentration for 50% of the population (LC_{50}), no observed effect concentration (NOEC), lowest observed effect concentration (LOEC), lowest observed effect level (LOEL), no observed effect level (NOEL), effective concentration for 50% of the population (ED_{50}), etc. Toxicity data for available substances are reported in worksheet "ECOTOX." Only terrestrial data for growth, mortality, reproduction, and population queried from database. Searched by CASRN.	http://cfpub.epa.gov/ecotox/
The American Bird Conservancy	The American Bird Conservancy Pesticide Toxicity Database contains acute pesticide toxicity data for birds.	http://www.abcbirds.org/abcprograms/policy/pesticides/aims/aims/toxicity.cfm
The California Office of Environmental Health Hazard Assessment (OHHEA) Wildlife Biology, Exposure Factor, and Toxicity Database (Cal/Ecotox)	Cal/Ecotox is a compilation of physiological and ecological parameters and toxicity data for a number of California fish and wildlife. Species, chemical, endpoint type, endpoint description, endpoint value, endpoint range, study description, and reference are reported. Data for chemicals of interest are reported in worksheet "CalEcotox."	http://www.oehha.org/cal_ecotox/default.htm
The U.S. Army Corps of Engineers/EPA Environmental Residue-Effects Database (ERED)	The ERED is a compilation of data, taken from the literature, where biological effects (e.g., reduced survival, growth, etc.) and tissue contaminant concentrations were simultaneously measured in the same organism. Currently, the database is limited to those instances where biological effects observed in an organism are linked to a specific contaminant within its tissues.	http://el.erdc.usace.army.mil/ered/Index.cfm

Table A-1 (continued)

Internet Source	Site Contents / Database Name	Web Address
EPA National Information System of the Regional Integrated Pest Management Centers Office of Pesticide Programs Pesticide Ecotoxicity Database	The Ecological Fate and Effects Division of the EPA Office of Pesticide Programs is continuing efforts to update the database with all EPA-reviewed ecotoxicity endpoints for pesticides registered or previously registered in the U.S. Toxicity data on over 800 active ingredients, metabolites, and multi-ingredient formulations are presently included in the database. The toxicity data input into the database are compiled from actual studies reviewed by EPA in conjunction with pesticide registration or reregistration and studies performed by EPA, U.S. Department of Agriculture, and U.S. Fish and Wildlife Service laboratories, which have been reviewed by Agency biologists and judged acceptable for use in the ecological risk assessment process. The database presently contains over 21,000 records for acute and chronic toxicity endpoints on terrestrial and aquatic plants, aquatic invertebrates, terrestrial invertebrates, insects, amphibians, fish, birds, reptiles, and wild mammals. The database is presented in Microsoft Access and contains 35 fields per record entry. Each record entry summarizes one ecotoxicity study for a single species or one toxicity endpoint from a multiple-species study and includes EPA tracking information regarding that study submission.	http://www.ipmcenters.org/Ecotox/DataAccess.cfm
U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM)	The USACHPPM Wildlife Toxicity Assessment Program contains complete chemical toxicological assessments/profiles for wildlife with reference lists.	http://chppm-www.apgea.army.mil/erawg/tox/index.htm
Agency for Toxic Substances and Disease Registry (ATSDR)	The ATSDR website contains toxicological profiles for human health. These profiles succinctly characterize the toxicologic and adverse health effects information for a hazardous substance. Each peer-reviewed profile identifies and reviews the key literature that describes a hazardous substance's toxicologic properties. Other pertinent literature is also presented, but is described in less detail than the key studies. The references are generally for mammalian studies for all routes.	http://www.atsdr.cdc.gov/

Table A-2
Examples of Secondary Toxicity Data Literature
Bibliographies to Review for Primary Toxicity Data Literature Citations

Source	Author (Year, ER ID)	Description	ECORISK Database Reference ID
Oak Ridge National Laboratory (ORNL)*	Efroymson et al. (1997, 059231)	Screening toxicity benchmarks for terrestrial plants	Ref ID 0094
	Efroymson et al. (1997, 059231)	Screening toxicity benchmarks for soil and litter invertebrates	Ref ID 0096
	Sample et al. (1996, 059306)	Screening toxicity benchmarks for wildlife	Ref ID 0344
	Maxwell and Opresko (1996, 059275)	Ecological criteria for HMX (1,3,5,7-tetranitro-1,3,5,7-tetrazocine)	Ref ID 0467
	Talmage and Opresko (1995, 059328)	Ecological criteria for 2,4,6-trinitrotoluene	Ref ID 0469
	Talmage and Opresko (1996, 059329)	Ecological criteria for RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)	Ref ID 0470
	Talmage et al. (1999, 063021)	Screening values for nitroaromatic munition compounds	Ref ID 0480
Sandia National Laboratories (SNL)	IT Corporation (1997, 057136) (Appendix A, Table A.1)	Ecological risk assessment methodology	Ref ID 0092
LANL threatened and endangered (T&E) species	Gallegos et al. (1997, 059790)	Risk assessment of peregrine falcon (includes toxicity benchmarks for avian species)	Ref ID 0427
U.S. Army	Layton et al. (1987, 014703)	Explosives information	Ref ID 0552
USACHPPM	Johnson and McAtee (2001, 110044)	Wildlife toxicity assessment for 2,4,6-trinitrotoluene	Ref ID 1195
	Johnson and Midgley (2001, 089453)	Wildlife toxicity assessment for nitroglycerine	Ref ID 1446
	Salice and Holdsworth (2001, 089452)	Wildlife toxicity assessment for 1,3,5-trinitrobenzene	Ref ID 1447
	Salice and Holdsworth (2001, 089451)	Wildlife toxicity assessment for dinitrobenzene	Ref ID 1448
	Johnson and Holdsworth (2001, 089454)	Wildlife toxicity assessment for 2-amino-4,6-dinitrotoluene and 4-amino-2,6-dinitrotoluene	Ref ID 1449
	Johnson and Holdsworth (2001, 073781)	Wildlife toxicity assessment for HMX	Ref ID 1450
	Johnson and Holdsworth (2001, 089455)	Wildlife toxicity assessment for pentaerythritol tetranitrate	Ref ID 1451
	Salice and Holdsworth (2002, 073780)	Wildlife toxicity assessment for RDX	Ref ID 1452
EPA Region 5 environmental data quality levels	PRC Environmental Management, Inc. (1996, 059989)	Ecological data quality levels	Ref ID 0574

*Reports are available online at http://www.esd.ornl.gov/programs/ecorisk/documents/tm85r3.pdf.

A-1.2 Overview of PTSEs

Once a set of references is compiled for an organism, exposure pathway, and chemical scenario of concern, each reference is subjected to the PTSE process. This process is broken down into four main parts:

1. data extraction,
2. study evaluation and primary toxicity value (PTV) calculation,
3. TRV development, and
4. TRV approval.

Data-entry databases were created for each of the first three parts of the PTSE process to guide the reviewer in extracting, scoring, and evaluating the necessary information. The database system also assists in maintaining consistency in the way the toxicity information are tabulated and peer reviewed as well as provides a mechanism for documentation of the PTSE process. Users of the ECORISK Database can review the data reported and gain an understanding of the information supporting the TRV used to calculate a particular ecological screening level (ESL). A brief description of each part of the PTSE process is presented below, followed by a more detailed breakdown of the components of each part.

A-1.2.1 Part 1, Data Extraction

Data extraction involves reading each primary toxicity reference thoroughly, extracting pertinent pieces of information, and documenting them in the Part 1 PTSE data-entry database.

"Data" represents toxicity information from the scientific literature such as details of the study design, test organism, or toxicological effects.

A-1.2.2 Part 2, Study Evaluation and PTV Calculation

During the study evaluation process, information obtained from the data extraction process is reviewed and scored based on availability and character of information reported. The data are semiquantitatively scored in the Part 2 data-entry database in four areas: study design and documentation, taxonomic relationship of test organism to ESL screening receptors, exposure conditions, and measurements and results. Components of each of these areas are scored based on their relevancy toward deriving scientifically defensible TRVs. The score for each criterion is then weighted according to its ability to influence the development of a TRV with the least uncertainty. Uncertainty is the extent to which the TRV represents a dose rate or concentration in an exposure medium that is associated with no significant risk for adverse ecological effects for the LANL environmental exposure scenario of concern; therefore, uncertainty can be influenced by how well the data approximates the LANL exposure scenario. The last step in this part is to calculate the PTVs: no observed adverse effect levels (NOAELs) for birds and mammals or NOECs for earthworms and plants, lowest observed adverse effect levels (LOAELs) for birds and mammals or LOECs for earthworms and plants, and/or other effect levels (e.g., effective concentrations for xx% of the population [EC_{xx}s] or lethal doses for xx% of the population [LD_{xx}s]).

A-1.2.3 Part 3, TRV Development

In Part 3, the number of PTVs available for TRV development for an organism, exposure pathway, and chemical scenario of concern is determined by selecting one PTV per endpoint category (reproduction/development, survival, and adult weight/size changes) represented in an experiment. If

Professional judgment considers ecological relevance and is peer reviewed for greater consistency in selection of values.

three or more PTVs exist, a geometric mean (GMM) TRV is calculated. If less than three PTVs are available, professional judgment is used to select the PTV associated with the most applicable study, measurement endpoint, and effect level to derive a critical study (CS) TRV. Uncertainty factors (UFs) are applied to achieve a TRV equivalent to a chronic NOAEL or NOEC where necessary. A summary describing the basis for the TRV is written. This discussion describes the importance of the TRV in protection of wildlife, invertebrate, or plant populations; the data set considered for the selection of the TRV; the justification to support this selection; and the aspects of the study or studies that relate it to the environmental concerns for LANL. Also, UF explanations and calculations are noted.

A-1.2.4 Part 4, TRV Approval

Once a TRV is derived, whether it is a GMM or CS TRV, the value and its supporting documentation are peer reviewed by LANL's Environmental Programs (EP) Directorate's Risk Assessment Team to gain approval of the TRV for use in calculations of ESLs in the ECORISK Database.

A-2.0 PTSE PART 1, DATA EXTRACTION

The PTSE Part 1 consists of four separate tables of data entry. Information is entered into these tables by way of Microsoft Access database forms. There are tables for reference, chemical, experiment, and effect detail information; therefore, the data entry follows this order to ensure the connection of the appropriate Ref IDs with the chemical, experiment, and experiment effect IDs. Also, for control purposes (i.e., maintaining the latest versions of object format and data), PTSE reviewer initials are entered more than once throughout the data entry process to ensure that each record in each table is tracked by reviewer and date.

Each specific field entry (e.g., codes selected from a drop-down list) is usually followed by a comments field to allow the reviewer to further elaborate on the selection and any relevant assumptions. The following sections focus on the specific fields, but will also discuss the types and examples of comments that may be entered in the corresponding comments field.

A-2.1 Data Entry

Data entry is broken down into four parts: reference and reviewer information, chemical information, experiment information, and measurements and results. Each of these parts has its own table in the Part 1 data-entry database where data are recorded. However, the data are typed into or presented in database forms for easier entry and editing of information.

A-2.1.1 Reference and Reviewer Information

Reference ID

The PTSE Ref ID is entered here (see section A-1.1 for a description of the Ref ID).

Reference Summary

A brief description of the reference and its experiments is written here. This description includes the test organism, chemical, route, medium of exposure, and length of chemical administration for each experiment and also summarizes key differences between experiments, if applicable. Also, the basis for not developing a TRV (e.g., the exposure route is injection, or one of multiple chemicals administered in the study is not a chemical of concern) is noted at the end of the reference description. In addition, the reference summary may describe why the focus of the review is placed on a particular experiment or experiments and not on others. See Example A-1.

Example A-1 Reference Summaries

(a) Barley (*Hordeum vulgare*) was the test organism used to evaluate the toxicity of copper (Cu+2) or chromium (Cr+6) in two types of soil: artificial and natural forest soil. The nominal exposure concentrations used were 0.1, 1, 10, 100, and 1000 μg/g dry soil for copper and chromium experiments. The endpoints evaluated include plant emergence and shoot and root growth (both 5- and 14-d). Additionally, the levels of copper or chromium in the plant tissues were assessed, but this will not be evaluated in this PTSE because there is not a clear connection between tissue burdens and adverse effects to population health. Additionally, only the 14-d plant emergence measurement will be considered in this evaluation because it is a more chronic measurement than 5-d plant emergence, considering it took place at the end of exposure. A reference toxicant, HgCl2, also contributed to another exposure group, but it and its effects will not be evaluated because the results do not give any additional information about the toxicity of copper or chromium.

(b) Fischer 344 rats were intermittently exposed to 0-, 150-, 475-, or 1500-ppm chloromethane by way of inhalation. In the first of two experiments, 40 males and 80 females were exposed to chloromethane for 6 h/d, 5 d/wk for 10 wk. After 10 wk, inhalation occurred for 6 h/d, 7 d/wk during the 2-wk mating season where one male was mated to two exposed females. The females were continued on the 6-h/d, 7-d/wk exposure regimen from the start of mating through postnatal day 28, except from gestation day 18 to postnatal day 4, while 10 males from each group were necropsied. Pups from this experiment were not directly exposed to the chemical until after weaning, and then they were put through the same exposure and mating regimen as their parents. In the second experiment, the remaining 30 males from each group in the first experiment were then mated to unexposed females for another 2 wk. Adult body weight, litter parameters (e.g., pup survival, pup weight), gross pathology, and histopathology were observed. The second experiment is not reviewed in this Part 1 in favor of the more chronic exposure period in the multigenerational experiment.

Reviewer Initials

The initials of the person responsible for completing the PTSE are selected from the drop-down list.

Review Start and Finish Date

The dates the review is started and finished are reported here. If a change is made in the reference summary, the date of the change supersedes the finish date. Dates are entered for each record in the tables of the data-entry database for purposes of data control and ensuring the latest information is present in the latest release of the ECORISK Database.

A-2.1.2 Chemical Information

Chemical ID

The analyte code for the chemical of concern is selected from the drop-down list. Analyte codes follow Johnston (1997, 059791, Ref ID 0576). Generally, the Chemical Abstracts Service Registry Numbers are used for organic compounds (e.g., 11097-69-1 for Aroclor-1254) while element abbreviations are used for inorganic chemicals (e.g., CD for cadmium). Further identification occurs for forms of inorganic chemicals, such as hexavalent chromium vs. trivalent chromium, where the analyte code for these forms are CR(+6) and CR(+3), respectively. Also, chemicals with organic and inorganic forms are also coded differently to distinguish between them (e.g., HGI for inorganic mercury and HGM for methyl mercury).

Reviewer Initials

The initials of the person responsible for completing the chemical details in the PTSE are selected from the drop-down list.

Record Date

The date the chemical record was created is typed into this field.

A-2.1.3 Experiment Information

Experiment ID

The experiment ID consists of the ECORISK Database Ref ID, chemical ID (analyte code), and experiment number in the format of Ref ID_analyte code_experiment number (see Example A-2).

Example A-2 Experiment IDs

0025_SE_1

0517_50-29-3_2

As mentioned previously, the Ref ID is a unique identifier assigned to each reference for tracking during the literature search, review, and evaluation process. The analyte code is a unique identifier assigned by the reviewer following guidelines set forth in Johnston (1997, 059791, Ref ID 0576) for each element and compound. The experiment number is based on the actual number of experiments reported in a reference. For the purposes of the PTSE process, an experiment is defined by a unique set of exposure parameters (i.e., one chemical administration period, one exposure frequency type, one test organism, one chemical, one exposure medium, one exposure route, and one set of exposure concentrations). The reviewer may have to use his or her own judgment in delineating unique experimental scenarios.

Experiment Purpose

The purpose(s) of the experiment is noted here. Also, since each experiment has its own record in the Part 1 database, a brief description of the test organism, exposure route and medium, and length of chemical administration is entered in this field in order for the reviewer and user of the database to distinguish between experiments (see Example A-3).

Example A-3 Experiment Purposes

(a) The purpose of the study was to see whether selenium levels similar to those found in raptor prey items from selenium-contaminated environments would affect reproduction in captive eastern screech-owls. The screech-owls were fed a diet containing 0, 4.4, or 13.2 ppm wet weight of selenium in the form of selenomethionine. Growth, reproduction, and liver biochemistry effects were studied.

(b) Authors emphasize the importance of earthworms as a biomonitoring tool for assessing the impact of chemicals in soil quality and fauna. In order to use them as a biomonitoring tool successfully, the effects of various chemicals on earthworms needs to be studied. The investigators determined the effect of zinc on the growth and reproduction of earthworms during a 20-wk study.

Reviewer

The initials of the person responsible for completing the experiment details in the PTSE are selected from the drop-down list.

Review Date

The date the experiment record is created is typed into this field.

Organism Type ID

The test organisms are classified into the following categories and coded accordingly:

SLE soil and/or litter earthworm

TB terrestrial bird

TM terrestrial mammal

TP terrestrial plant

The appropriate code for the test organism of concern in the PTSE is selected from the drop-down list.

Organism Name

At a minimum, the common name of the test organism is reported in the reference. In cases where the scientific name is not reported, various references are consulted to find it. This is done to later assess the taxonomic relationship of test species to ecological screening receptor species of concern, especially for bird and mammal receptors. The common name of the organism is selected from a drop-down list that is linked to the test species table. If the name is not found on the list, the name can be typed in. However, the information is still added to the test species table so that it appears on the drop-down list in the future.

Examples of sources consulted for scientific names include

- National Geographic Society, 1987. *Field Guide to the Birds of North America*, 2nd Ed., Washington, D.C., 464 pp. (Note: Later editions are available and may have more updated records on names as a result of merging or division of species.)
- Burt, W. H., and R. P. Grossenheider, 1980. *A Field Guide to the Mammals: North America North of Mexico*, Houghton Mifflin Company, New York, New York, 289 pp.
- BIOSIS. Index to Organism Names (http://www.organismnames.com/)
- New Mexico Game and Fish Biota System Information of New Mexico (BISON-M) http://www.bison-m.org/databasequery.aspx

Author's Reason for Studying this Particular Test Organism

If it is explicitly stated why the author(s) chose to use a particular species of test organism (e.g., Oldfield mouse, *Peromyscus polionotus*) in their research, the reasons are paraphrased. If it is not clearly stated, but the purpose can be deduced for the use of the general organism type (e.g., mouse or rodent), the reasons are noted. However, the reviewer clarifies that these reasons noted are assumptions. For example, if in the introduction of a paper, the authors discuss case histories describing the effects of trichloroethylene inhalation exposure in humans, and they also discuss previous studies of exposure of trichloroethylene to laboratory mammals, it can be reasonably assumed that their choice of the test organism is used as an experimental model to gauge potential effects that may occur in humans (see Example A-4).

Example A-4 Author's Reason for Studying this Particular Test Organism

(a) The investigators wished to use the same standard toxicity test organisms as described in the Organisation for Economic Co-operation and Development (OECD) contact and artificial soil testing procedures (OECD 1984, 109940, Ref ID 1235). This enabled them to focus on determining influences of contact tests and soil characteristics (pH and organic matter content) on toxicity in the earthworms and compare their data with others.

(b) It is unknown why the authors specifically chose mallards over other aquatic birds, but it is assumed they considered them to be representative of aquatic birds in order to study cadmium toxicity in waterfowl.

Age or Life Stage

The age or life stage of a test organism is coded because later in the Part 1 PTSE process, this information is needed to gauge whether or not measurements occurred during a critical life stage (see Focus Measurement Critical Life Stage Category in section A-2.1.4). Coding for age/life stage of the test organism adheres to the conventions presented in Table A-3.

Table A-3
Age Categories, Codes, and Definitions

Age Category ID	Age Category	Definition
BrA_Unk	Bird Adult	Bird is known to be in reproductive condition or is otherwise mature, but it is unknown if it is breeding for the first time or at later stages.
BrA1	Bird Adult 1	Bird reaches sexual maturity and breeds for the first time.
BrA2	Bird Adult 2	Bird survives to breed at older age.
BrE	Bird Embryo	Fertilization occurs and embryo develops inside an eggshell until hatched.
BrG	Bird Gamete	Unfertilized egg and sperm
BrJ_Unk	Bird Juvenile	Bird is said to be a juvenile but exact phase is unknown.
BrJ1	Bird Juvenile 1	Hatchling, chick, or nestling grows until flight feathers are developed.
BrJ2	Bird Juvenile 2	Sexually immature fledgling or poult that undergoes additional development prior to breeding condition
BrLC	Bird Life Cycle	All life stages
EwA_Unk	Earthworm Adult	Earthworm is known to be in reproductive condition or is otherwise mature, but it is unknown if it is breeding for the first time or at later stages.
EwA1	Earthworm Adult 1	Sexually mature worm (with clitellum) breeds for the first time.
EwA2	Earthworm Adult 2	Earthworm survives to breed at older age.
EwE	Earthworm Cocoon or Embryo	External fertilization, cocoon formation, embryo development, and worm emergence from cocoon
EwG	Earthworm Gamete	Unfertilized egg and sperm
EwJ1	Earthworm Juvenile	Small worm grows until it reaches reproductive condition.
EwLC	Earthworm Life Cycle	All life stages
MmA_Unk	Mammal Adult	Mammal is known to be in reproductive condition or is otherwise mature, but it is unknown if it is breeding for the first time or at later stages.
MmA1	Mammal Adult 1	Mammal reaches sexual maturity and breeds for the first time.
MmA2	Mammal Adult 2	Mammal survives to breed at older age.
MmE	Mammal Embryo or Fetus	*In utero* organism developing from fertilized egg to birth
MmG	Mammal Gamete	Unfertilized egg and sperm
MmJ_Unk	Mammal Juvenile	Mammal is said to be a juvenile but exact phase is unknown.
MmJ1	Mammal Juvenile 1	Newborn mammal obtaining all or most of its nutrition by nursing until weaning
MmJ2	Mammal Juvenile 2	Immature mammal growing from weaning to more or less adult size and appearance. The typical “juvenile” stage.
MmJ3	Mammal Juvenile 3	Period of additional development is required or time must pass until the organism may breed (next season). Often independent from parents, “subadult.”

Table A-3 (continued)

Age Category ID	Age Category	Definition
MmLC	Mammal Life Cycle	All life stages
Pa_Unk	Plant (Annual) Unknown Age/Stage	Not enough information was provided or found to determine what life stage this plant age represents.
PaA1	Plant (Annual) Flowering and Seed Set	Plant is fertilized and seeds develop and disperse.
PaE	Plant (Annual) Seed	Embryo inside seed
PaG	Plant (Annual) Gamete	Unfertilized ova and pollen
PaM	Plant (Annual) Mature	Plant is known to be at a mature stage but it is unknown how else to classify this stage.
PaS_Unk	Plant (Annual) Seedling	Plant is a seedling but it is uncertain/unknown with regards to whether seedling is closer to a sprouting stage or closer to reproductive stage.
PaS1	Plant (Annual) Seedling	Seed sprouts, grows to emerge from soil, and leaves open or some minimum size is attained.
PaS2	Plant (Annual) Seedling 2	Plant continues to grow until reproductive stage achieved.
Po_Unk	Plant (Other) Unknown Age/Stage	Not enough information was provided or found to determine what life stage this plant age represents.
PoA_Unk	Plant (Other)	Plant is in mature, reproductive condition but it is unknown if it is fertilized for the first time or if it is a larger individual producing seeds.
PoA1	Plant (Other) Flowering and Seed Set	Plant is fertilized and seeds develop and disperse.
PoA2	Plant (Other) Larger Reproducing Plant	Larger individuals producing seeds
PoE	Plant (Other) Seed	Embryo inside seed
PoG	Plant (Other) Gamete	Unfertilized ova and pollen
PoLC	Plant (Other) Life Cycle	All life stages
PoM	Plant (Other) Mature	Plant is known to be at a mature stage but it is unknown how else to classify this stage.
PoS_Unk	Plant (Other) Seedling/Sapling	Plant is a seedling but it is uncertain/unknown with regard to whether seedling is closer to a sprouting stage or closer to reproductive stage.
PoS1	Plant (Other) Seedling/Sapling 1	Seed sprouts, grows to emerge from soil, and leaves open or some minimum size is attained.
PoS2	Plant (Other) Seedling/Sapling 2	Plant continues to grow until reproductive stage achieved.

If the age or life stage of a bird or mammal test organism is not provided but body weight is, an age or life stage is estimated for the organism based on other reference sources containing similar organisms, body weights, and age information.

The age coding task becomes difficult when placing organisms in categories that are borderline juvenile/adult or seedling/adult. If more information is needed, related information is first sought in the toxicity references currently on hand for the ECORISK Database. For example, if a primary toxicity reference states the mouse was 6 wk old at the time of exposure, and it is difficult to determine whether to code this age as a juvenile or an adult, information in the database is reviewed to find similar records containing mice to see if a correlation can be made between ages and life stages. When information such as this cannot be found in the existing references, additional references specific to the test organism species or genera are consulted, and a note summarizing the information is recorded in the age or life stage comment field of the database.

Organism Sex

The genders of the test organisms that are directly exposed to the chemical are selected from the drop-down list (Ml for male, Fm for female, or MF for male and female). This field is not applicable (N/A) for invertebrates and plants. If the sex is not reported (NR), NR is selected.

If a situation arises where only the females were exposed to the chemical, and they were then bred with untreated males, the code Fm is entered for sex, and a note of this arrangement is made in the associated comment field. Likewise, if only males were exposed, Ml is entered, and any related notes are made in the comment field.

Organism Source/Origin

The location of where the test organism was obtained, bred, or collected is noted here. Any other relevant information about the organism (such as if the organism was pathogen-free) is also noted in this field.

Dose Rate Parameters

Dose rate parameters are selected to calculate the most reasonably conservative dose rate to represent the TRV; therefore, TRVs and ESLs are conservative, protective values.

Dose rate parameters other than exposure concentrations (i.e., body weights and ingestion or inhalation rates) reported in the study are recorded here for later use in calculating the PTV(s) (see section A-3.2). Exposure concentrations are recorded later in the Part 1 experiment details. For the dose rate parameters, the aim is to use values that will lead to the most conservative PTV in units of mg chemical/kg body weight/d for birds and mammals. Dose rate parameters are not needed for invertebrates or plants because the dose concentration (in mg/kg) is used for the TRV itself. Note: Default values of 999, N/A, and N/A are entered into the value, units, and comment fields, respectively, for invertebrate and plant studies.[2]

Author-Reported Daily Dose Rates for Bird and Mammal Studies

If the exposure concentrations presented in the study are already in, or can be easily converted to, units of mg chemical/kg body weight/d, dose parameters and calculations for a daily dose rate are not needed, and this is indicated in the appropriate fields. However, if dose rate parameters are provided in the study, information is still recorded with the expectation that they may be used for other studies where the parameters are not available but are needed for similar test organisms.

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[2] In the early developmental stages of the ECORISK Database, dose rate parameters may have been considered inapplicable, and the default value of 999 was used. The dose rate parameter may have not been reported if the authors already provided daily dose rates or if the ingestion rates were already normalized to body weight. In these cases, the dose rate parameter was, and still is, not needed for PTV calculation, but it is now reported for possible future use in other areas of the database.

Author-Reported Exposure Concentrations Other than Daily Dose Rates for Bird and Mammal Studies

If the exposure levels are presented as concentrations of chemical in the exposure medium (such as mg/kg food, mg/mL water, or mg air/m^3), the body weight (in kg) and food or water ingestion rate (in kg food/d or L/d, respectively) or inhalation rate (in m^3/d) dose rate parameters are needed to calculate the PTV in mg chemical/kg body weight/d.

Reporting Dose Rate Parameters

Table A-4 provides scenarios of how dose rate parameters may be reported in the primary toxicity study and how the parameter is reported in the dose rate parameter field in the database.

Table A-4
Scenarios of Dose Rate Parameter Information Reported in Primary Toxicity Studies and How Body Weight Values are Reported in the PTSE Part 1 Data-Entry Database Field for Body Weight

Scenario	Report
Dose rate parameter for controls was measured at intervals throughout the study	Average of all values throughout study[a]
	If values are grouped according to male and female organisms, the average of the male or female values that will lead to a more conservative PTV is used.[b]
Dose rate parameter for controls were measured at beginning and at end of study	Average of the two values[a]
	If values are grouped according to male and female organisms, the average of the male or female values that will lead to a more conservative PTV is used.[b]
Dose rate parameter for controls was measured at beginning of study only.	Measured value
Range of dose rate parameters for controls or all organisms at beginning of study	Either end of this range, depending on which value will lead to a more conservative PTV[b]
	If body weights are grouped according to male and female organisms, the average weight that will produce a more conservative PTV is used.[b]
No dose rate parameter information for controls, only treated organisms	The average of the beginning value of treated organisms, before chemical exposure began[c]
No dose rate parameters reported at all	Default value of 999

[a] In situations where dose rate parameters are measured and provided throughout the study, an average is calculated from those measurements to provide an estimate that is representative of the organism at all stages throughout the study.

[b] The general rule is that if there are dose rate parameters reported for male and female groups, or if a range of dose rate parameters is reported, either the lower or higher average value is used because this value, when used in the PTV calculation, will lead to a more conservative PTV. For example, a larger value for the body weight leads to a lower PTV (see Example A-5a), thus the PTV is more protective. On the other hand, a lower value for an oral ingestion rate leads to a higher PTV (see Example A-5b).

[c] The average of the beginning weight of the organisms in a treatment group before exposure begins is used, rather than the average of the weights throughout the study, because the weights throughout the study may be affected by chemical exposure. Therefore, the daily dose calculation may be influenced if the affected body weights are used, and it may not be representative of a daily dose that would affect a healthy individual.

Example A-5 The Selection of Dose Rate Parameters to Provide the Most Protective PTV

Note: Explanations of PTV calculations are more detailed in section A-3.0, PTSE Part 2, Study Evaluation and Primary Toxicity Value Calculation.

(a) Higher vs. lower body weight: A higher body weight leads to a lower PTV when used in the denominator. The following calculations demonstrate the difference by holding the concentration (100 mg/kg) and food ingestion rate (0.0055 kg/d) constant and using body weights of 0.03 and 0.09 kg.

Lower weight:

$$\text{PTV (mg/kg/d)} = \frac{100\ \text{mg/kg} * 0.0055\ \text{kg/d}}{0.03\ \text{kg}} = 18.3\ \text{mg/kg/d}$$

Higher weight:

$$\text{PTV (mg/kg/d)} = \frac{100\ \text{mg/kg} * 0.0055\ \text{kg/d}}{0.09\ \text{kg}} = 6.1\ \text{mg/kg/d}$$

(b) Higher vs. lower ingestion rate or inhalation rate: A lower ingestion or inhalation rate leads to a lower PTV. Since these parameters take the same location in the equation and therefore have the same type of influence on the PTV, only the use of water ingestion will be used to demonstrate the difference. The following calculations hold the concentration of 5 mg/L and body weight of 0.03 kg constant, while using the water ingestion rates of 0.0075 and 0.009 L/d.

Lower ingestion rate:

$$\text{PTV (mg/kg/d)} = \frac{5\ \text{mg/L} * 0.0075\ \text{L/d}}{0.03\ \text{kg}} = 1.25\ \text{mg/kg/d}$$

Higher ingestion rate:

$$\text{PTV (mg/kg/d)} = \frac{5\ \text{mg/L} * 0.009\ \text{L/d}}{0.03\ \text{kg}} = 1.5\ \text{mg/kg/d}$$

Exposure Environment

If the study was conducted in a laboratory, a greenhouse, or some other controlled environment, it is marked as a laboratory study. Lab is selected from the drop-down list. If the study was a field study conducted under uncontrolled environmental variables, it is noted as a field study and Fld is selected from the drop-down list. Physical descriptions of the laboratory or greenhouse environment, what the test organisms were housed in, controlled variables (such as temperature and humidity), and other relevant information are noted in the corresponding comment field.

Test Chemical Form (for Inorganic Chemicals Only)

If the chemical administered is inorganic, the compound as it is administered in the study is selected from a master pull-down list of chemicals maintained in a separate analyte table. If the compound cannot be found, it must be added to the master list of analytes in the ECORISK Database before this field can be filled. If the chemical is organic, the default value of N/A is left in the field.

Test Chemical Description/Source

The purity of the chemical and the company it was purchased from are noted in this field. If the chemical was synthesized by the researchers of the study itself, a brief summary of the process is described.

Exposure Medium

The medium in which the chemical was administered is noted here. A brief description of any relevant information pertaining to the incorporation of the chemical into the medium and properties of the exposure medium is noted in the comment field. In inhalation exposure studies, a brief description of how the vapors were generated is reported in the comment field as well. Exposure medium codes and descriptions are presented in Table A-5.

Table A-5
Codes and Descriptions for Exposure Media

Code	Description
AIR	Air. Used in inhalation exposure studies.
AQS	Aqueous solution. Used in plant studies or as an injection vehicle in bird and mammal studies.
CHM	Chemical only. Used if only the chemical is administered. The chemical is not dissolved in solution, oil, or any other media.
DW	Drinking water
DW+F	Drinking water plus food. Drinking water is the primary exposure medium while a background concentration is reported in the food.
F	Food
F+DW	Food plus drinking water. Food is the primary exposure medium while a background concentration is reported in the drinking water.
FLPP	Filter paper. Used in contact tests with earthworms.
MNU	Manure. Used in earthworm studies.
NR	Not reported
NSOLN	Nutrient solution. Used in plant studies.
OIL	Oil. Used if the exposure medium is known to be an oil solution but type is not specified
OIL_ACHS	Arachis oil. Often used as a vehicle in oral gavage or injection studies.
OIL_CORN	Corn oil. Often used as a vehicle in oral gavage or injection studies.
OIL_O	Other oil. Used if the exposure medium is known to be an oil solution but is a mixture of different types or other types not listed.
OIL_PNT	Peanut oil. Often used as a vehicle in oral gavage or injection studies.
OTH	Other. Exposure medium not listed. Specifics are noted in the corresponding comment field.
SAND	Sand
SAND&OM	Sand and organic matter mixture
SAND_CLTR	Sand culture. A solution is washed through silver sand daily.
SOIL	Soil
SOIL&MNU	Soil and manure mixture. Manure is usually used as a food source for earthworms.
SOIL&SAND	1:1 soil and sand mixture

Table A-5 (continued)

Code	Description
SOIL&SLDG	Soil and sludge mixture
SOLN	Solution. Exposure medium is assumed to be a solution but type is unknown.
SOLN_AQS	Aqueous solution. Used if the chemical was inorganic, and it was assumed the chemical is dissolved in an aqueous solution.
SOLN_O	Other solution. Used only if the exposure medium is assumed to be a solution of mixed composition or one not listed.
SOLN_OIL	Oil solution. Assumed.
W	Water

Exposure Medium Background Data

Any background concentrations of chemicals that have the potential to impact the toxicity of the chemical of concern in soil, water, food, or air are noted here. In cases where the authors provide verified concentrations of the chemical in the control medium, this concentration is entered as background data. Compositions of fertilizer added to soil and any other supplemental substances are also noted here.

Exposure Route ID

The exposure route code is selected from the drop-down list. Any further information relevant to the exposure route is noted in the comment field. For inhalation exposure studies, this comment field describes the inhalation chamber conditions (e.g., temperature, air flow). Exposure route codes and descriptions are presented in Table A-6.

Table A-6
Codes and Descriptions for Exposure Routes

Code	Description
ALL	All exposure routes are used for chemical administration.
DC_SED	Direct contact in sediment
DC_W	Direct contact in water
DERM	Dermal contact (filter paper)
INH	Inhalation
INJ_EGG	Injection (egg)
INJ_IP	Injection (intraperitoneal)
INJ_IV	Injection (intravenous)
NR	Not reported
O	Oral
O/D	Oral and dermal
OC	Oral (capsule)
OD	Oral (diet)
OD+W	Oral (diet) plus exposure in drinking water

Table A-6 (continued)

Code	Description
OG	Oral (gavage)
OI	Oral (intubation)
OTH	Other
OW	Oral (water)
OW+D	Oral (water) plus exposure in food
U	Uptake (unknown whether through roots, seed coat, or both)
U_R	Uptake via roots
U_SC	Uptake via seed coat
U_SC+R	Uptake via seed coat and roots

Length of Chemical Administration

The length of the chemical administration is briefly described here. If the exposure was intermittent (e.g., 4 h/d, 5 d/wk, for 7 wk), the total length of time over which the chemical was administered is reported (e.g., 7 wk). The chemical administration period for purposes of the ECORISK Database is synonymous with the term exposure duration or period. The terms "chemical administration period" or "length of chemical administration" are used to clarify the difference between exposure duration and test period; test period includes both chemical administration and any periods during the study in which the organisms are acclimatized before exposure or further observed after exposure has ceased.

Chemical Administration ID

The exposure duration code is selected from a drop-down list. The definitions and coding for exposure duration categories are shown in Table A-7. The exposure duration categories follow EPA (1999, 070923, Ref ID 0716).

Table A-7
Exposure Duration Categories and IDs for Birds, Mammals, Earthworms, and Plants

Duration	ID	Birds and Mammals	Earthworms and Plants
Chronic	C	91 d or more	7 d or more
Subchronic	SC	14 to 91 d	3 to 6 d
Acute	A	13 d or less	2 d or less
Single dose	SD	One-time administration	One-time administration

Exposure Frequency

The frequency of the chemical administration is noted here. For food and drinking water studies, it is often a continuous exposure where the exposure medium was provided throughout (also called *ad libitum*) the study. In inhalation exposure studies, the exposure frequency is either continuous or intermittent. In intermittent exposures, test organisms inhaled the chemical vapors for a certain number of hours per day and number of days per week for a certain study length (e.g., 4 h/d, 5 d/wk, for 10 wk). In continuous exposures, the test organisms are exposed for 24 h/d, 7 d/wk.

Control Group Exposure Concentration(s) and Comment

If a background concentration of the chemical of concern was reported in the primary exposure medium in addition to the administered amount, this concentration and its units are reported here. If no background concentrations were reported, a value of 0 mg/kg for soil or food, 0 mg/L for water, or 0 ppm for air is assumed.

Exposure Group Exposure Concentration(s) and Comment

The concentrations of the treatment groups are noted here along with their units. If a background concentration was present in the primary exposure medium, this concentration is added to the basal concentration. If nominal (target) and empirical (verified or measured) concentrations are both provided, the verified concentrations are reported in the value field, and the target concentrations are noted in the comment field.

Nominal (Target) or Empirical (Verified or Measured) Concentration

If it was not explicitly stated whether the concentration was nominal (target) or empirical (verified or measured), the concentration is assumed to be nominal (Nom). Otherwise, Nom or empirical (Emp) is noted based upon the information provided in the reference. If both nominal and empirical values were present, the empirical values are preferred over the nominal values, and the field is marked with Emp. Empirical values are preferred because they represent concentrations in the exposure medium that were analyzed and thus measured or verified; therefore, the empirical concentrations more accurately represent the concentrations that are available to the test organisms via the exposure medium. The nominal (target) concentrations are noted in the associated comment field. There are two fields for this data entry, one each for control and exposure groups, along with associated comment fields.

Dry or Wet Weight

If the moisture basis of the concentration in the medium is not explicitly stated, NR is entered into the field. If the exposure route is oral by way of inhalation or by drinking water, gavage, intubation, or capsule, N/A is the entry. Otherwise, the moisture basis of the food or soil exposure medium is noted as WW for wet weight or DWt for dry weight. If both dry weights and wet weights are available from a study, dry weights are preferred. Dry weights are preferred because they eliminate variations in the PTV as a result of the wide variation of moisture contents of exposure media; the weights of the media are more easily compared when reported in dry weight. Furthermore, dry weight is the moisture basis of the TRV required for ESL calculations. There are two fields for this data entry, one each for control and exposure groups.[3]

[3] During the early developmental stages of the ECORISK Database, studies using exposure media of filter paper, aqueous solutions, and nutrient solutions for invertebrates and plants were evaluated. The moisture basis for these media was N/A. However, as more attention was placed on how well certain types of exposure media approximated the environmental exposure medium of concern (soil), these studies were not considered representative. Now, experiments containing these types of media are not evaluated.

Number of Individuals per Group

The number of test organisms in each control and exposure group is noted. There are two fields for this data entry, one each for control and exposure groups.

Number of Sex per Group

The number of females and/or males in each control and exposure group is noted. There are two fields for this data entry, one each for control and exposure groups.

Number of Replicates per Group

If the number of replicates per control or exposure group was not clearly identified in a study, usually the number of individual organisms or sexual pairs that were caged separately is a suitable substitute. There are two fields for this data entry, one each for control and exposure groups.

Soil Characteristics (for Plant Studies Only)

When the study is not a plant study, N/A is the default entry.

Soil Type

The soil type and content are reported. Any other information not presented in the other fields of the soil characteristics section is also noted. See Example A-6.

Example A-6 Soil Characteristics

(a) Phaeosem, 3.85% sand, 74.90% silt, and 21.25% loam, water-holding capacity of 55.5%

(b) Ap horizon

(c) Sterilized shredded peat moss passed through 2-mm soil sieve and white silica sand. Base saturation of 93.9.

Soil Organic Matter

If provided, the percent of organic matter (%OM) content in the soil medium is noted. If percent total organic carbon (OC), particulate OC, or just OC was reported, it is converted to OM as follows:

$$\%OM = 1.72 * \%OC$$

The notes regarding the conversion, including the source reference (EPA 2003, 85643; Ref ID 1400), are placed in the soil %OM field. If the percent of OM was not provided in the study but the percent content of sphagnum peat moss was, the percent content of the moss is considered to be equivalent to the percent of OM and is reported as so.

Soil Cation Exchange Capacity

If provided in the study, the cation exchange capacity (CEC) in meq/100 g of soil is reported. If the CEC is not provided, NR is entered.

Soil pH

If provided, the soil pH is reported here. If the soil pH is not provided, NR is entered.

Growth Medium Characteristics (for Invertebrate Studies Only)

When the study is not an invertebrate study, N/A is the default entry.

Growth Medium Type

The soil type and content are reported. Any other information not presented in the remaining soil characteristics section is also noted. See Example A-7.

Example A-7   Growth Medium Types

(a) Petri dish with 30 g (dry mass) of screened soil mixed with aged horse manure (75% moisture)

(b) Sand (0.2- to 2-mm particle size) from C horizon mixed with well-decomposed cattle dung (1:2, vol:vol)

(c) Sandy loam soil with 17% clay, 5.5% $CaCO_3$

Growth Medium Organic Carbon

If provided, the percent of organic carbon (%OC) content in the soil medium is noted. It is converted from %OM using the following equation:

$$\%OC = \frac{\%OM}{1.72}$$

The conversion is noted along with the source reference of EPA (2003, 085643, Ref ID 1400) in the exposure medium field.

Growth Medium pH

If provided, the growth medium pH is reported here. If it is not provided, NR is entered.

Growth Medium Percent Moisture

If provided, the moisture content of the growth medium is reported. If it is not provided, NR is entered.

Food

If food for the earthworm was also provided in the soil, and it was explicitly noted as such or reasonably deduced, it is reported here. Examples are manure and litter.

Organic Matter ID (for both Plant and Invertebrate Studies)

If the %OM content in the soil or growth medium was 10% or less, it is coded as low. If the %OM was greater than 10%, it is coded as high. The high and low IDs are based on EPA (2003, 085643, Ref ID 1400), where studies are rejected if the soil exposure medium contains greater than 10% OM because OM may affect the bioavailability of the test chemical to the organism. If OM is not reported, NR is entered and the study is excluded from the rest of the PTSE process. Otherwise, the entry is N/A for bird and mammal studies.

If %OC was reported, it is converted to %OM for the determination of the OM ID. If both the %OC and the percent content of sphagnum peat moss were reported, the content of the peat moss is used to set the OM ID.

All Measurements Reported

All measurement endpoints in the study are listed, regardless of whether they are ecologically relevant or not. The purpose of this field is to provide a complete listing of the various measurements applied in the experiment so that users of the database know what was measured, and if they feel a measurement is ecologically relevant but is not evaluated in the PTSE, they can obtain the reference and further supplement their information.

Measurements Not Evaluated and Why

The measurement endpoints that are not evaluated in the PTSE are listed here. These include “other” effects, such as physiological functions, histopathology, cancer, and behavior (see Focus Measurement Category in section A-2.1.4), as well as any ecologically relevant measurements that are accounted for within measurements that are evaluated. If a plant study reported measurements of both fresh and dry weight values of leaves, only the dry weight information would be evaluated. The fresh weight information would not be evaluated and the reason why (i.e., dry weight is a more accurate measurement of the true mass of the plant because it eliminates the additional weight that is dependent upon varying moisture content of individual plants) is noted in this field. Another example would be to evaluate the percent mortality of juveniles but not the number of juveniles that died because the number of juveniles that died is incorporated as a percentage of the total number of juveniles in the experiment. The number of juveniles died would be reported in the measurements not evaluated and why field along with the explanation of why it was not evaluated. See Example A-8.

Example A-8 Measurements Not Evaluated and Why

(a) Food consumption, organ weights, hematocrits, hemoglobin concentrations, gross pathology, and organ, blood, and egg residues will not be evaluated in this Part 1 review because their relationships to adverse effects on population health are not clear.

(b) Food consumption, testes weight, liver weight, liver manganese, serum T, and general locomotor activities are not evaluated in this Part 1 because their relationships to population health are not clear. Body weight is not considered in this Part 1 because it is part of the growth rate measurement, which is already accounted for in this Part 1 review.

Author-Reported Effect Levels

If the authors calculated their own effect levels, these are reported in this field. The LC_{50} (or LD_{50}) or EC_{50} (or median effective dose, or ED_{50}) are most often the effect levels reported. NOAELs/NOECs and LOAELs/LOECs are also reported. The endpoints that the reported effect levels represent are also specified.

Experiment Comments/Author Conclusions

An overall summary of the data is presented for the reference, along with mention of any other factors that may have contributed to or confounded the results of the focus measurements in the experiment (e.g., mortality attributed to an infection outbreak and not the chemical exposure). Also, any further general observations on focus measurements not carried forth to Part 2 reviews may be reported here. Page numbers and table or figure designators from the reference should be included to support the comments.

A-2.1.4 Measurements and Results

Focus measurements (endpoints) that are evaluated in the Part 1 PTSE are limited to reproduction, development, survival, weight changes of adult or mature organism, and size changes of adult or mature organism. Only these categories are evaluated because they are ecologically relevant. In other words, these types of measurements are more directly linked with population health. Adverse effects observed in "other" endpoints, such as seminiferous tubule diameter, require too much speculation as to the degree of their impact on population health and are thus not evaluated in the PTSE process.

Focus Measurement Effect ID

Experiment effect IDs are created by simply adding an alphabetic identifier to the end of the experiment ID for each focus measurement (see Example A-9).

Example A-9 Experiment Effect IDs

0025_SE_1A

0025_SE_1B

0025_SE_2A

0517_50-29-3_2A

Focus Measurement

A focus measurement label is provided in the focus measurement field. The label should follow the labeling present in the study, but exceptions occur where symbols such as # are replaced with the word "number" or phrase "number of," where % is replaced with the word "percent" or "percentage," or where / (slash) is replaced with the word "per" for clarification and for data consistency.

Focus Measurement Category

The category of the focus measurement is then coded and entered in this field (see Table A-8).

Table A-8
Category Codes and Descriptions for Focus Measurements

Code	Description
WC	Weight change (adult)
NR	Not reported
O	Other
R/D	Reproduction/development
S	Survival
SzC	Size change (adult)

Reproduction/Development

If development or mortality was measured in juvenile organisms or immature plants and they were exposed to the chemical through parental exposure, the measurement is coded as reproduction/development (R/D) because it is considered to be a measurement of the ability of the parents to produce offspring that can develop into reproductive adults, and exposure reflects the reproductive cycle. Growth of a juvenile organism or immature plant that was directly exposed to the chemical is coded as R/D because it reflects the potential for the juvenile or immature plant to develop normally into a reproductive adult.

Adult Weight or Size Changes

If weight change for mature organisms is measured, it is considered a weight change and not development. Likewise, if a change occurs in size of a mature organism (e.g., height or root length of plants), it is noted as a size change.

Survival

If a juvenile organism or immature plant was directly exposed to the chemical, mortality is coded as S (survival) because it is considered a measurement of the ability of the organism to survive to reproductive maturity, and the exposure did not occur during the reproductive cycle.

Other

Other measurements are those that are considered to be less directly linked to effects on populations (e.g., tumors, tissue residues, cholesterol level, and behavioral changes) and are generally not reviewed unless the author(s) provides a clear correlation with the measurement and its effect(s) on population health (e.g., behavioral effects that impact reproduction, such as number of mounts in mice) or the data set is very limited.[4]

[4] There were cases where the measurement was associated with reproduction, but the relationship of the parameter to effects on population health is not clear; therefore, these types of measurements are also coded as O. Examples include sperm motility, seminiferous tubule diameter, and testicular enzyme activities. During the development of the database, these measurements were evaluated but later excluded from consideration for TRVs. Currently, these measurements are no longer evaluated unless a clear relationship to population numbers is described.

Focus Measurement Frequency

The number of times the measurement was recorded is noted here (e.g., once per week, or 4 h/d, 5 d/wk).

Focus Measurement Duration

If the observation of the focus measurement lasted more than just an instant (e.g., behavioral observations that may take 10 min of observation), the length is noted in this field.

Focus Measurement Critical Life Stage Category

A life stage of an organism is considered to be a critical life stage if exposure to a chemical during this life stage is expected to result in a negative impact on the population health of that organism. For the purpose of deriving TRVs, a critical life stage is defined as a life stage associated with a chemical exposure that occurs during the reproductive cycle of the test organism and/or during the development of the immature test organism. For an endpoint to be considered development, it has to fall into one of two scenarios in which measurements must reflect either the development of immature organisms that were exposed via parents or the development of immature organisms directly exposed to the chemical. Reproduction and development endpoints directly reflect effects on the size and character of the next generation of the population. Note that not all endpoints associated with seemingly reproductive/development functions are coded as R/D (see Focus Measurement Category above).

Chronic – Critical Life Stage

If an endpoint reflects a critical life stage, the associated effect level may be considered to be equivalent to a chronic exposure endpoint regardless of the actual chemical exposure duration associated with this endpoint. The reasoning behind this assumption is as follows: a chronic study is preferred over a single-dose, acute, or subchronic chemical exposure study because it is more likely to capture effects that reflect critical life stages that are relevant to population success. Therefore, it is assumed that any duration of chemical exposure that is associated with a critical life stage endpoint captures potential effects on population success as a chronic study does. This effect is then considered to be equivalent to a chronic exposure effect regardless of the actual chemical administration period. Ultimately, if an endpoint is categorized as chronic because of a critical life stage, our certainty of this effect predicting the impact of a particular chemical on population success increases. Such endpoints are categorized as chronic-critical life stage (C-CL).

Critical Life Stage Only

If the critical life stage endpoint is a type that does not directly reflect effects on the size or character of the next generation of the population, certainty in predicting the impact of a particular chemical on population success is not increased. There are nonreproductive and nondevelopmental endpoints that reflect critical life stages because chemical administration occurred during the reproductive cycle of adults, during the development phase of juveniles, or during an embryo stage. Examples of such endpoints include survival for juvenile organisms (who are still undergoing development, a critical life stage), body weight measured for adult organisms in the reproductive cycle, clinical signs during reproductive cycle, or egg length. However, a measurement of these types of endpoints is not a direct-measurement of a critical life stage reproductive/development endpoint; thus, less certainty is associated with the effect level assigned to it. The actual exposure length remains (i.e., single dose remains single dose) when determining the application of UFs in the TRV derivation process. Using juvenile mortality as an example to further illustrate the logic, it is difficult to assess the extent to which the critical life stage of development of juveniles impacts their mortality rate. Therefore, by not classifying this juvenile mortality endpoint as C-CL, the PTV that results will be lower, thus more protective, in cases where the exposure duration is acute or subchronic because of UFs that must be applied to extrapolate to a chronic effect level. Such endpoints are categorized as just critical life stage (CL).

Coding

In application, coding for critical life stage generally follows the guidelines below:

- All reproduction/development endpoints are coded as C-CL, regardless of actual chemical exposure duration.
- Other endpoints (such as adult or juvenile survival, adult weight or size change, or other characteristics [S, WC, SzC, and O, respectively]) in which chemical administration occurred during a critical life stage are coded as CL.
- Endpoints in which chemical administration did not occur during a critical life stage are coded as non-CL.
- Endpoints in which it is unknown whether or not chemical administration or measurements were taken during critical life stages are coded as NR.

Further exceptions occur where professional judgment deems the coding that would follow the guidelines to be inappropriate. Examples include the following:

- A study where chemical administration occurred for a lengthy amount of time, but measurements of the effects occurred only for part of the chemical administration period. See Example A-10a.
- A study where a critical life stage occurred, but organisms of a certain treatment group died before the critical life stage began. See Example A-10b.
- A study where a survival endpoint can be classified as chronic as a result of a critical life stage because the immature organism was directly exposed to the chemical, and chemical exposure encompassed this immature life stage. See Example A-10c.

Example A-10 Exceptions to Coding for Critical Life Stages

(a) Ivankovic and Preussman (1975, 059251, Ref ID 0010), Experiment 1: Adult rats were exposed to a chemical 90 d before mating and through reproduction for at least another 30 d, and body weight measurements took place only up until the mating period began. This endpoint would be characterized as non-CL. The body weight measurements had not taken place while the rats were subjected to additional stress of reproduction; therefore, they were not expected to be more susceptible to adverse weight change effects.

(b) Aulerich et al. (1974, 059794, Ref ID 0016): Adult mink were exposed to 5 ppm of methylmercury or 10 ppm of mercuric chloride. Authors wished to obtain information on adult body weights, kit body weights, adult mortality, reproductive measurements such as number of females mating and number of kits born alive vs. dead, and clinical signs. All organisms fed 5 ppm of methylmercury in the diet died before breeding season. Adult body weights and critical life stage codes for the mink in the 10-ppm mercuric chloride group would be WC and CL, respectively. However, for mink in the 5-ppm methylmercury group, the codes would be WC and non-CL, respectively, because the body weight measurements did not continue through reproduction as the mink died before breeding season.

(c) In Brunström et al. (1991, 070812, Ref ID 0666) and Gogal et al. (2002, 089461, Ref ID 1216), bird eggs received injections and embryo mortality was measured. This measurement would receive an endpoint coding of S and a critical life stage coding of C-CL. This scenario is also evident where germination of seeds (considered survival, from seed to seedling) was measured.

When considering the use of PTVs in TRV derivation, an endpoint associated with a C-CL category is preferred over one with a CL or non-CL life stage effect. All critical life stage designations are considered to provide support of PTV eliminations or selections for use in TRV development.

Test Period Duration and Category

The chemical administration plus any additional time before and/or after the exposure is noted here. If the test organisms were quarantined and/or acclimatized for a period of time before exposure started, or if measurements continued to be recorded after exposure ceased, this length of time is counted in the test period. Results observed after exposure ceased are not usually considered because they are not considered relevant for predicting effects of continuous chemical exposures (such as those that may be found in the environment).

Focus Measurement Dose Response

First, the table and/or page number from which the results were taken is noted. Notes on which exposure levels resulted in adverse effects for the focus measurement follow. General observations on dose-response trends are also reported. If no statistics were used, a summary of the results suffices. Basically, entry in this field provides an insight into the results observed by the researchers of the study at various exposure levels and compares them to results for controls.

Focus Measurement Statistical Test and Confidence Level

If provided, the statistical test and/or alpha level used to determine significant adverse effects for the measurement are noted here.

Focus Measurement Comments/Effect Levels

The effect level(s) are assigned (if not already provided by the authors) and documented in this field. Discussion of whether they are author-reported or reviewer-assigned effect levels and whether the assignment was based on statistics that were provided or not is also presented here as well as in Example A-11. Furthermore, any evidence of dose-response trends, post-exposure related effects, insufficient data, or other conditions that may affect the assignment of the effect levels is also discussed in detail (see Example A-11).

Example A-11 Focus Measurement Comments/Effect Levels

(a) Author-reported effect levels

(i) The authors reported effect levels for 5-day emergence: NOEC = 312 mg/kg, and LOEC = 1040 mg/kg. The EC_{10} is 307.5 mg/kg dry soil, the EC_{20} is 3112.6 mg/kg dry soil, and the EC_{50} is > 3120 mg/kg dry soil.

(ii) The researchers reported an LD_{50} of 2690 mg/kg with 95% confidence limits of 1571 to 57,063 mg/kg. The researchers did not provide a NOAEL or LOAEL, and statistics were not provided; however, sufficient mortality data were available, so the Dunnett's multiple comparison test was applied by the reviewer in order to determine statistical significance at $p = 0.05$. Based on this, statistical significance was determined at 1350 mg/kg and higher. Therefore, the 810-mg/kg level will be used in the NOAEL calculation while the 1350-mg/kg level will be used in the LOAEL calculation.

(b) Reviewer-assigned effect levels

A NOAEL can be inferred. Since no effects were observed at the highest level of 32 ppm of mercury, this is designated as the NOAEL.

No significant differences at $p < 0.05$ were found; however, the decreases in fertilization at 2 and 8 ppm were approaching significance ($0.05 < p < 0.10$), and differences between the 2- and 8-ppm and 4- and 0-ppm groups were at least 22%. Note that the 4-ppm group had a higher fertility rate than, or similar fertility rate as, the 0-ppm group. The author discusses possible reasons for the enhancement at 4 ppm, including bacteriostatic or fungicidal activity or stimulation. Based on these results and a conservative approach, the 2-ppm level is used for the LOAEL because adverse effects were seen at this lowest dose level (22% reduction in fertility) compared to control.

(c) Dose-response trends

There were no clear dose-related trends in any of the three 10-d groups, but there was a pattern of 4-ppm groups having the highest hatchability of the three exposure groups. This effect (hatchability) will not be carried further because it is difficult to determine a NOAEL and LOAEL based on three different age groups and varying responses.

(d) Post-exposure related trends

There were significantly lower body weights in the 30-, 100-, and 300-ppm groups compared to controls on day 13 of gestation. However, only the 100- and 300-ppm groups continued to have significantly lower body weights on day 21 of gestation, after exposure ceased on day 15. The possibility exists that the absence of a significant difference at the 30-ppm level was a result of the rats having had time to recover following the cessation of exposure on day 15 of gestation. Therefore, the assignment of effect levels is based on significant effects that occurred during exposure rather than effects that were present after 6 days of recovery in order to be protective. Based on this, the 30-ppm level is used for the LOAEL calculation.

Example A-11 (continued) Focus Measurement Comments/Effect Levels

(e) No reported statistics

Because it is not clear in the text or statistics which treatment level showed a significantly lower percentage of hens laying compared to controls, the treatment that shows a decrease of 20% or greater compared to controls will be considered significant (Suter et al. 1995, 089449, Ref ID 1088). Based on this, the 210-ppm wet-weight level (target concentration of 200 ppm) had 25% fewer hens laying and will be used for the LOAEL. The 15.2-ppm wet-weight level (target concentration of 20 ppm) will be used for the NOAEL.

(f) Data insufficient for TRV development

An increase in mean egg production associated with increasing mercury exposure does not appear to be an adverse effect and will not be evaluated further.

As noted, phencyclidine at the highest concentration tested (60 mg/kg) stimulated growth, as opposed to depressing it; thus, this is considered not detrimental to the organism and not suitable for deriving a TRV. This focus measurement will not be evaluated further.

Author-Reported Effect Levels

If the authors reported their own effect level(s) for the focus measurement (e.g., NOAEL for average number of live fetuses) or its category (e.g., NOAEL for reproduction), the effect level(s) and what it represents is entered into this comment field. It is then decided if each effect level accurately represents the results of the focus measurement. For example, if the authors reported a NOEC that was interpolated based on reproductive toxicity data for four plant species in a study, this NOEC, while reported in the Part 1 database, may not be considered appropriate for use as a NOEC for one species in particular. If the author-provided effect level is not considered appropriate, the reviewer must further assess the validity of the reported results for use in Part 2 (see Reviewer-Assigned Effect Levels below).

Reviewer-Assigned Effect Levels

If there is no author-reported effect level(s) or the level(s) reported is found to not be suitable for use (see Author-Reported Effect Levels above), the reviewer must assign an effect level or effect levels to the focus measurement based on the reported data using best professional judgment. Dose-response trends, post-exposure related effects, and availability of statistics are considered in whether to continue to assign effect levels or to determine that the data are insufficient for TRV development.

Dose-Response Trends

If a clear dose-response trend and an exposure concentration can be noted at which no adverse effects and/or at which adverse effects were first observed, the exposure concentration that produced no observed adverse effects is used for the NOAEL/NOEC, while the exposure concentration at which adverse effects were first observed is used for the LOAEL/LOEC. Where statistics were used by the researchers of the study, the first exposure concentration to show a statistical significance compared to controls is considered to produce an adverse effect and is used in the LOAEL/LOEC calculation. The next lower exposure concentration is then considered for the NOAEL/NOEC calculation.

Post-Exposure Related Effects

If observations continued after exposure ceased, the results for this period are not usually included in the assignment of effect levels because it is assumed the organisms of concern are continuously exposed to contaminants and thus no time for recovery is allowed. That is, the adverse effects that occur during exposure are most relevant for predicting effects of continuous chemical exposure. The assignment of a NOAEL/NOEC to a concentration at which adverse effects were observed during exposure but not afterwards may not be protective enough, so the concentration is considered a LOAEL/LOEC. However, results that occurred after exposure ceased are still noted and considered to lend support to the effect level assignment.

No Reported Statistics

If statistics were not reported by the author, the reviewer either applies his or her own statistics or, more often, considers the exposure concentration with a difference of 20% or greater effect compared to control groups to be significant. If this guideline for using a difference of 20% or greater effect is followed, Suter et al. (1995, 089449, Ref ID 1088) is cited. The guideline for using a difference of 20% or greater effect is followed by ORNL (Suter et al. 1995, 089449, Ref ID 1088) in its selection of effect levels, and it is based on EPA regulatory practices. This method for determining biological significance comes from the inference that the LOEC derived from studies in which terrestrial birds are exposed to contaminants in the diet usually corresponds to a 20% effect on individual response parameters (Suter et al. 1995, 089449, Ref ID 1088). Any difference of 20% or greater is considered a biological significance rather than a statistical significance. For purposes of assigning effect levels, biological significance is considered to be equivalent to statistical significance.

Statistics are often used when the appropriate amounts and types of data are clearly presented for each treatment group and control group in tables in the paper. Best professional judgment is used to determine which statistical test would be appropriate for the data presented.

Data Insufficient for TRV Development

If the reviewer determines that the data for the focus measurement being evaluated are insufficient for TRV derivation, it is noted that a Part 2 evaluation will not be completed for this measurement. Also, "_NoPTSEP2" is attached to the end of the experiment effect ID (e.g., 0025_CD_1A_NoPTSEP2).

Conditions in which the data are not sufficient for TRV derivation:

- Only trends are mentioned in the text by the investigators, and they do not clearly illustrate the point at which exposure level adverse effects began.
- Numerical data are available, and authors only hint at results.
- Results of the study are too varied (no clear dose-response or time-related trend), and no statistics are applied.

A-3.0 PTSE PART 2, STUDY EVALUATION AND PRIMARY TOXICITY VALUE CALCULATION

The Part 2 review process is based on evaluating and then scoring the data obtained from the reference in the Part 1 and then calculating a PTV and assigning it a confidence rating. Section A-3.1, Data Evaluation and Scoring Guidelines, provides instruction for evaluating the study and documenting the evaluation. Section A-3.2, PTV Calculation Guidelines, provides instruction for calculating the PTV and documenting the derivation. Section A-3.2.8, PTV Confidence Rating Guidelines, provides instruction for assigning a confidence rating to each PTV.

A-3.1 Data Evaluation and Scoring Guidelines

A-3.1.1 General PTSE Information

The data in the following fields are imported from the Part 1 data-entry database:

- Reference ID
- Chemical ID
- Experiment ID
- Experiment purpose
- Effect ID
- Focus measurement label

Review Date

The date the review is started is entered here. It can be superseded by the date the record was updated (edited).

Reviewer Initials

The initials are entered or selected from a drop-down list of current reviewers. Initially, the original reviewer of the record is entered. This can be superseded by the initials of the reviewer who updated (edited) the record.

A-3.1.2 Study Design and Documentation Score

Control

Was a suitable control present? Was it a negative (no toxicant applied, but similar to treatments in all other aspects), positive (standard such as dieldrin used for comparisons of relative toxicities), or solvent control? An example of a solvent control is illustrated in an invertebrate toxicity study in which HMX was first dissolved in a solvent (acetonitrile) before application to the soil medium. The solvent control would consist of the invertebrates exposed to a soil medium containing only acetonitrile.

If a control group is not included in the experiment, but effect levels are provided by the authors, the scoring is based on whether or not the absence of the control group affects the ability of the reviewer to verify these effect levels or assign effect levels. If only an effect level of other (e.g., LC_{50}, EC_{20}) is provided by the authors, the score is not penalized because usually in these situations it is reasonably assumed that multiple concentrations were administered to extrapolate the lethal or effective concentrations. Also, a published method is often used by the authors to determine these effect levels. Therefore, it can be assumed that at least one control group was built into the study design or that control groups were not needed as long as an appropriate dose-response curve was produced to extrapolate the other effect level.

If a NOAEL/NOEC and/or LOAEL/LOEC was provided by the authors, but the absence of controls makes it difficult for the reviewer to verify the effect levels, the score will be penalized. This indicates that while the effect levels are still used, caution should be exercised in the interpretation of these values within the TRV data set because the reviewers could not ascertain that the effect levels were determined appropriately.

There are situations where control groups and effect levels are not reported, but a NOAEL/NOEC and LOAEL/LOEC, and/or NOAEL/NOEC and LOAEL/LOEC pair is assigned by the reviewer nonetheless. The score is not penalized in this scenario. This can happen for mortality endpoints where only one exposure level was administered, and it is reported that 0% mortality was observed at this concentration. This exposure concentration is used for the NOAEL/NOEC. On the other hand, if a reasonable percentage of mortality occurred (e.g., more than 50% for birds or mammals is considered adverse), this exposure concentration is used for the LOAEL/LOEC. Furthermore, two exposure concentrations in a mortality study can also lead toward the assignment of a NOAEL/NOEC and LOAEL/LOEC pair without controls if the lower concentration resulted in no mortalities while the higher concentration resulted in greater than 50% mortality.

Control group score:

1 A control group was included, or a control group was not included or reported but was not needed to verify or assign effect levels.

0 A control group was not included, and effect levels provided by the authors could not be verified.

Exposure Groups

Was more than one exposure group present? Exposure concentrations are listed. It is also noted whether these concentrations are nominal or measured.

Exposure group score:

1 More than one exposure group was used.

0 Only one exposure group was used.

Test Organism Details

The test organism name, age or life stage, sex, and origin/source are listed, if provided.

Organism Details Score

Up to four pieces of information can be provided for birds and mammals: name (common and/or scientific), age, sex, and source/origin. Up to three pieces of information are available for invertebrates and plants: name (common and/or scientific), age, and source/origin. Scoring is as follows:

4 All information is provided.

3 Three pieces of information are provided.

2 Two pieces of information are provided.

1 One piece of information is provided.

0 No information was available.

Dose Rate Parameters

In bird and mammal studies, are the exposure concentrations reported in daily dose rates of mg/kg/d, or are body weight, food ingestion rate, and/or water ingestion rate parameters available to convert the provided dose units to mg/kg/d?

For earthworm and plant studies, the entry is N/A because the concentrations are already normalized to the amount of chemical in soil (e.g., mg chemical/kg soil), which is what the PTV is based on.

Dose Rate Parameter Score

Dose rates can be calculated using two dose rate parameters: body weight and either an ingestion rate (for water or food) or an inhalation rate.

2 Both dose rate parameters were provided, the ingestion or inhalation rate was already normalized to body weight, or none of the dose rates are applicable (N/A) because the daily dose rate was reported by the authors.

1 One dose rate parameter was provided.

0 No dose rate parameters were provided.

Exposure Dose Concentration

Are the exposure concentrations nominal (target) or empirical (i.e., verified or measured) concentrations, and what is their moisture basis? If the exposure medium is not food or soil (e.g., vapors in an inhalation study, oil vehicle used in an oral gavage administration), moisture basis is N/A. If chemical administration was already provided as daily dose rates, moisture basis is canceled out and this aspect becomes N/A as well.

Dose concentration basis score:

2 Measured, dry weight or N/A.

1.75 Measured, wet (fresh) weight

1.5 Nominal, dry weight or N/A

1.25 Nominal, wet (fresh) weight

1 Measured, unknown

0.75 Nominal, unknown

0.5 Unknown, dry weight or N/A

0.25 Unknown, wet (fresh) weight

0 Unknown, unknown

Statistics

Are statistics provided, and if so, what are the test and p-value or confidence limit? If statistics were not provided, was data presented in tables in such a way that the reviewer was to apply his/her own statistics or analysis? Did the measurement show no effects that could be analyzed by statistics (e.g., zero mortality)?

Statistics score:

1 Both the statistical test and confidence level are reported.

0.5 The statistical test or the confidence level is missing, or if neither is reported, data are available for reviewer to run analysis.

0 Neither the statistical test nor confidence level are reported, and data are not adequate for reviewer to run analysis.

A-3.1.3 Test Organism Score

Taxonomic Relationship of Test Organism

The screening receptor is a species that represents a functional food group and exposure pathway (e.g., intermediate carnivore [50% flesh/50% invertebrate], burrowing mammal [inhalation]) in an area of concern. The screening receptor group (i.e., bird, mammal, invertebrate, or plant) that the test organism best represents is noted. It is followed by a description of how closely the test organism is related to the screening receptor taxonomically.

Taxonomic relationship score:

2 The test organism is related to at least one screening receptor at the order, family, genus, or species level. (Not applicable to plant or invertebrate test organisms)

1 The test organism is related to at least one screening receptor at the class level. (Not applicable to plant or invertebrate test organisms)

0 The test organism is not related to a screening receptor at the class or more specific level or is a plant or invertebrate.

Basis for Use of Test Organism

Did the investigators of the study provide a reason for using the test organism?

Test organism basis score:

1 The researchers indicated, or it can be reasonably assumed, why the particular test organism was chosen.

0 It is not known why the test organism was chosen.

A-3.1.4 Exposure Conditions Score

Test Environment

Was the study conducted in a laboratory or other controlled environment with exposure only to a single chemical?

Exposure environment score:

1 The study is based on a field or laboratory study from which a single chemical exposure can be discerned.

0 The study is not based on a field or laboratory study from which a single chemical exposure can be discerned.

Test Exposure Chemical

The chemical of potential ecological concern (e.g., cadmium), not the chemical form (e.g., cadmium chloride), is noted here. Scoring is not applicable to this field.

Test Exposure Medium (to Represent Food and Drinking Water TRVs)

For bird and mammal studies,

- the test exposure medium is noted, and
- the exposure media for TRVs and ESLs are noted as follows:
    - ❖ for food media studies, “TRVs: food; ESLs: sediment and soil,” and
    - ❖ for drinking water media studies, “TRV: drinking water; ESL: water.”

These fields are not applicable for earthworm and plant studies or mammal inhalation studies (i.e., N/A is entered).

Food equivalency score:

1 The test exposure medium is equivalent to food.

0.5 The test exposure medium is similar to food (capsule, oil, or solid bolus).

0 The test exposure medium is not equivalent or similar to food (drinking water or other).

Drinking water equivalency score:

1 The test exposure medium is equivalent to drinking water.

0.5 The test exposure medium is similar to drinking water (aqueous solution or chemical).

0 The test exposure medium is not equivalent or similar to drinking water (food or other).

Test Exposure Medium (to Represent Soil TRV)

For earthworm and plant studies,

- the test exposure medium is noted, and
- the exposure media for the TRV and ESL are noted (e.g., “TRV: soil; ESL: soil”).

This field is not applicable for bird and mammal studies (i.e., N/A is entered).

Soil equivalency score:

1 The test exposure medium is equivalent or similar to soil.

0 The test exposure medium is not equivalent or similar to soil.

Test Exposure Chemical Interactions

Even if there are chemicals in the exposure medium besides the chemical of concern, they may be naturally occurring and are not considered an interaction. Only when chemical or physical properties change during the course of the experiment are they considered an interaction. If an interaction is not reported by the author, it is noted that none is expected.

Chemical interaction score:

1 Chemicals and properties that could potentially affect the toxicological impact of the test exposure chemical on the test organism are not present in the test exposure medium.

0 Chemicals and properties are present and could potentially affect the toxicological impact of the test exposure chemical on the test organism.

Test Exposure Route

The test exposure route and whether it is similar to the exposure route of concern are described. For example, uptake via seed coat and/or roots is the exposure route of concern for plants. If in a study, plants were exposed to the chemical through spraying on the leaves, this is not considered similar to the exposure route of concern.

Exposure route score:

1 The test exposure route is equivalent to the ESL exposure route of concern (for birds and mammals, food, drinking water, or inhalation; for invertebrates, oral/dermal; and for plants, uptake).

0.5 The test exposure route is similar to the ESL exposure route of concern (for birds and mammals only, oral intubation or gavage).

0 The test exposure route is not equivalent or similar to the ESL exposure route of concern.

Test Period (Including Chemical Administration)

The test period duration, which includes any period of acclimatization before exposure and the time period for additional observations after exposure, is noted here. The percent of the test period during which chemical administration occurs is also described. For example, “The test period was 90 d, and chemical administration occurred the entire time (100%)," or "The test period was 120 d, and chemical administration occurred during the first 90 d and composed 75% of the total test period."

Test and exposure period score (based on chemical administration period):

3 Chronic

2 Subchronic

1 Acute

0 Not reported

Exposure durations are defined in Table A-9.

Table A-9
Exposure Durations

Test	Bird or Mammal	Invertebrate or Plant
Chronic	>90 d	>6 d
Subchronic	14 to 90 d	3 to 6 d
Acute	<14 d	<3 d

Critical Life Stage

If the chemical administration occurred during the reproduction or development period of the test organism, it is noted as a critical life stage in this field.

Critical life stage score:

1 Chemical administration occurs during a critical life stage.

0 Chemical administration does not occur during a critical life stage.

Test Exposure Frequency

The frequency of exposure to which the test organisms were exposed to the test chemical is noted here (e.g., continuous or intermittent, 7 h/d, 5 d/wk). For bird and mammal oral ingestion studies, an exposure that is at least once daily or *ad libitum* is considered frequent. For mammal intermittent inhalation studies, an exposure that constitutes 70% of the chemical administration period is considered frequent (based on most studies exposing animals 5 d/wk). Earthworm and plant soil studies typically have an exposure regimen where the test organism is exposed continuously to the chemical in soil. If this is not the case, the frequency score follows the guideline for bird and mammal oral ingestion studies.

Exposure frequency score:

1 The test exposure frequency is continuous or frequent enough to represent the chemical administration period.

0 The test exposure frequency is not continuous or frequent enough to represent the chemical administration period.

A-3.1.5 Measurement(s) and Result(s)

Focus Measurement Effect Category

The focus measurement label (i.e., the measurement endpoint) as the author(s) reported it (e.g., number of pups per dam, shoot length) is noted. The endpoint category in which the focus measurement belongs is also sometimes noted for clarification (e.g., development [body weight vs. adult body weight change] or survival [juvenile mortality vs. development, juvenile mortality for those organisms exposed to the chemical via parents]).

Endpoint category score:

4 Reproduction or development

3 Survival

2 Adult weight or size change

1 Other

Measurement of Focus Measurement

If measurements took place at appropriate times during and after exposure to reflect effects and trends that can be attributed to exposure, YES is entered.

Focus measurement length score:

1 The focus measurement reflects the entire chemical administration period.

0 The focus measurement does not reflect the entire chemical administration period.

Focus Measurement Effect Level

The effect levels are noted here. If a NOAEL/NOEC and LOAEL/LOEC are both available, the magnitude of difference is calculated and reported.

Effect level score:

6 NOAEL and LOAEL, NOEL and LOEL, or NOEC, LOEC, and values are within a factor of 3.

5 NOAEL and LOAEL, NOEL and LOEL, or NOEC, LOEC, and values are within a factor of 10.

4 NOAEL and LOAEL, NOEL and LOEL, or NOEC, LOEC, and values are not within a factor of 10.

3 NOAEL, NOEL, or NOEC only

2 LOAEL, LOEL, or LOEC only

1 Other effect level (e.g., LD_{50}, LC_{50}, or EC_{50}) only

Effect Level ID

The appropriate code is selected from a drop-down list. Options are the following:

- NLOTH = NOAEL/NOEC, LOAEL/LOEC, and other effect level, such as LC_{50}
- NL = NOAEL/NOEC and LOAEL/LOEC

- N = NOAEL/NOEC
- NOTH = NOAEL/NOEC and other effect level
- L = LOAEL/LOEC
- LOTH = LOAEL/LOEC and other effect level
- OTH = Other effect level

Scoring is not applicable in this field.

A-3.1.6 PTV Calculation

Below are brief descriptions of the data entry fields for this section. See section A-3.2 for detailed instructions on how to complete these calculations.

Value, Units

The calculated or author-reported daily dose rate value (PTV) is recorded here along with its units. The units are mg/kg/d for birds and mammals and mg/kg for invertebrates and plants.

Duration

The chemical administration period is noted here. However, if the chemical administration period is acute, subchronic, or chronic, and the measurement is categorized as chronic-critical life stage, “Chronic-Critical Life Stage” replaces the chemical administration period.

Calculation

The daily dose rate and unit conversion calculations are detailed here.

Notes

Notes about where moisture content is obtained, any assumptions about daily dose rates and other calculations (e.g., moisture conversions, determining amount of individual element from compound), and/or notes about how the PTV calculations are derived (e.g., conversion of mg/m^3 to ppm are based on the ideal gas law, use of fraction of time in intermittent inhalation exposure studies) are described here.

Parameters

There is one comment and one Ref ID field for each dose rate parameter: body weight, food ingestion rate, water ingestion rate, and inhalation rate. Values, units, and an explanation of each parameter relevant to calculating the PTV (e.g., body weight and food ingestion rate for an oral via food ingestion PTV) are entered in the comment fields. If the appropriate parameters were not provided in the study, the most representative value for each parameter is located (see section A-3.2.3), a short description of what each value represents is provided, and an allometric equation, if applicable, is detailed. The source of the parameter is entered in the Ref ID field that corresponds with this parameter. Otherwise, N/A is the default in the comment field, and 0001 is the default in the Ref ID field.

A-3.2 PTV Calculation Guidelines

In deriving PTVs, the default is to use the effect levels or critical levels provided by the author(s) of the study. If provided, the information is reported in the author-reported effect levels field of the PTSE Part 1. The use of the author-reported value(s) is based upon the assumption that the authors have accounted for background concentrations of the primary exposure medium and/or concentrations in other exposure media for the chemical of concern (see section A-3.2.1). It is also assumed that the authors took care in measuring food ingestion rates and body weights for the test organisms in their study and applied the appropriate software and/or calculations to interpolate the desired effect level. If the authors did not provide effect levels in mg/kg/d for birds and mammals or mg/kg for invertebrates and plants, adjustments are made before calculating the daily dose rate, if necessary. Adjustments are not made if any of the following occur.

- Primary exposure medium concentration is empirical and in dry weight (background concentration is assumed to be included in the empirical concentration), and additional exposure from other media was not reported.
- PTV calculations are normalized for moisture content of exposure medium, and no background or other media concentrations are reported. For example, if cadmium was administered as a concentration of 30 mg Cd/kg food wet weight, and the food ingestion rate for rats was 0.03 mg food wet weight/d, the units are canceled out (normalized) when determining the amount of chemical ingested per day as follows:

$$30\ \frac{\text{mg Cd}}{\text{kg food wet weight}} * 0.03\ \frac{\text{kg food wet weight}}{\text{day}} = 0.9\ \frac{\text{mg Cd}}{\text{day}}$$

- Primary exposure medium concentration is a nominal concentration, moisture basis is unknown, and background concentration and/or additional exposure from other media was not present or reported. (The moisture basis is assumed to be dry weight in order to produce a conservative PTV. See section A-3.2.2.)
- Primary exposure medium concentration is empirical and the moisture basis is unknown. (The moisture basis is assumed to be dry weight in order to produce a conservative PTV. See section A-3.2.2.)
- Exposure concentration is provided in units of mg/kg for earthworms and plants or mg/kg/d for birds and mammals.

If the reported concentrations do not fill the above criteria, various types of adjustments may be made. They may include

- wet weight to dry weight conversions (for concentrations in the exposure medium and for food ingestion rates for birds and mammals),
- unit conversions,
- additions of verified background concentrations in the exposure medium/diet of the test animals to target (nominal) exposure concentrations,
- additions of background exposure concentrations from a medium other than the primary exposure medium to the primary exposure concentrations, or
- a combination of the above.

A-3.2.1 Background Concentration Explanation

If it was noted that background concentrations were present, but the exact concentration could not be determined from the data provided in the study without introducing more uncertainty, this is noted in the Part 2 notes field. The PTV is based upon only the concentration of the chemical added to the exposure medium, and it is still more conservative than one based on the supplemental concentration plus the concentration in the basal medium. The basis for this is that in using only the concentration added to the exposure medium, it is assumed the test organisms ingest less chemical and thus, assuming all other parameters (e.g., body weight, food ingestion rate) remain equal, the PTV is lower. If the test organisms had actually ingested a larger amount of chemical because of a background concentration in the exposure medium that was not reported, the lower PTV calculated based on only the supplemental concentration of chemical is still protective of any possible adverse effects that may result from exposure to the larger amount of chemical. Example A-12 illustrates the differences in the PTVs.

Example A-12 Background Concentration Calculations

Japanese quail were administered 5000 ppm of manganese via food. Although manganese is often present in the basal diet, the background concentration of the basal diet used in this study is not reported. A PTV is calculated based on just the supplemental concentration of 5000 ppm and a food ingestion rate of 115 g/kg body weight/d for the quail.

$$\text{PTV (mg/kg/d)} = \text{Concentration (mg/kg)} * \text{Food ingestion rate (kg/kg/d)}$$

5000 mg/kg * 0.115 kg/kg/d = 575 mg/kg/d

If it had been reported that the background concentration of manganese in the basal diet was 56 ppm, this is added to the supplemental concentration of 5000 ppm, and the calculations are carried out as above.

5056 mg/kg * 0.115 kg/kg/d = 581.44 mg/kg/d

It can be seen in Example A-12 that the PTV for the concentration added to the medium without knowing the background concentration is lower than the supplemental amount plus background concentration. If a background concentration had been assumed to be present, and a concentration was obtained from other sources, it would have provided a higher PTV. The higher PTV may not be protective enough of adverse effects that may occur at concentrations lower than the supplemental concentration plus the background concentration but higher than the supplemental concentration alone. Therefore, it is safe to use just the supplemental amount in PTV calculations if a background concentration is not reported.

A-3.2.2 Moisture Basis Explanation

If the moisture basis of the concentration in the exposure medium of the food is not reported, it is assumed to be based on dry weight. The reasoning is that if the true moisture basis is indeed wet weight, the PTV calculated based on the assumed dry weight would be lower than if the wet weight concentration of the medium had been converted to dry weight. Example A-13 shows two scenarios: in the first one, moisture basis is unknown and therefore assumed to be dry weight, and in the second, the moisture basis is known to be wet weight.

Example A-13 Moisture Basis Calculations

Scenario 1: An experiment reports administering to chicks a concentration of 30 mg/kg of hexavalent chromium via food. The moisture basis of the food is unknown and therefore assumed to be dry weight. The body weight and food ingestion rate of the chicks are 0.0874 kg and 0.0096 kg/d, respectively. The PTV is calculated as follows:

$$\text{PTV (mg/kg/d)} = \frac{30\ \text{mg/kg} * 0.0096\ \text{kg/d}}{0.0874\ \text{kg}} = 3.3\ \text{mg/kg/d}$$

Scenario 2: In the same experiment as above, it is reported that the moisture basis of the concentration is wet weight, and the moisture content of the food is 25%. The wet weight concentration must first be converted to a dry weight concentration before calculating the PTV.

$$30\frac{\text{mg Cr(VI)}}{\text{kg wet food}} * \frac{1\ \text{kg wet food}}{0.75\ \text{kg dry food}} = 40\frac{\text{mg Cr(VI)}}{\text{kg dry food}}$$

$$\text{PTV (mg/kg/d)} = \frac{40\ \text{mg/kg} * 0.0096\ \text{kg/d}}{0.0874\ \text{kg}} = 4.4\ \text{mg/kg/d}$$

Scenario 2 in Example A-13 shows that because the dry weight concentration resulting from the conversion of a wet weight concentration to dry weight is always higher, the associated PTV value will be higher as well. Therefore, assuming the concentration is based on dry weight when the moisture basis is unknown, the derived PTV is lower than and protective of the actual PTV that would have been calculated based on wet weight converted to dry weight. In this way, the estimate errs on the conservative side.

A-3.2.3 Obtaining Dose Rate Parameters for Use in PTV Calculations

Using dose rate parameters reported in the study leads to a more certain PTV than one that is based on estimated values obtained from another source; reported parameters represent direct measurements of the organisms used in the study and thus give a more accurate dose rate.

If dose rate parameters (i.e., body weight, food or water ingestion rate, and inhalation rate) were not provided in the study, they are obtained from other sources, such as

- Wildlife Exposure Factors Handbook (EPA 1993, 059384, Ref ID 0561) and
- Body Weights of 686 North American Birds (Dunning 1984, 089463, Ref ID 0086).

Often, in cases where dose rate parameters are not provided in the primary toxicity study, the body weight is obtained from another source and then the food or water ingestion rate or inhalation rate is allometrically calculated using equations from the Wildlife Exposure Factors Handbook (EPA 1993, 059384, Ref ID 0561) or Recommendations for and Documentation of Biological Values for Use in Risk Assessment (EPA 1988, 089464, Ref ID 0084). The reverse happens occasionally where the food ingestion rate is provided, and the body weight needs to be allometrically calculated. If the dose rate parameters are not in units of kg body weight, kg food/d, kg water/d, or m^3 air/d, the appropriate conversions are made before using the values in the PTV calculation. See Example A-14.

Example A-14 Unit Conversions

For example, converting $\frac{\mu g\ chemical}{mL\ water}$ to $\frac{mg\ chemical}{kg\ water}$ would be as follows:

$$\frac{\mu g\ chemical}{mL\ water} * \frac{1000\ mL\ water}{1 L\ water} * \frac{1 mg\ chemical}{1000\ \mu g\ chemical} * \frac{1 L\ water}{1 kg\ water} = \frac{mg\ chemical}{kg\ water}$$

The following hierarchy for obtaining dose rate parameters is adhered to.

1. Empirical data from the reference being reviewed.
2. Empirical data from *Wildlife Exposure Factors Handbook* (EPA 1993, 059384, Ref ID 0561) or from *Recommendations for and Documentation of Biological Values for Use in Risk Assessment* (EPA 1988, 089464, Ref ID 0084), if available.
3. Empirical data from other references.
4. Allometrically derived values from equations available in the *Wildlife Exposure Factors Handbook* (EPA 1993, 059384, Ref ID 0561) or *Recommendations for and Documentation of Biological Values for Use in Risk Assessment* (EPA 1988, 089464, Ref ID 0084).

A-3.2.4 PTV Calculation for Oral Ingestion via Food (Birds and Mammals)

If the body weight was provided or obtained from another source (and converted to kg, if required), the food ingestion rate was provided in kg food/d or similar, and exposure concentrations were provided and converted to mg chemical/kg food, the following equation is used:

$$PTVi, j = \frac{Ci * FIj}{BWj},$$

Where $PTV_{i,j}$ is the primary toxicity value (mg/kg/d) for chemical i in organism j

C_i is the concentration (mg/kg) of chemical i in food

FI_j is the food intake rate (kg food/d) for organism j

BW_j is the body weight (kg) of organism j

If a body weight was provided and converted to kilograms, and the exposure concentration was provided in terms of mg chemical/organism/d, the following equation is used:

$$PTVi, j = \frac{Cij}{BWj},$$

Where $PTV_{i,j}$ is the primary toxicity value (mg/kg/d) for chemical i in organism j

C_{ij} is the concentration (mg/organism/d) of chemical i in food for organism j

BW_j is the body weight (kg) of organism j

A-3.2.5 PTV Calculation for Oral Ingestion via Drinking Water (Birds and Mammals)

If the body weight was provided or obtained from another source (and converted to kg if required), water ingestion rate was provided in L water/d or similar, and exposure concentrations were provided and converted to mg chemical/L water, the following equation is used:

$$PTVi, j = \frac{Ci * WIj}{BWj} ,$$

Where $PTV_{i,j}$ is the primary toxicity value (mg/kg/d) for chemical i in organism j

C_i is the concentration (mg/L) of chemical i in water

WI_j is the water intake rate (L water/d) for organism j

BW_j is the body weight (kg) of organism j

If a body weight was provided and converted to kilograms, and the exposure concentration was provided in terms of mg/organism/d, the following equation is used:

$$PTVi, j = \frac{Cij}{BWj} ,$$

Where $PTV_{i,j}$ is the primary toxicity value (mg/kg/d) for chemical i in organism j

C_{ij} is the concentration (mg/organism/d) of chemical i in food for organism j

BW_j is the body weight (kg) of organism j

As explained previously, in the Dose Rate Parameters subsection of section A-2.1.3, Experiment Information, a heavier body weight leads to a more conservative PTV. Assuming the concentration and food ingestion rate remain the same, a heavier body weight leads to a lower PTV, which is more protective of possible effects produced by the exposure concentration to the organism of concern. Likewise, assuming the concentration and body weight remain the same, a lower food or water ingestion rate produces a lower PTV. Therefore, when presented with more than one option for the dose rate parameters, the value that leads to a more conservative PTV is usually chosen in order to be over-conservative rather than under-conservative.

A-3.2.6 PTV Calculation for Continuous and Intermittent Air Exposure via Inhalation (Mammals)

A continuous inhalation exposure indicates that the test organism was exposed to air containing chemical vapors for 24 h/d, 7 d/wk, for the duration of the chemical administration period. In an intermittent inhalation exposure study, the organism is exposed to air containing chemical vapors for a set amount of time each day or during a certain number of days per week. Because of the differences in the exposure frequency between continuous and intermittent exposures, and therefore the different amounts of chemical the organisms receive over similar chemical administration periods, the actual amount of time exposed to the chemical over the total length of the study must be determined for intermittent studies to determine the actual dose rate.

For both continuous and intermittent studies, the general equation used to calculate a PTV for continuous or intermittent inhalation exposure is as follows:

$$PTVi,j = \frac{Ci * IRj}{BWj} * T_f ,$$

Where $PTV_{i,j}$ is the primary toxicity value (mg/kg/d) for chemical i in organism j

C_i is the concentration (mg/m^3) of chemical i in air

IR_j is the inhalation rate (m^3/d) for organism j

BW_j is the body weight (kg) of organism j

T_f is the fraction of time organism j was exposed

Two parameters in this equation must be converted to the units necessary to derive the PTV before the PTV is calculated. The first is the concentration; it often needs to be converted from ppm to mg/m^3. The second parameter is the inhalation rate; if it is not provided in the paper, it is obtained from another source or calculated using an allometric equation, usually from EPA (1993, 059384, Ref ID 0561; 1988, 089464, Ref ID 0084), and the body weight, whether it is one reported from the study or obtained from another source. One additional parameter needs to be determined for intermittent studies: the fraction of time. In continuous studies, the fraction of time equals 1.

Converting Concentration from ppm to mg/m^3

The conversion of a concentration in ppm to mg/m^3 is conveyed by the following equation:

$$Conc\ (mg/m^3) = ppm(v) * \frac{MW}{24.45}$$

Where Conc (mg/m^3) is the concentration of the chemical in mg/m^3

ppm(v) is the concentration of the chemical administered in the study, by volume

MW is the molecular weight of the chemical in grams

24.45 is the constant molar volume at standard temperature and pressure

The gram molecular weight for the chemical of concern is obtained from the ChemBioFinder.Com website (http://chemfinder.cambridgesoft.com) or any other appropriate source containing chemical property information. The value in grams is then multiplied by 1000 to achieve the amount in milligrams, and this value is then used with the units of mg/m^3 in the PTV calculation along with an inhalation rate either provided in the study or obtained from another source. Often, the inhalation rate is calculated using an allometric equation from EPA (1993, 059384, Ref ID 0561) and a body weight that was provided in the study or obtained elsewhere.

Determining the Inhalation Rate

Unless already provided in the paper, the inhalation rate for a mammal is obtained from another source if the information supporting it closely matches the information for the test organism of concern (e.g., similar organism type, body weight of organism, and age/life stage of organism). Otherwise, the inhalation rate is usually derived using allometric equations from EPA (1993, 059384, Ref ID 0561, which cites Stahl 1967, 063119, Ref ID 1522), dependent on whether the body weight is presented in grams or kilograms:

$$IR = 0.002173(BW^{0.80}),$$

Where IR is the inhalation rate in m^3/d

BW is body weight in grams

OR

$$IR = 0.5458(BW^{0.80}),$$

Where IR is the inhalation rate in m^3/d

BW is body weight in kilograms

Determining the Fraction of Time for One-Phase Intermittent Inhalation Exposure Scenarios

After the concentrations are converted from units of ppm to mg/m^3, the actual exposure period is determined as a percentage of the chemical administration period and used as the fraction of time the test organisms are exposed to vapors. Often, in intermittent inhalation toxicity studies, the chemical administration regimen is presented as a rate of number of hours per day and number of days per week. To determine the fraction of time, these numbers must be converted into one total number, in days, to represent the total amount of time the test organisms were actually exposed to the chemical in air. This total number represents the actual exposure period and is divided by the chemical administration period, which should also be converted to days. The following equation is used:

$$T_f = \frac{H * D * W / 24}{Pd},$$

Where T_f is the fraction of time (unitless)

H is the number of hours per day

D is the number of days per week

W is the number of weeks in the chemical administration period

Pd is the chemical administration period, in days

See Example A-15.

Example A-15 PTV Calculation for a One-Phase Intermittent Inhalation Exposure

In Goldberg et al. (1964, 089460, Ref ID 1348), rats were exposed to 300 ppm trichloroethene at a rate of 4 h/d, 5 d/wk, for 5 wk.

Step 1: Converting ppm to mg/m^3:

$$mg/m^3 = 300\text{ ppm} * \frac{131.3824}{24.45} = 1600$$

Step 2: Determining the fraction of time:

$$T_f = \frac{(4\text{ h/d} * 5\text{ d/wk} * 5\text{ wk})/24\text{ h/d}}{35\text{ d}} = 0.1190\ .$$

Step 3: Determining daily inhalation rate of test organism:

The higher end of the body weight range of the rats at the beginning of the study (450 g) was used in an allometric equation for all mammals (EPA 1993, 059384, Ref ID 0561) to determine the daily inhalation rate for rats (0.29 m^3/d).

$$IR = 0.002173(Wt^{0.80}) = 0.002173(450^{0.80}) = 0.29\ m^3/d.$$

Step 4: Calculating the PTV:

$$PTV = \frac{1600\text{ mg/m}^3 * 0.29\text{ m}^3\text{/d}}{0.45\text{ kg}} * 0.1190 = 122.7\text{ mg/kg/d}$$

The PTV is rounded to 120 mg/kg/d.

Determining the Fraction of Time for Two-Phase Intermittent Exposure Scenarios

In studies where the same group of organisms is exposed to the same exposure concentration of the same chemical in two different exposure regimens (e.g., 4 h/d, 5 d/wk for the first 2 wk, and then 6 h/d, 7 d/wk in the last 5 wk), the actual exposure period for each exposure scenario is determined separately, and then the exposure periods are added together before determining the fraction of the chemical administration period they represent. See Example A-16.

Example A-16 PTV Calculation for a Two-Phase Intermittent Inhalation Exposure in which the Exposure Frequency is Different from One Phase to the Next

In York et al. (1982, 089462, Ref ID 1359), female rats were exposed to 2100 ppm 1,1,1-trichloroethane at a rate of 6 h/d, 5 d/wk during the first 2 wk (including premating and mating periods), and then for 6 h/d, 7 d/wk from day 1 to 20 of gestation.

Step 1: Converting ppm to mg/m^3:

$$mg/m^3 = 2100 \text{ ppm} * \frac{133.4033}{24.45} g = 11500$$

Step 2: Determining the fraction of time:

$$T_f = \frac{((6 \text{ h/d} * 5 \text{ d/wk} * 2 \text{ wk}) + (6 \text{ h/d} * 7 \text{ d/wk} * 20 \text{ d}/7 \text{ d/wk}))/24 \text{ h/d}}{34 \text{ d}} = 0.2206$$

Step 3: Determining daily inhalation rate of test organism:

The average body weight range of the control rats and rats in the treatment group before exposure was 252.6 g. This body weight is used in an allometric equation to derive an inhalation rate.

$IR = 0.002173(Wt^{0.80}) = 0.002173(252.6^{0.80}) = 0.18 \text{ m}^3/\text{d}$.

Step 4: Calculating the PTV:

$$PTV = \frac{11500 \text{ mg/m}^3 * 0.18 \text{ m}^3/\text{d}}{0.2526 \text{ kg}} * 0.2206 = 8194.77 \text{ mg/kg/d}$$

The PTV is rounded to 8200 mg/kg/d.

In studies where the same group of organisms is exposed to two different exposure concentrations under the same exposure conditions (e.g., inhalation of 2000 ppm for the first week and then 500 ppm in the remaining 3 wk), the steps are as follows:

1. The actual exposure period, in days, for each concentration is determined separately.
2. Each concentration of the chemical is converted from ppm to mg/m^3, if needed.
3. Each concentration of the chemical in mg/m^3 is multiplied by the daily inhalation rate (obtained from reference or calculated allometrically using body weight) and the actual exposure period associated with that concentration to determine the amount of chemical received by the test organism from each exposure concentration.
4. The amounts of chemical from each exposure concentration are added to determine the total amount of chemical received by the test organism throughout the entire chemical administration period.
5. The PTV is calculated by dividing this total amount of chemical by body weight in kilograms and by the total number of days in the chemical administration period.

See Example A-17 for a two-phase intermittent study in which concentrations differ from one phase to the next.

Example A-17 PTV Calculation for a Two-Phase Intermittent Inhalation Exposure in which the Exposure Concentration is Different from One Phase to the Next

In Quast et al. (1986, 109942, Ref ID 1360), male and female rats were exposed to 35.8 ppm 1,1-dichloroethene at a rate of 6 h/d, 5 d/wk, during the first 6 wk, then to 72.6 ppm at the same rate for the remaining 66 wk of the 72-wk exposure period.

Step 1a: Determining actual exposure period (in days) for the 35.8-ppm dose regimen:

$$Pd = \frac{6\ h/d * 5\ d/wk * 6\ wk}{24\ h/d} = 7.5\ d$$

Step 1b: Determining actual exposure period (in days) for the 72.6-ppm dose regimen:

$$Pd = \frac{6\ h/d * 5\ d/wk * 66\ wk}{24\ h/d} = 82.5\ d$$

Step 2a: Converting ppm to mg/m^3 for the 35.8-ppm dose regimen:

$$mg/m^3 = 35.8\ ppm * \frac{96.9427\ g}{24.45} = 140$$

Step 2b: Converting ppm to mg/m^3 for the 72.6-ppm dose regimen:

$$mg/m^3 = 72.6\ ppm * \frac{96.9427\ g}{24.45} = 290$$

Step 3: Determining daily inhalation rate of test organism:

The average body weight range of 10 male control rats throughout 24 mo of the study was 542.2 g. This average body weight is used in an allometric equation to derive an inhalation rate.

$IR = 0.002173(Wt^{0.80}) = 0.002173(542.2^{0.80}) = 0.33\ m^3/d$.

Step 4a: Determining the amount of chemical received by the rats during the first 6 wk (35.8-ppm dose regimen) using the concentration in mg/m^3, daily inhalation rate, and actual exposure period.

$140\ mg/m^3 * 0.33\ m^3/d * 7.5\ d = 346.5\ mg$

Step 4b: Determining the amount of chemical received by the rats during the last 66 wk (72.6 ppm dose regimen) using the concentration in mg/m^3, daily inhalation rate, and actual exposure period.

Step 5: Calculating the total amount of chemical received by the rats during the entire exposure period:

346.5 mg + 7895 mg = 8242 mg

Step 6: Calculating the PTV by dividing the total amount of chemical by body weight (0.5422 kg) and by the total number of days in the chemical administration period (72 wk, or 504 d).

PTV = 8242 mg/ 0.5422 kg/504 d = 30 mg/kg/d.

A-3.2.7 Significant Digits and Rounding Procedure

The rules for significant digits in computations are generally followed in the PTV calculations. In multiplication and division, the product or quotient contains as many significant digits as the number in the operation with the least number of significant digits. In addition and subtraction, the sum or difference is no more precise than the least precise number involved in the operation. When it comes to rounding off nonessential digits, if the last reported digit was followed by a number less than 5, the reported digit is kept as is. If it was followed by a number greater than 5, it is rounded up. Finally, if the last reported digit was followed by a 5, and that 5 is in turn followed by no other digits or zeroes, then the last reported digit is kept as is. On the other hand, if the 5 is followed by an odd number, the reported digit is rounded up one, and if the 5 is followed by an even number, the reported digit is left as is. Sometimes, significant digit rules are difficult to apply because although numbers are reported, they are often not reported in scientific format. It is difficult to tell whether a zero is significant or not in a number such as 2500. In such situations where the use of significant digits becomes vague, best professional judgment is used. The number is often rounded to a minimum of two significant digits. For example, 1247 is rounded to 1200 and 1.464 is rounded to 1.5.

In inhalation exposure studies, when the concentration in ppm is used to calculate V_analyte, all numbers resulting in the V_analyte value are then used in the conversion of ppm to mg/m^3 (e.g., 3800 ppm leads to 3.8 L, which is used in calculation of mg). Furthermore, when rounding grams to milligrams, two integers are used (e.g., 15.37 to 15 or 1.611 to 1.6) so that the mg/m^3 value then has two foremost numbers followed by zeroes (e.g., 1600 or 15000). Two decimal places are used for the inhalation rate (e.g., 0.29 m^3/d). Four decimal places are usually used in the formula weights (e.g., 131.3842 g/mol) and the fraction of time (e.g., 0.2917). The PTV is then rounded to two significant digits (e.g., 122.7 to 120).

The general guideline is to be consistent in the application of significant digit rules where possible, followed by consistent rounding procedures. After the rules for significant digits and rounding procedures are applied, the number that is entered into the PTV field is automatically rendered to scientific notation with two decimal points. This does not denote three significant digits but is rather a truncated way of reporting the values.

A-3.2.8 PTV Confidence Rating Guidelines

The abundance or lack of information provided by the study associated with a PTV is reflected in the scoring of Part 2, and these scores are then weighted according to the ability of each criterion to influence the magnitude of the TRV and the uncertainty associated with it. The following is a list of multipliers and the situations in which they are applied.

1 There is little to no influence on the TRV. Most studies have already been eliminated based on nonfulfillment of these fields (e.g., a bird study is not going to be used for a mammal study).

2 There is more influence on the TRV as to deciding whether or not to keep the PTV in the TRV data set, but little influence on the actual TRV.

3 There is a medium influence on the TRV. This weighting scheme can also be used for criteria in which TRVs are defined (e.g., oral in diet or drinking water) or it can be used for those areas where if data are not provided, other means by the reviewer can be employed (e.g., statistics).

4 There is a medium-high influence on the TRV. If the original score is low, this leads to more uncertainty. This weighting scheme is also used for those criteria defining TRVs (e.g., reproduction/development, chronic, NOAEL or NOEC).

5 There is a high influence on the TRV where a low original score leads to the most uncertainty and greatest difference in TRVs compared to those criteria derived from extra detail provided in the study (e.g., chronic vs. acute).

Table A-10 illustrates each criterion, its multiplier, and the justification for use of that multiplier.

Table A-10
Weighting Schemes for Criteria in Part 2 of the Data-Entry Database

Field that is Scored	Multiplier	Justification
Study Design and Documentation Score		
Control group included	3	While controls are needed for a stronger assessment of effect levels, unbounded NOAELs/NOECs or LOAELs/LOECs (i.e., NOAELs/NOECs without accompanying LOAELs/LOECs or vice versa) can also be derived. Therefore, the magnitude of the influence on the TRV is medium; that is, the TRV is not solely reliant on controls being available.
Multiple exposure groups	3	While multiple exposure groups are needed for a stronger assessment of effect levels, unbounded NOAELs/NOECs and LOAELs/LOECs can also be derived. Therefore, the magnitude of the influence on the TRV is medium; that is, the TRV is not solely reliant on there being more than one exposure group.
Test organism details	1	There is little influence of test organism details on the TRV. The details help to gauge the rigorousness of the study.
Dose rate parameters	4	Those parameters that are specifically related to the organism and study at hand are best suited for deriving the PTV. Parameters can also be obtained elsewhere but their use increases uncertainty, although the difference in the TRV vs. a TRV that would be derived from the use of study-specific dose rate parameters is small.
Exposure dose concentration	3	Measured concentrations in dry weight are preferred. However, if the information is not reported, nominal concentrations based on dry weight are assumed and can result in overly conservative TRVs. Also, uncertainty may be introduced if the moisture basis is in wet weight and conversion to dry weight is needed. If the moisture basis is not reported in the study, a surrogate value must be used. The TRV is not solely reliant on moisture basis; therefore, a medium degree of influence is given.
Statistics	3	Statistics provided in the study are preferred and lead to determination of dose-response trends and assignment of effect levels. However, if not provided, data may be analyzed by the reviewer. The influence on the TRV receives medium weight because of this and because if no statistics or data are provided, the assignment of an effect level is more difficult.
Test Organism Score		
Taxonomic relationship of test organism	2	Less weight is afforded for the taxonomic relationship of test organisms because studies that are not related to a screening receptor by at least the class level are not evaluated. However, more certainty results when the test organism is more closely related to screening receptor.
Basis for use of test organism	1	There is little influence of the authors' basis for the test organism on the TRV. This detail helps in consideration if the study is more attuned to the test organism itself rather than as a model for human exposure or other types of organisms.

Table A-10 (continued)

Field that is Scored	Multiplier	Justification
Exposure Conditions Score		
Test environment	1	There is little influence of the test environment on the TRV because only those studies with appropriate experimental conditions are evaluated in the PTSE. This detail helps gauge the degree of control in a study (laboratory vs. field). Uncontrolled studies are usually eliminated up front.
Test exposure medium similar to food	3	There is little influence of the test exposure medium similar to food on the value of the TRV because the exposure medium in the studies selected for oral exposures is bound to be similar or related to one of the exposure media present here. However, the test exposure medium is one of the more critical parameters evaluated in the study with respect to determining ecological relevance of the experimental conditions.
Test exposure medium similar to drinking water	3	There is little influence of the test exposure medium similar to drinking water on the value of the TRV because the exposure medium in the studies selected for oral exposures is bound to be similar or related to one of the exposure media present here. However, the test exposure medium is one of the more critical parameters evaluated in the study with respect to determining ecological relevance of the experimental conditions.
Test exposure medium similar to soil	3	There is little influence of the test exposure medium similar to soil on the value of the TRV because the exposure medium in the studies selected for oral uptake and dermal exposures or root and/or seed coat uptake is bound to be similar or related to one of the exposure media present here. However, the test exposure medium is one of the more critical parameters evaluated in the study with respect to determining ecological relevance of the experimental conditions.
Chemical interactions	2	Chemical interactions do not influence the value of the TRV much because any study that has chemical interaction is automatically eliminated from the data set before Part 1 is started. If other influences are present, they are likely to be of natural conditions.
Test exposure route	3	There is little influence of the test exposure route on the value of the TRV. However, the test exposure medium is one of the more critical parameters evaluated in the study with respect to determining ecological relevance of the experimental conditions.
Test period and chemical administration period	5	The influence of the test and chemical administration periods on the TRV is high because the assignment of chronic vs. subchronic vs. acute leads to application of UFs, which are the leading factor in TRV differences.
Critical life stage	4	The influence of the critical life stage on the TRV is high because the assignment of chronic to subchronic or acute studies leads to elimination of the use of UFs, which are the leading factor in TRV differences.
Test exposure frequency	2	The value of the TRV is influenced slightly by accounting for actual exposure time in the daily dose rate in intermittent exposure regimens.
Measurement(s) and Result(s)		
Focus measurement category	4	The focus measurement category may not influence TRVs as much because studies with “other” endpoints are eliminated before TRV consideration. However, the type of endpoint is a strong consideration with reproduction/development being the preferred endpoint, followed by survival, and then growth. High weight is given because a wider spread of the score results in clearer distinction between these endpoints.
Measurement length	1	The TRV is influenced slightly by the consideration of whether or not the measurement actually reflects the entire exposure period.

Table A-10 (continued)

Field that is Scored	Multiplier	Justification
Effect level category	5	Effect level category receives the highest weight because assignment of NOAEL/NOEC vs. LOAEL/LOEC vs. other effect level leads to the application of UFs, which are the leading factor in TRV differences.

The percent maximum score is achieved by dividing the weighted score of the study by the maximum weighted score possible for the type of study (bird or mammal oral ingestion study, mammal inhalation study, or earthworm or plant study). Bird and mammal oral ingestion studies will have a higher maximum score because the test exposure medium similar to food or drinking water category is not scored in mammal inhalation studies, whereas only the test exposure medium similar to soil is used in plant and invertebrate studies. The percent maximum score determines whether the PTV is assigned a low, medium, or high confidence according to Table A-11.

Table A-11
Percent Maximum Scores and Confidence Ratings

Confidence Rating	Percent of Maximum Total Weighted Score (%MTWS)*
High	%MTWS≥76%
Medium	51%≤%MTWS<76%
Low	26%≤%MTWS<51%
Unacceptable	%MTWS<26%

* Percent of maximum total weighted score (%MTWS) = (total score/maximum weighted score for appropriate receptor)*100.

A-4.0 PTSE PART 3, TOXICITY REFERENCE VALUE DEVELOPMENT

A PTSE Part 3 is used to develop a TRV following the completion of the PTSE Part 1 and Part 2 for all references in the data set for a particular screening receptor group (i.e., bird, invertebrate, mammal, plant), chemical, and exposure route scenario of concern. Either a GMM or CS TRV can be developed; a GMM TRV is preferred. The determination of which TRV is developed is dependent on the characteristics of the data set under consideration. Furthermore, if a GMM TRV is developed but not deemed to be appropriate for protection of ecologically relevant endpoints in the data set or of sensitive species, a subset GMM TRV can be calculated where a portion of the original GMM TRV is used to calculate a new GMM TRV. If a subset GMM TRV cannot be calculated or is still not considered protective enough, a LANL CS TRV is developed. However, the GMM TRV and subset GMM TRVs that were calculated but not used in ESL models (or were replaced with a more preferred TRV in ESL models) are still kept on record in the ECORISK Database to allow risk assessors, risk managers, and regulators to assess for themselves the appropriateness of the values, if needed. Furthermore, keeping these unused values in the database also tracks the history of TRV development and why these values were replaced or not used. Details for the Part 3 process for GMM and CS TRVs are presented below, starting with section A-4.1.

A-4.1 Creation of the GMM TRV Data Set

A geometric mean is used instead of an arithmetic mean because it better represents the central tendency of toxicological data sets that tend to be skewed. Selecting the geometric mean as a representative effect level limits the influence of valid data points that are far removed from the general cluster of data points. The ideal GMM TRV for screening-level ecological risk assessments is one that is based on a data set representing the most ecologically relevant endpoints (i.e., reproduction/development), exposure routes (i.e., oral ingestion via food or drinking water in birds or mammals, inhalation in mammals, uptake via seed coat and/or roots in plants, or oral and dermal contact in invertebrates), exposure media (i.e., food or drinking water in birds and mammals, air for mammals, or soil for plants and invertebrates), exposure period (chronic), and effect levels (NOAEL for birds and mammals or NOEC for plants and invertebrates). A GMM TRV based on these characteristics is protective of wildlife, plant, or invertebrate populations because it represents a central tendency of the no adverse effect levels for ecologically relevant effects (i.e., adverse effects on ability of individuals to develop into viable organisms, search for mates, breed successfully, and produce live and equally viable offspring).

The data set for the GMM TRV is developed by including only ecologically relevant records for the receptor group, chemical, and exposure route scenario of concern (e.g., Aroclor-1260 in mammals for food ingestion). PTVs derived from PTSE Part 2 are included in the data set only if they are associated with exposure conditions similar to that of the exposure environment of concern. To create this data set of ecologically relevant PTVs, the PTVs must be evaluated against a set of exclusion criteria, and if they meet any of the criteria, they are excluded from the data set. The three categories of exclusion criteria are (1) exposure conditions, (2) measured endpoints, and (3) repetitive values. All are described below. After the exclusion criteria have been applied and the final GMM TRV data set has been created, there must be three or more PTVs available for a GMM TRV to be developed. If less than three PTVs exist, a CS TRV is developed instead (see section A-4.2). Before the calculation of the GMM TRV, the PTVs are extrapolated to chronic NOAEL- or NOEC-based effect levels. The GMM TRV and its data set are then graphed, and details are documented in the PTSE Part 3 data-entry database for later incorporation into the most current version of the ECORISK Database.

A-4.1.1 Exclusion Criteria for Study Exposure Conditions

The PTVs included in the GMM TRV data set for the receptor group, chemical, and exposure route scenario of concern (e.g., Aroclor-1260 in mammals for food ingestion) are those associated with ecologically relevant studies (experiments). An ecologically relevant study is a study that uses exposure conditions and measured endpoints that are considered to be predictive of population level effects in a real world ecosystem. Table A-12 lists the exclusion criteria for exposure conditions used in a study. First, each study is evaluated against the exposure conditions exclusion criteria, and if one of the exclusion criteria is met, any PTVs associated with this study are excluded from the GMM TRV data set. If the exclusion criteria for exposure conditions are not met, then the endpoints measured in the study are evaluated against the measured endpoint exclusion criteria described in the next section.

Table A-12
Exclusion Criteria for Exposure Conditions Used in a Study

Organism Group	TRV Type	Exposure Condition	Exclusion Criteria
Bird or mammal	Food	Exposure medium	Drinking water
			Aqueous solution
			Unknown
		Exposure route	Injections
			Unknown
	Drinking water	Exposure medium	Food
			Peanut oil
			Corn oil
			Other types of oil or oil mixtures
		Exposure route	Injections
Invertebrate	Soil	Exposure medium	Manure
			Soil and manure
			Unknown
		Exposure route	Filter paper
		Soil property	OM greater than 10% or not reported
Plant	Soil	Exposure medium	Nutrient or aqueous solution
		Exposure route	Filter paper
		Soil property	OM greater than 10% or not reported

A-4.1.2 Exclusion Criteria for Endpoints Measured in a Study

For all organism groups, the endpoints excluded are those that do not fall into the reproduction/development, survival, adult weight change, or adult size change categories. Examples of these endpoints are

- tumors,
- histopathology,
- nonreproductive organ toxicity,
- biochemistry,
- hematology,
- serum chemistry, and
- nonreproductive behavior.

If one of the measured endpoint exclusion criteria is met, the PTV associated with the measured endpoint is excluded from the GMM TRV data set. If the exclusion criteria for measured endpoints are not met, then the measured endpoints for each study are evaluated against the repetitive values exclusion criteria described in the next section.

A-4.1.3 Exclusion Criteria for Repetitive Values

An exclusion procedure is performed to remove repetitive endpoints within a study, which entails making sure that there is only one PTV per ecologically relevant endpoint category (reproduction/development, survival, and adult weight or size changes) per study. Best professional judgment is used to select the most ecologically relevant and/or sensitive PTV per ecologically relevant endpoint category per study. For example, if one experiment had three reproduction/development endpoints, one survival endpoint, and one adult weight change endpoint, the most ecologically relevant and/or sensitive reproduction/development endpoint of the three available would be included in the GMM TRV data set along with the single survival and single weight change endpoints. This exclusion process minimizes the possibility of a GMM TRV being skewed to the results of any particular study as a result of repetitive values for the same endpoint category within a study. Those PTVs whose measured endpoints do not meet the repetitive values exclusion criteria are included in the GMM TRV data set.

A-4.1.4 Deriving Chronic NOAEL- or NOEC-Based Effect Levels

After the exclusion criteria have been applied, the GMM TRV data set now contains a variety of original effect levels (PTVs) derived from the PTSE process ranging from chronic NOAEL/NOEC or LOAEL/LOEC pairs to acute, other effect levels such as LC_{50}s or EC_{20}s. Effect levels other than chronic NOAELs/NOECs must first be extrapolated to chronic NOAEL- or NOEC-based effect levels before the calculation of the GMM TRV can take place. If the PTV is an acute or subchronic NOAEL/NOEC, it is extrapolated to a chronic NOAEL- or NOEC-based effect level with the application of a UF. If the PTV is a LOAEL/LOEC or other effect level (LC_{50}), it is first extrapolated to a NOAEL with the application of a UF, and then it is extrapolated to chronic exposure duration if needed. See Table A-13 for a description of UFs.

Table A-13
Uncertainty Factors Applied to Derive
Chronic NOAEL- or NOEC-Based Effect Levels

Type of Effect Level Available	UF Applied to Derive a TRV that is a Chronic NOAEL- or NOEC-Based Effect Level
C-CL or chronic NOAEL/NOEC	1
C-CL or chronic LOAEL/LOEC	10
C-CL or chronic LD_{50}/LC_{50}	100
C-CL or chronic ED_{50}/EC_{50}	100
Subchronic NOAEL/NOEC	10
Subchronic LOAEL/LOEC	100
Subchronic LD_{50}/LC_{50}	100
Subchronic ED_{50}/EC_{50}	100
Acute or single-dose NOAEL/NOEC	100
Acute or single-dose LOAEL/LOEC	100
Acute or single-dose LD_{50}/LC_{50}	100
Acute or single-dose ED_{50}/EC_{50}	100

A-4.1.5 Deriving Chronic LOAEL- or LOEC-Based Effect Levels

If a chronic LOAEL/LOEC effect level does not already exist for an endpoint from a particular study, a LOAEL- or LOEC-based effect level is approximated from an effect level (NOAEL, NOEC, LC_{xx}, LD_{xx}, EC_{xx}, or ED_{xx}). If the effect level is an acute or subchronic LOAEL/LOEC, a UF of 100 or 10 is applied to extrapolate to a chronic LOAEL/LOEC. On the other hand, if the effect level is a chronic NOAEL/NOEC or chronic NOAEL- or NOEC-based effect level extrapolated from an acute or subchronic NOAEL/NOEC, a test organism–specific LOAEL/LOEC or NOAEL/NOEC factor must be applied to derive a LOAEL- or LOEC-based effect level. Based on Dourson and Stara (1983, 073474, Ref ID 1379), 96% of the ratios between NOAELs and LOAELs for mammals in oral ingestion experiments have values of 5 or less (Dourson and Stara [1983, 073474, Ref ID 1379, p. 232 and Figure 4]). However, because these data are only applicable to oral ingestion exposure in mammals, ratios for the remaining exposure pathways (oral ingestion in birds, oral ingestion and dermal contact in earthworms, uptake via seed coats and/or roots in plants, and inhalation in mammals) were determined from NOAEL/NOEC or LOAEL/LOEC pairs specific to each of the exposure pathways. The data used to develop the ratios are from the ECORISK Database. The smallest and largest ratios developed for each exposure pathway were used to approximate a minimum and maximum LOAEL- or LOEC-based effect level to bracket a range of concentrations at which the adverse effects may first be observed. Figure A-1 offers a step-by-step process for determining how to derive the LOAEL- or LOEC-based effect levels.

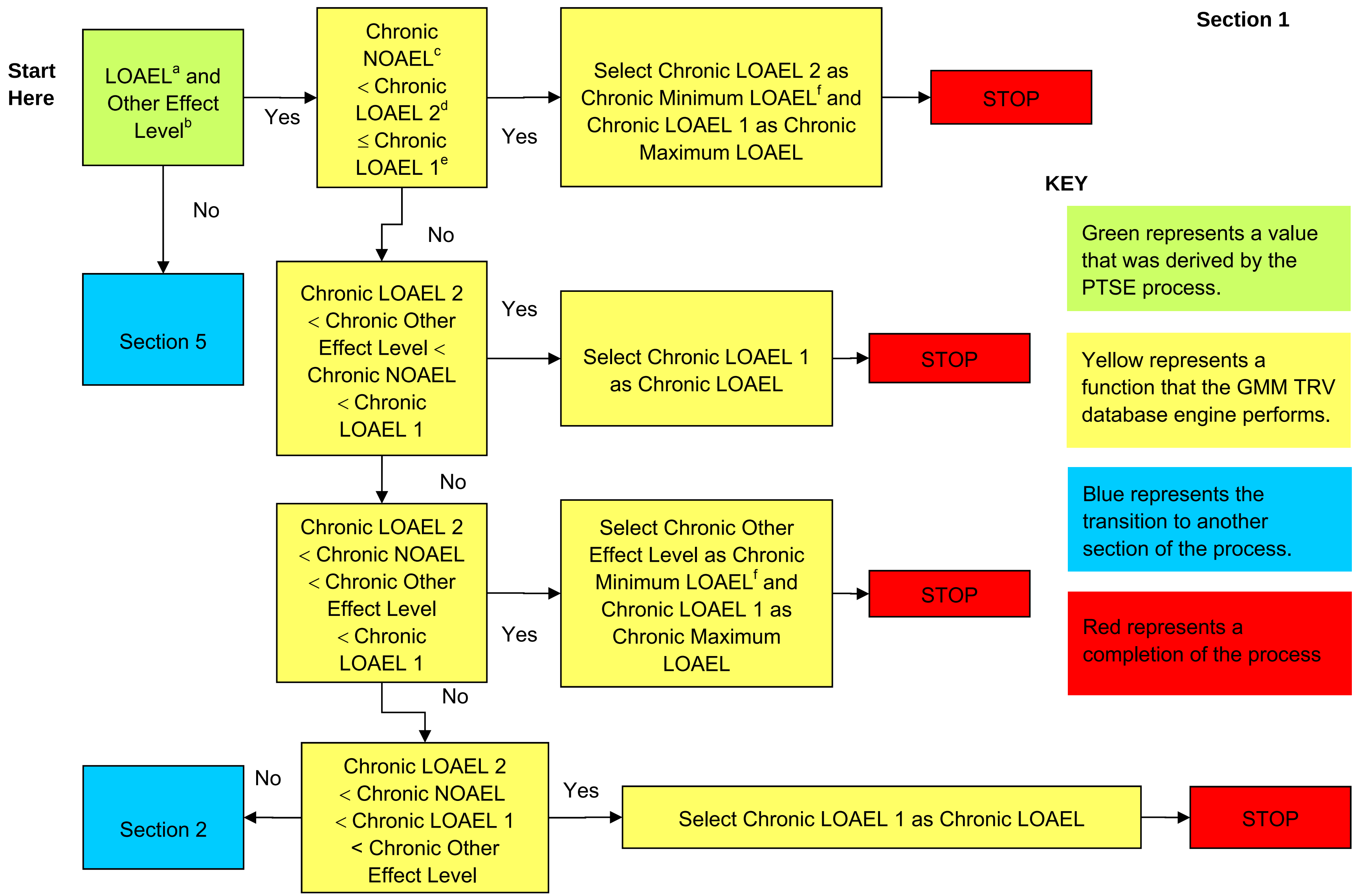

Figure A-1 Process for selecting the chronic LOAEL- or LOEC-based effect level for each endpoint in the GMM TRV data set

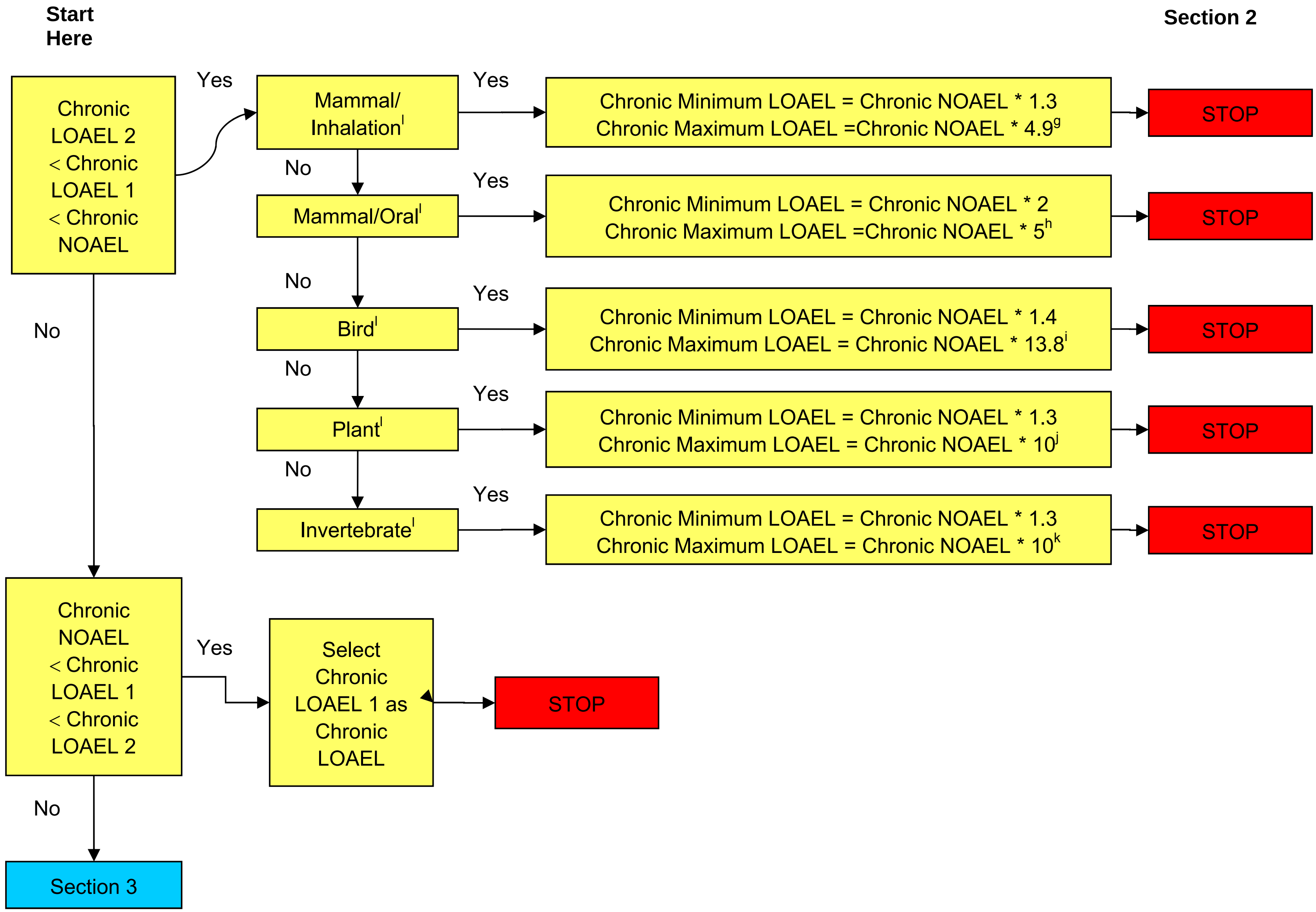

Figure A-1 (continued) **Process for selecting the chronic LOAEL- or LOEC-based effect level for each endpoint in the GMM TRV data set**

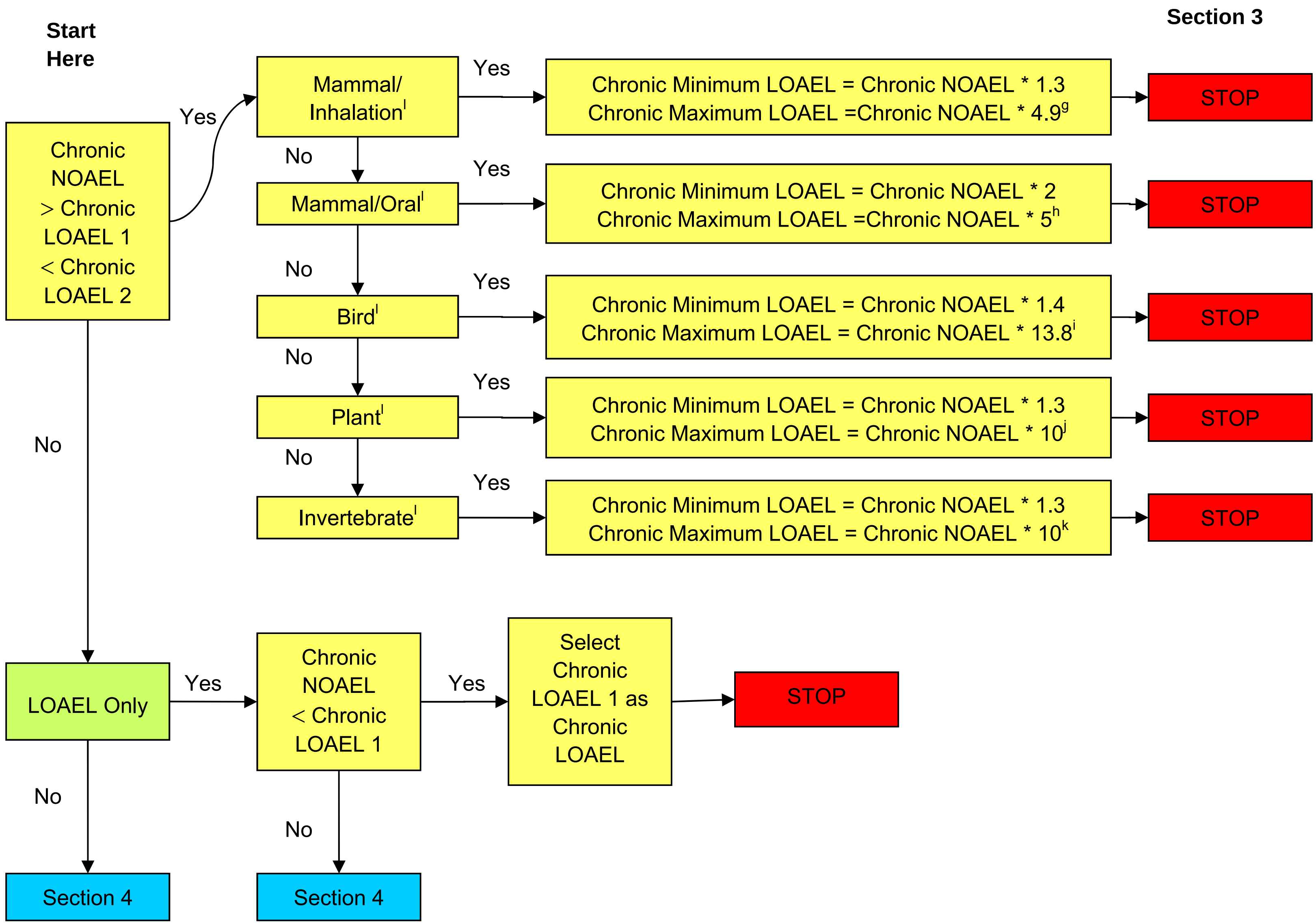

Figure A-1 (continued) Process for selecting the chronic LOAEL- or LOEC-based effect level for each endpoint in the GMM TRV data set

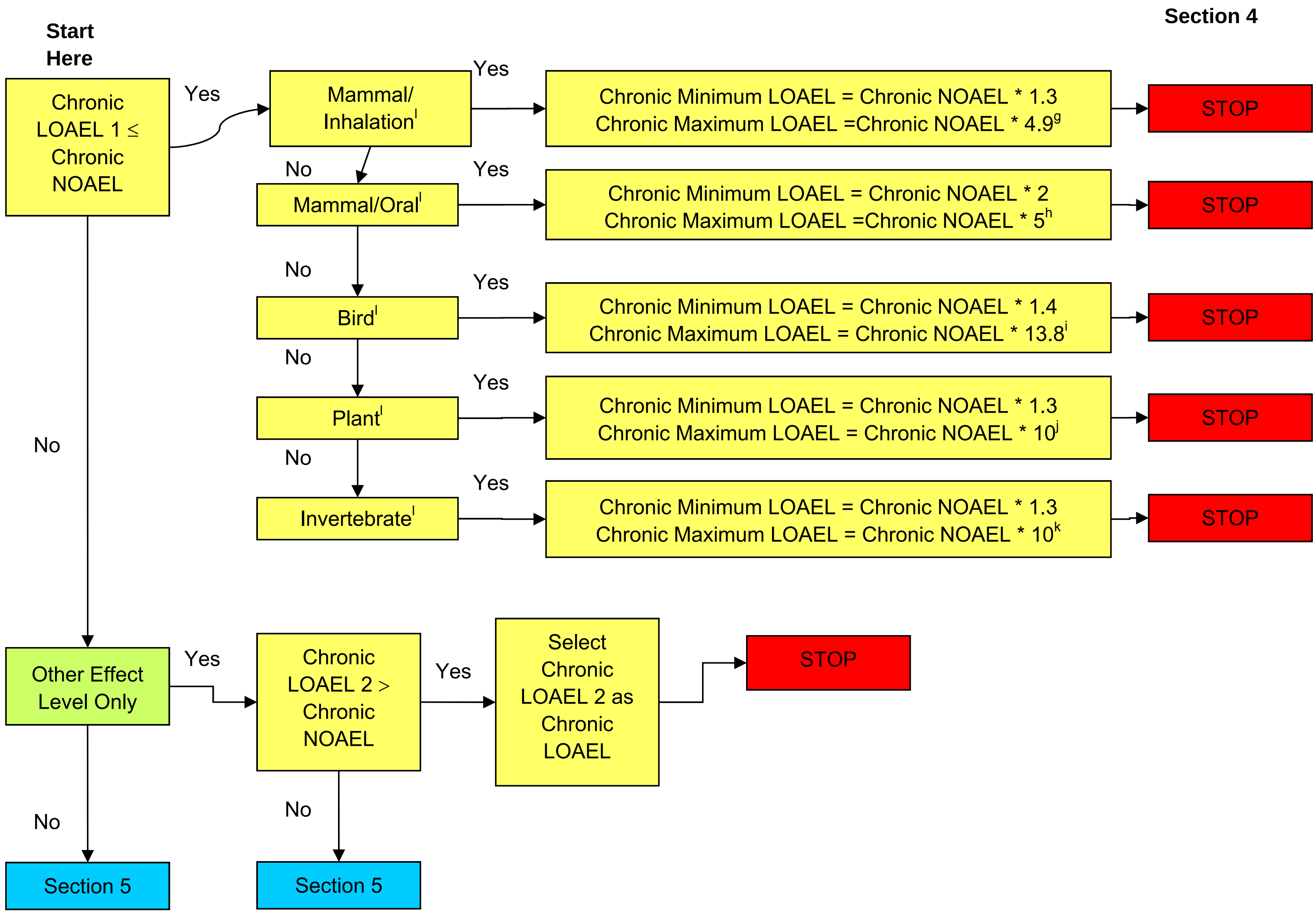

Figure A-1 (continued) Process for selecting the chronic LOAEL- or LOEC-based effect level for each endpoint in the GMM TRV data set

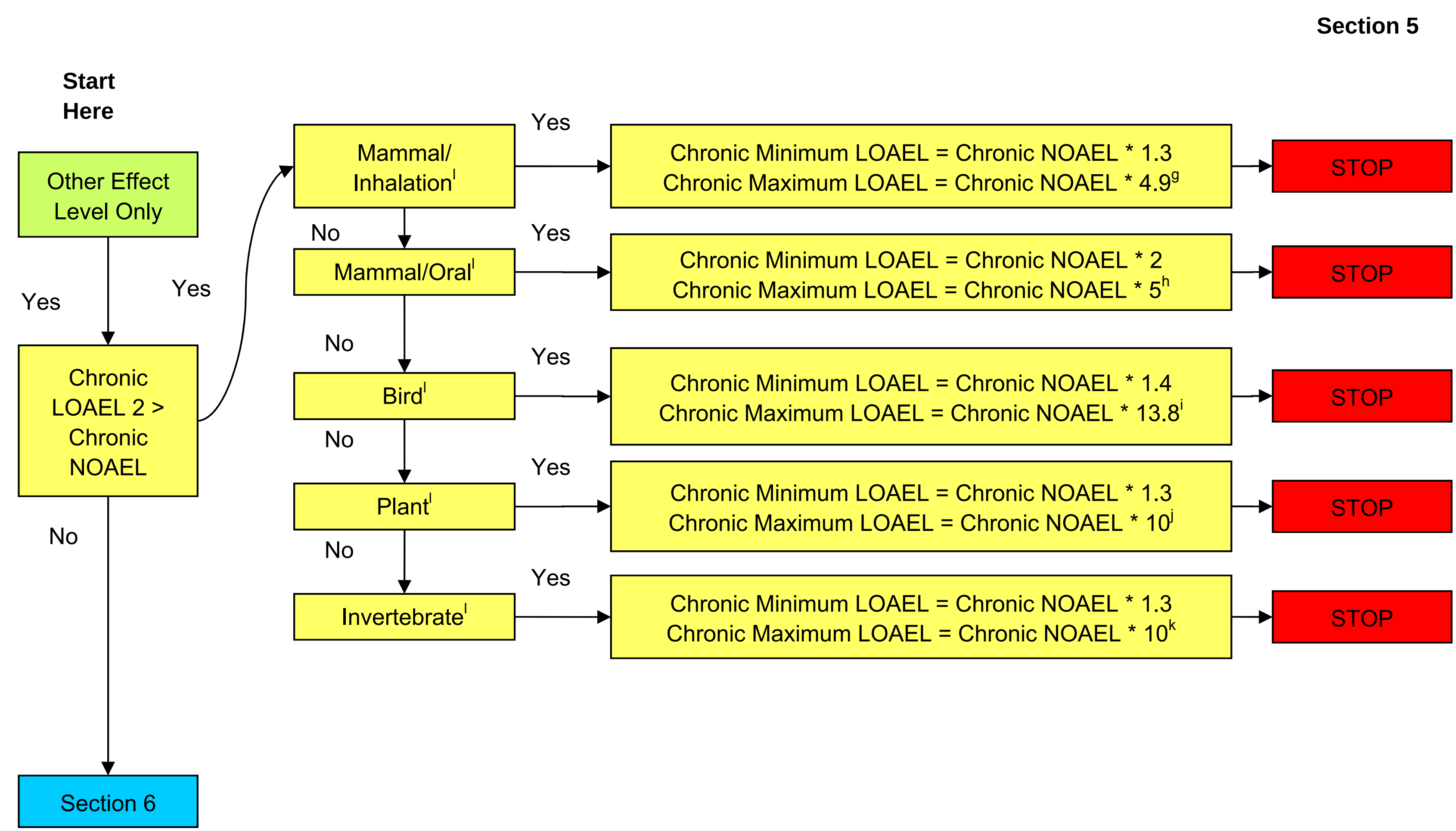

Figure A-1 (continued) Process for selecting the chronic LOAEL- or LOEC-based effect level for each endpoint in the GMM TRV data set

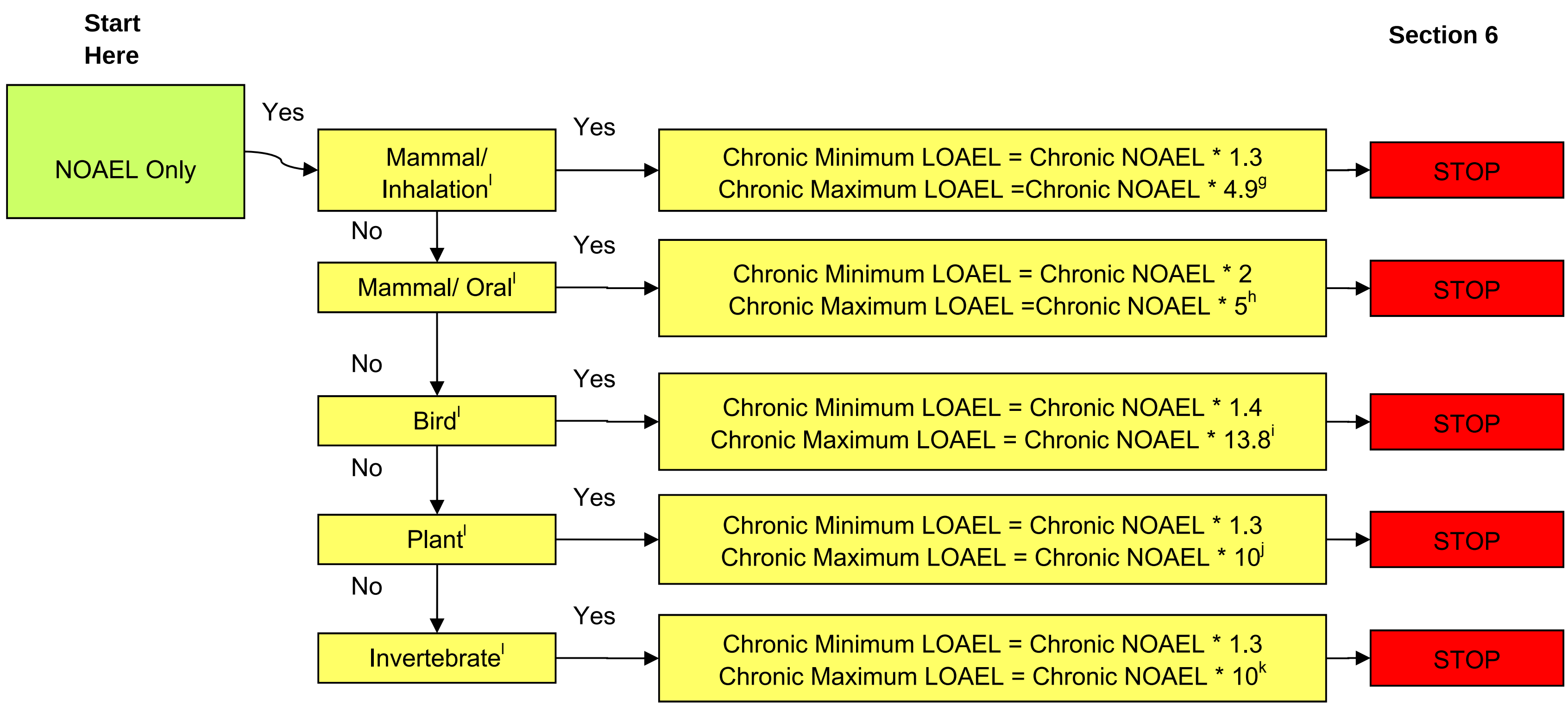

Figure A-1 (continued) Process for selecting the chronic LOAEL- or LOEC-based effect level for each endpoint in the GMM TRV data set

Notes for Figure A-1:

[a] Refers to the reported LOAEL/LOEC.

[b] Refers to the reported other effect level (e.g., LD_{50}, LC_{50}, ED_{50}, EC_{50}).

[c] Chronic NOAEL/NOEC represents either a reported chronic NOAEL, or it was derived by extrapolating from another reported effect level (e.g., LOAEL, LD_{50}) using UFs.

[d] Refers to the chronic LOAEL/LOEC estimated from a reported other effect level.

[e] Refers to the chronic LOAEL/LOEC estimated from a reported LOAEL/LOEC.

[f] Maximum and minimum chronic LOAELs/LOECs are estimated to bound the actual chronic LOAEL/LOEC when the chronic LOAEL/LOEC estimated from a reported LOAEL/LOEC is less than the chronic LOAEL/LOEC estimated from a reported other effect level.

[g] These factors are obtained from the minimum and maximum of a range of ratios determined using NOAEL and LOAEL pairs in the ECORISK Database (LANL 2012, 226667, Ref ID 1829). These NOAEL and LOAEL pairs represent ecologically relevant data for inhalation of volatile organic compounds by terrestrial mammals.

[h] Factors are obtained from Dourson and Stara (1983, 073474, Ref ID 1379).

Notes for Figure A-1 (continued):

[i] Factors are obtained from the minimum and maximum of a range of ratios determined using NOAEL and LOAEL pairs based on ecologically relevant bird data in the ECORISK Database (LANL 2012, 226667, Ref ID 1829).

[j] Factors are obtained from the minimum and maximum of a range of ratios determined using NOEC and LOEC pairs based on ecologically relevant plant data in the ECORISK Database (LANL 2012, 226667, Ref ID 1829).

[k] Factors are obtained from the minimum and maximum of a range of ratios determined using NOEC and LOEC pairs based on ecologically relevant invertebrate data in the ECORISK Database (LANL 2012, 226667, Ref ID 1829).

[l] Maximum and minimum chronic LOAELs/LOECs are estimated to bound the actual chronic LOAEL/LOEC when only a reported NOAEL/NOEC is available. First, the reported NOAEL/NOEC is used to estimate a chronic NOAEL/NOEC from which the maximum and minimum chronic LOAELs/LOECs are sometimes estimated by using extrapolation factors specific to the receptor data set being processed.

A-4.1.6 Calculation of the GMM TRV

Next, if three or more ecologically relevant chronic NOAEL- or NOEC-based effect levels are available, the GMM TRV is calculated as follows:

$$\text{GMM TRV} = \sqrt[n]{EL_1 * EL_2 * EL_3 * \ldots EL_n}$$

Where n is greater than 3 and each effect level (EL) represents a chronic NOAEL- or NOEC-based effect level for an ecologically relevant effect (i.e., reproduction, development, survival, adult weight change, or adult size change). The GMM TRV and effect levels are in units of mg/kg/d for birds and mammals and mg/kg for invertebrates and plants.

A-4.2 CS TRVs

If there are two or less ecologically relevant PTVs available in a GMM TRV data set for a chemical, receptor, and exposure medium scenario of concern, a CS TRV is developed instead. However, because there are two or less ecologically relevant PTVs available, the data set becomes limited. As a result, PTVs that were eliminated from the GMM TRV data set because of their lesser ecological relevance are added back into the CS TRV data set for consideration.

The ideal CS TRV for ecological risk screening assessments is one that is conservative in protecting the most sensitive ecologically relevant endpoint (i.e., reproduction/development), exposure route (i.e., oral ingestion via food or drinking water in birds or mammals, inhalation in mammals, uptake via seed coat and/or roots in plants, or oral and dermal contact in invertebrates), exposure medium (i.e., food or drinking water in birds and mammals, air for mammals, or soil for plants and invertebrates), exposure period (chronic), and effect level (NOAEL for birds and mammals or NOEC for plants and invertebrates). Before consideration for the TRV, each PTV is extrapolated to a chronic NOAEL- or NOEC-based effect level, if needed, using UFs (see Table A-13). Next, the information for each PTV is reviewed in detail and then the PTV that best represents the most sensitive ecological exposure scenario of concern (e.g., chronic, low-level exposure via food ingestion) is selected as the CS TRV. Typically, the most chronic, highest NOAEL/NOEC under the lowest LOAEL/LOEC for similar endpoints is selected. If there is a LOAEL/LOEC lower than the lowest NOAEL/NOEC, this effect level is usually selected and extrapolated to a chronic NOAEL- or NOEC-based effect level. Usually, if NOAELs/NOECs and/or LOAELs/LOECs are available, LC_{xx}s or LD_{xx}s, and EC_{xx}s or ED_{xx}s are eliminated early in the consideration process. The CS TRV and the data set from which it was selected are graphed and documented in detail in the PTSE Part 3 data-entry database.

A-4.3 Organization and Presentation of TRV Data Set Information

A-4.3.1 Organization of TRV Data in Tabular Format

Before data entry in the PTSE Part 3 database begins, all information is first organized and documented in Microsoft Word, Excel, and Access applications. This facilitates the gathering of information into organized formats for drafting, reviewing, and editing the TRV summary report before it is entered into numerous fields of the database. First, an output of the TRV data set in Excel is generated and exported from the Access database that runs the exclusion criteria for GMM TRV data sets, or if a GMM TRV cannot be developed, the output includes all values in the data set to be considered for the CS TRV. This output contains basic, crucial information for the PTVs considered in the data set, such as the chemical, test organism name and order, types of original effect levels, chronic NOAEL- or NOEC-based effect levels, chronic LOAEL- or LOEC-based effect levels, and UFs applied. Information from this table is used to create two other tables for GMM TRVs: test organism orders and original effect level types. An additional worksheet in the Excel file for the GMM TRV is also created to calculate the geometric standard deviation (GSD) and any outliers (values greater than 2 GSDs from the GMM TRV) that result. The outliers are not eliminated from the data set; therefore, the GMM TRV is not recalculated (see section A-4.3.3, Table A-15 for further explanation of outliers). Finally, the NOAEL- or NOEC-based effect level and LOAEL- or LOEC-based effect level graphs are created. Only graphs for CS TRVs are created from this output.

A-4.3.2 Presentation of TRV Data in Graphs

Before the TRV summary report is drafted in Word, a graph of the GMM or CS TRV and the chronic NOAEL- or NOEC-based effect levels in its data set is created in Microsoft Excel. The GMM TRV data set is defined as all of the PTVs for a particular receptor group/chemical/exposure route scenario of concern that have passed the exclusion criteria and that have been extrapolated to chronic NOAEL- or NOEC-based effect levels. Similarly, the graph for the CS TRV data set also includes the TRV as well the chronic NOAEL- or NOEC-based effect levels in the data set. However, the graph for CS TRVs can also include other data values that were originally eliminated from the GMM TRV data set.

Regardless of the type of TRV, in larger data sets, the y-axis on the graph is sometimes set to logarithmic scale to show the numerous values clearly. Each NOAEL- or NOEC-based effect level data point on the graph has a shape that represents the PTV confidence rating (diamond, triangle, and circle for high, medium, and low confidence, respectively). Dark blue data points (diamonds, triangles, or circles) represent chronic NOAEL- or NOEC-based effect levels, while the pink data square represents the TRV. An example of a GMM TRV graph is seen in Figure A-2. Graphs presented in the ECORISK Database will usually not show low confidence PTVs because they will have been eliminated from the data set. They are eliminated at this early stage because insufficient data preclude producing effect levels that can be used in confidently predicting toxicity.

A graph is also created, in a similar manner as the one for NOAEL- or NOEC-based effect levels, for chronic LOAEL- or LOEC-based effect levels in the TRV data set. However, confidence ratings are not highlighted in this graph, and the LOAEL- or LOEC-based effect level data points are represented by dark blue diamonds.

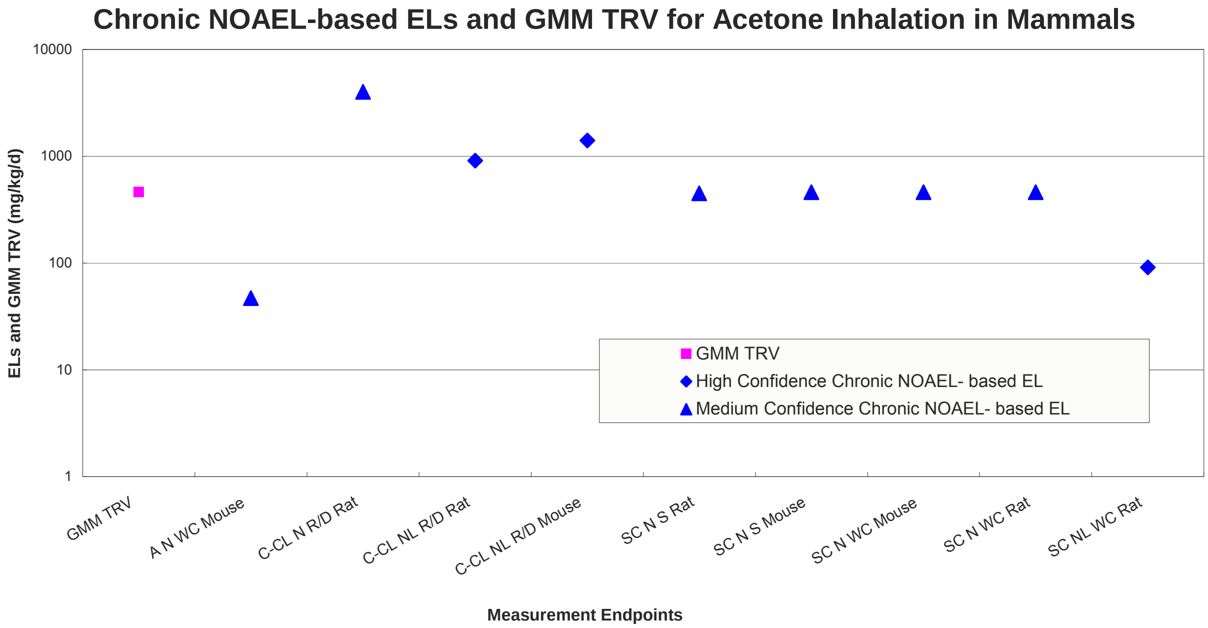

Figure A-2 Example of a graph illustrating the GMM TRV for the inhalation of acetone in mammals and its corresponding NOAEL-based effect levels

A-4.3.3 Assigning Confidence Ratings to TRVs

For GMM TRVs, a second Excel file is created for scoring criteria and confidence ratings. This type of file is not needed for CS TRVs because the confidence rating of the CS TRV is the PTV confidence rating (see section A-3.2.8) for the value upon which the CS TRV is based. The confidence ratings for GMM TRVs are based on a different set of criteria with the purpose of determining how well the GMM TRV represents the ideal GMM TRV, which represents the true TRV. The true TRV is the dose rate or concentration that is equivalent to a no adverse effect level for population level effects (i.e., decreased population size) for a particular receptor under a specific exposure scenario for a particular chemical in the real world. The confidence rating for the GMM TRV is based on how well the GMM TRV meets various criteria within specific evaluation categories. A weighted scoring system based on the degree of influence each evaluation category has on the GMM TRV is used to assess the validity of the GMM TRV for estimating the true TRV. The following sections describe the structure of the confidence rating system for GMM TRVs, including descriptions and justifications for the evaluation processes used to assign the confidence ratings.

GMM TRV Confidence Rating System Structure

The first step in assigning a confidence rating to a GMM TRV is to assign a score for each of 11 evaluation categories. Each evaluation category contains individual criteria associated with ranked scores that reflect how well the GMM TRV data set being evaluated represents the characteristics of the ideal GMM TRV. The higher the score, the better the GMM TRV represents the ideal GMM TRV and thus the true TRV.

The second step in assigning a confidence rating to a GMM TRV is to calculate a weighted score for each evaluation category by multiplying the individual scores of each evaluation category by the weighting factor of the evaluation category. The weighted score for each evaluation category is based on the weighting factor level assigned to the evaluation category. The weighting factor level is based on the degree of influence the evaluation category has on setting the GMM TRV. The higher the weighting factor, the greater the influence the evaluation category has on setting the GMM TRV. The possible weighting factor levels are presented in Table A-14.

Table A-14
Weighting Factor Levels

Weighting Factor Level	Definition	Weighting Factor Applied
Critical	A low score for a critical evaluation category triggers reinvestigation of the GMM TRV and possible revision or decision not to use.	2
Noncritical	A high score for a noncritical evaluation category indicates the GMM TRV data set is very robust, highly relevant to the scenario for which the TRV is being developed, or is based primarily on effect levels that were not derived by applying UFs to PTVs. A low score rarely influences revision of the GMM TRV because it is an added benefit if the evaluation category scores high, but not a requirement.	1

The third step in assigning a confidence rating to a GMM TRV is to calculate a total weighted score for the GMM TRV being evaluated. The total weighted score is equal to the sum of weighted scores of all 11 evaluation categories. Table A-15 presents the scores, weighting factors, weighting factor levels, and weighted scores for each evaluation category. The justifications for the scores and weighting factor levels are presented in the Justification for Scoring Criteria and Weighting Factor Levels subsection of section A-4.3.

Table A-15
Scores, Weighting Factors, and Weighted Scores for each Evaluation Category and Criterion

Evaluation Category	Evaluation Criterion	Score	Weighting Factor	Weighted Score
Number of experiments	Equal to 10 or more	1.5	1	1.5
	Between 4 and 9	1	1	1
	Less than or equal to 3	0.5	1	0.5
Type of exposure medium	Test exposure medium matches that of concern	1	1	1
	Test exposure medium partially matches that of concern	0.5	1	0.5
Number of test organism orders	Equal to 3 or more	1.5	1	1.5
	Equal to 2	1	1	1
	Equal to 1	0.5	1	0.5
Number of unique measurements (endpoints)	More than 3	1.5	1	1.5
	Equal to 3	1	1	1
	Less than 3	0.5	1	0.5

Table A-15 (continued)

Evaluation Category	Evaluation Criterion	Score	Weighting Factor	Weighted Score
Type of endpoint category	R/D	3.5	1	3.5
	Combination of R/D and S	3	1	3
	Combination of R/D, S, and WC or SzC	2.5	1	2.5
	Combination of R/D and WC or SzC	2	1	2
	S	1.5	1	1.5
	Combination of S and WC or SzC	1	1	1
	WC or SzC	0.5	1	0.5
Number and type of effect levels of PTVs associated with the individual NOAEL- or NOEC-based effect levels in GMM TRV data set	2 or more chronic (or C-CL) NOAELs/NOECs with LOAELs/LOECs	3.5	1	3.5
	1 chronic (or C-CL) NOAELs with LOAELs	3	1	3
	1 or more chronic (or C-CL) NOAELs without LOAELs	2.5	1	2.5
	1 or more chronic (C-CL) LOAELs	2	1	2
	1 or more subchronic NOAEL with LOAEL	1.5	1	1.5
	1 or more subchronic NOAEL without LOAEL	1	1	1
	1 or more subchronic LOAEL or other effect level or acute NOAEL, LOAEL, or other effect level	0.5	1	0.5
Confidence rating of PTVs associated with the individual NOAEL- or NOEC-based effect levels in GMM TRV data set	100% of the effect levels have high confidence ratings	2	1	2
	Effect levels have a mixture of high and medium confidence ratings	1.5	1	1.5
	100% of the effect levels have medium confidence ratings	1	1	1
	Effect levels have a mixture of high, medium, and low confidence ratings	0.5	1	0.5
Outlier(s) in chronic NOAEL- or NOEC-based effect level distribution	100% of data are within a GSD less than or equal to 2	4	2	8
	75%–99% of data are within a GSD less than or equal to 2	3	2	6
	75% or more of data are within a GSD of 6	2	2	4
	75% or more of data are within a GSD of 10	1	2	2
	None of the above	0	2	0
Chronic NOAEL- or NOEC-based effect level distribution is bimodal*	No	2	2	4
	N/A - Evaluation is not possible because data set is too limited	1	2	2
	Yes	0	2	0

Table A-15 (continued)

Evaluation Category	Evaluation Criterion	Score	Weighting Factor	Weighted Score
Relationship of GMM TRV to chronic LOAEL- or LOEC-based effect levels	The GMM TRV is less than the lowest LOAEL- or LOEC-based effect level	3	2	6
	The GMM TRV is higher than the lowest chronic LOAEL- or LOEC-based effect level by a factor of 3 or less and is protective of the majority of R/D endpoints. Furthermore, the lowest chronic LOAEL- or LOEC-based effect level represents a chronic or C-CL LOAEL or other effect level for an R/D endpoint.	2	2	4
	The GMM TRV is higher than the lowest chronic LOAEL- or LOEC-based effect level by a factor of 3 or less, and the lowest chronic LOAEL- or LOEC-based effect level represents a chronic LOAEL or other effect level for an S, WC, or SzC endpoint.	1.5	2	3
	The GMM TRV is higher than the lowest chronic LOAEL- or LOEC-based effect level by a factor of 3 or less, and the lowest chronic LOAEL-based effect level is extrapolated from a subchronic or acute LOAEL or other effect level (e.g., EC_{20}, LD_{50}) for an R/D, S, WC, or SzC endpoint.	1	2	2
	The GMM TRV is higher than the lowest chronic LOAEL- or LOEC-based effect level by a factor of 3 or less, and the lowest LOAEL-based effect level is derived from a subchronic or acute NOAEL for an R/D, S, WC, or SzC endpoint.	0.5	2	1
	None of the above	0	2	0
Relationship of GMM TRV to other published TRVs	Acceptable	2	2	4
	No comparison available	1.5	2	3
	Not acceptable	0	2	0

*****Bimodality can only be evaluated for data sets with 10 or more chronic NOAEL- or NOEC-based effect levels.

The fourth step in assigning a confidence rating to a GMM TRV is to determine the percentage the total weighted score is of the maximum total weighted score for the evaluation (i.e., 36.5 points based on summing the highest scores from each evaluation category). The total weighted score percentage of the maximum total weighted score is the ultimate basis for assigning the confidence rating of a GMM TRV. Table A-16 presents the confidence ratings and the corresponding percentage of the maximum total weighted score and the equivalent total weighted score.

Table A-16
Confidence Ratings for GMM TRVs

Confidence Rating	Percent of Maximum Total Weighted Score (%MTWS)	Equivalent Total Weighted Score (ETWS)
High	%MWTS ≥ 75%	27.375 ≤ ETWS ≤ 36.5
Medium	50% ≤ %MTWS < 75%	18.25 ≤ ETWS < 27.375
Low	25% < %MTWS < 50%	9.125 < ETWS < 18.25
Unacceptable	%MTWS ≤ 25%	ETWS ≤ 9.125

Justification for Scoring Criteria and Weighting Factor Levels

Table A-17 provides the justification for the scoring criteria and weighting factor levels of each evaluation category.

Table A-17
Justifications for Scoring Criteria and Weighting Factor Levels for Each Evaluation Category

Evaluation Category	
Justification for Scoring Criteria	Justification for Weighting Factor Level
Number of Experiments	
The preference is to have a high number of experiments because this reduces the potential for the data set to be biased toward a particular study design. Based on best professional judgment, having 10 experiments is considered to provide a more than adequate representation of the toxicity of a chemical for the test organism group of concern. Having 4 to 9 experiments is considered to provide an adequate representation, while having 3 or fewer experiments is considered to provide a minimal representation of the toxicity of a chemical for the test organism group of concern.	This category is given a noncritical weighting factor level. This evaluation category has a strong relationship to the robustness of the data set and its ability to represent the ideal GMM TRV; thus, the true TRV is estimated. The higher the number of experiments, the more robust the data set. This evaluation category is not, however, a primary factor for determining whether or not the GMM TRV should be used because a high number of experiments in the data set is not a requirement, but rather an additional benefit for assessing confidence in the TRV.
Type of Exposure Medium	
The preference is for all the effect levels in the data set to be associated with an exposure medium that is equivalent to the exposure medium of concern. However, if the data set is limited (i.e., less than four effect levels for a particular exposure medium), effect levels that have an appropriate surrogate exposure medium (i.e., exposure medium that has the same exposure route as the exposure route of concern) may be used to supplement the data set so that a GMM TRV can be derived. For example, for an oral ingestion via food TRV, only food effect levels should be used, but if the data set is limited, oral ingestion via drinking water effect levels may be used to supplement the data set so that a GMM TRV may be calculated.	This category is given a noncritical weighting factor level. This evaluation category indicates the degree of relevance the data set has to the TRV that is being developed. The higher the degree of relevance, the more closely the GMM TRV represents the ideal GMM TRV; thus, the true TRV is estimated. This evaluation category is not, however, a primary factor for determining whether or not the GMM TRV should be used because an exact match of the exposure medium for which the TRV is being developed is not a requirement, but rather an additional benefit for assessing confidence in the TRV. Only the exposure route must match the exposure for which the TRV is being developed. However, the toxicity can vary greatly in different exposure media as a result of the differences in bioavailability of the chemical in one compared to the other. Therefore, a complete match of the exposure medium is preferred to more accurately estimate the true TRV.

Table A-17 (continued)

Evaluation Category	
Justification for Scoring Criteria	Justification for Weighting Factor Level
Number of Test Organism Orders	
The preference is to have a high number of test organism orders because this reduces the potential for the data set to be biased toward one order of test organisms. The scoring criteria are based upon the USACHPPM guidance that states that having at least two different taxonomic orders in a TRV data set helps define the quality of the data set (Ryti et al. 2004, 076074, Ref ID 1481).	This category is given a noncritical weighting factor level. This evaluation category has a strong relationship to the robustness of the data set and its ability to represent the ideal GMM TRV; thus, the true TRV is estimated. The higher the number of test organism orders, the more robust the data set. This evaluation category is not, however, a primary factor for determining whether or not the GMM TRV should be used because a high number of test organism orders in the data set is not a requirement, but rather an additional benefit for assessing confidence in the TRV.
Number of Unique Measurements (Endpoints)	
The preference is to have a high number of unique measurements (endpoints) because this helps ensure the robustness of the GMM TRV by including multiple toxicological effects. Unique measurements are those that represent different parameters of measurement for an endpoint category. For example, the endpoints of "mortality" and "LC_{50}" may both be categorized as S endpoints because they are both measurements of survival/mortality, but they are each considered a unique measurement because they measure different aspects of survival/mortality. Based on best professional judgment, having more than three unique measurements is considered to provide a more than adequate representation of the toxicity of a chemical for the test organism group of concern. Having three unique measurements is considered to provide an adequate representation while having fewer than three unique measurements is considered to provide a minimal representation of the toxicity of a chemical for the test organism group of concern.	This category is given a noncritical weighting factor level. This evaluation category is related to the robustness of the data set and its ability to represent the ideal GMM TRV; thus, the true TRV is estimated. The higher the number of unique measurements, the more robust the data set. This evaluation category is not, however, a primary factor for determining whether or not the GMM TRV should be used because a high number of unique measurements in the data set is not a requirement, but rather an additional benefit for assessing the validity of the GMM to estimate the true TRV. Furthermore, all the unique measurements that are allowed in the data set are, by definition, relevant to the TRV being developed for population effects. The relevance of the endpoint category of each unique measurement is scored separately under the Type of Endpoint Category evaluation category below.
Type of Endpoint Category	
The preference is to have more reproduction and development endpoints followed by survival endpoints and then by adult body weight or size change endpoints because the first category of endpoints is the most ecologically relevant group for determining long-term effects on populations, followed by the second and third categories.	This category is given a noncritical weighting factor level. This evaluation category indicates the degree of relevance the data set has to the effects of concern, population level effects, for which the GMM TRV is being developed. The higher the degree of relevance, the more closely the GMM TRV represents the ideal GMM TRV; thus, the true TRV is estimated. This evaluation category is not, however, a primary factor for determining whether or not the GMM TRV should be used because all the endpoint categories considered are ecologically relevant by definition. However, reproduction or development endpoints can more closely approximate population level effects, so having more endpoints in this category is an added benefit for assessing the validity of the GMM TRV for estimating the true TRV.

Number and Type of Effect Levels of PTVs Associated with the Individual NOAEL- or NOEC-Based Effect Levels in the GMM TRV Data Set	
The preference is to have chronic NOAELs/NOECs with LOAELs/LOECs, followed by chronic NOAELs/NOECs without LOAELs/LOECs, then by subchronic NOAELs/NOECs with LOAELs/LOECs, then by subchronic NOAELs/NOECs without LOAELs/LOECs and finally by all other effect levels. This hierarchy is based on two factors. One factor is whether or not UFs have to be applied to a PTV to extrapolate to a chronic NOAEL/NOEC. Extrapolated values are less preferred because they may be overly conservative and thus less representative of the actual chronic NOAEL/NOEC. The second factor is whether or not there are any NOAELs/NOECs with accompanying LOAELs/LOECs. NOAELs/NOECs with LOAELs/LOECs are most preferred because these values bracket the range of possible effects better than just a NOAEL/NOEC or just a LOAEL/LOEC alone.	This category is given a noncritical weighting factor level. This evaluation category is directly related to the certainty in the GMM TRV. The more effect levels in the GMM TRV data set that were extrapolated to chronic NOAEL- or NOEC-based effect levels by applying UFs, the greater the level of conservatism that is built into the GMM TRV. Even though being overly conservative is acceptable for screening-level ecological risk assessments, it is preferred that TRVs not be overly conservative if more certain data are available. On the other hand, the higher the number of original effect levels that are chronic NOAELs/NOECs in the GMM TRV data set, the higher the confidence that the GMM TRV represents the ideal GMM TRV and thus estimates the true TRV (chronic NOAEL). A high score in this evaluation category is not required, but is an additional benefit for assessing confidence in the TRV.
Confidence Rating of PTVs Associated with the Individual NOAEL- or NOEC-Based Effect Levels in GMM TRV Data Set	
The preference is to have more effect levels (PTVs) with high confidence ratings, followed by those with medium ratings and then by those with low ratings. A PTV confidence rating indicates to what degree the PTV is ecologically relevant, defensible, and well documented based on the PTSE Part 2 study evaluation criteria. Effect levels associated with a low confidence rating are not included in the data set unless the data set is limited (i.e., less than three effect levels based on PTVs with either a high or medium confidence rating.).	This category is given a noncritical weighting factor level. This evaluation category indicates the degree of relevance the data set has to the TRV that is being developed. The higher the degree of relevance, the more closely the GMM TRV represents the ideal GMM TRV; thus, the true TRV is estimated. The PTV confidence rating is based upon scoring various study elements that are considered to be relevant for developing a scientifically defensible and ecologically relevant TRV. A high PTV confidence rating indicates the value is highly relevant for deriving a TRV and more likely to accurately estimate the true TRV.
Outliers(s) in the Chronic NOAEL- or NOEC-Based Effect Level Distribution	
The data set cannot have invalid outliers (i.e., values associated with error or study designs that do not meet the minimum requirements for deriving a TRV). Invalid outliers must be removed from the data set before calculation of the GMM TRV. An invalid outlier is determined by a low confidence rating of a PTV associated with an effect level in the data set. However, valid outliers, or extreme values, are allowed (e.g., sensitive species) as long as the data set is not bimodal (see the Chronic NOAEL- or NOEC-based Effect Level Distribution is Bimodal evaluation category below). The GSD is used to determine the variance of the GMM TRV. A lower variance (smaller GSD) indicates that the GMM TRV is more likely to represent the ideal GMM TRV and thus more accurately estimate the true TRV while a high variance (higher GSD) indicates that the GMM TRV is less likely to represent the ideal GMM TRV and thus less accurately estimate the true TRV. In most cases of high variance, the GMM TRV may be overly conservative because the large variance in the values is a result of the averaging of effect levels that are based on PTVs other than chronic NOAELs/NOECs and the application of UFs to extrapolate these values to chronic NOAEL- or NOEC-based effect levels. A data set that contains both the smaller, extrapolated values and the nonextrapolated values (i.e., original effect levels that were already chronic NOAELs/NOECs) leads to a high variance.	This category is given a critical weighting factor level. This evaluation category represents the variance of the GMM TRV dataset, which is important because it indicates how well the GMM TRV represents the ideal GMM TRV. Thus, this evaluation category indicates how well the GMM TRV estimates the true TRV, which is directly related to the confidence in the GMM TRV. Low variance equals high confidence. High variance equals low confidence and may require reconsideration of the GMM TRV.

Chronic NOAEL- or NOEC-Based Effect Level Distribution is Bimodal	
The preference is for the GMM TRV data set to not have a bimodal distribution. A bimodal distribution is determined based on two distinct clusters of values associated with different test species, original exposure durations, original effect levels, or endpoint categories of each effect level in the data set. If a data set is bimodal, best professional judgment must be used to determine if a subset GMM TRV(s) (i.e., a TRV calculated from a data set smaller than the original) needs to be calculated or if the GMM TRV can be used as is.	This category is given a critical weighting factor level. This evaluation category has a high influence on whether or not the GMM TRV will be used. If the GMM TRV data set is found to have a bimodal distribution, the GMM TRV may need to be revised to represent the most sensitive and/or ecologically relevant distribution (e.g., one distinct cluster is rodent [omnivore] data while the other is mink [carnivore] data. A TRV calculated from rodent data is more appropriate for the omnivorous deer mouse ESL receptors, while a TRV calculated from the mink is more appropriate for carnivorous red fox ESL receptor.)
Relationship of GMM TRV to Chronic LOAEL- LOEC-Based Effect Levels	
The preference is to have the GMM TRV below the lowest chronic LOAEL- or LOEC-based effect level because that indicates it is protective of the most sensitive adverse effect in the data set. If the GMM TRV is not below the lowest chronic LOAEL- or LOEC-based effect level, the next preference is for it to be no more than 3 times higher than a chronic LOAEL- or LOEC-based effect level based on a chronic or C-CL LOAEL/LOEC for an R/D or less ecologically relevant endpoint. The next preference is to have the GMM TRV at no more than 3 times higher than a chronic LOAEL- or LOEC-based effect level extrapolated from an original effect level other than a LOAEL. Because some of the chronic LOAEL- LOEC-based effect levels are extrapolated from NOAELs/NOECs or other effect levels by applying UFs, they may be overly conservative and not represent the true chronic LOAELs/LOECs for particular endpoints. In such cases, the GMM TRV is considered adequately protective as a result of the conservatism built into the extrapolated chronic LOAEL- or LOEC-based effect levels. Furthermore, the GMM TRV may be considered adequately protective if it is below the chronic LOAEL- or LOEC-based effect levels for the most ecologically relevant endpoints (reproduction and development) even though it may exceed the lowest chronic LOAEL- or LOEC-based effect level for an adult body weight or size change endpoint or for a survival endpoint. Another consideration is to determine, based on best professional judgment, whether or not the GMM TRV is unacceptably higher or lower than the lowest chronic LOAEL- or LOEC-based effect level. If the difference is unacceptable, further investigation is warranted to determine if the GMM TRV is inappropriate (i.e., unacceptably over- or under-conservative). If it is found to be unacceptable, then the GMM TRV may need to be revised.	This category is given a critical weighting factor level. This evaluation category has a high influence on whether or not the GMM TRV will be used. If the difference between the GMM TRV and the lowest chronic LOAEL- or LOEC-based effect level is unacceptable, the GMM TRV is unacceptable and an alternative (e.g., a subset GMM TRV, CS TRV) needs to be considered.
Relationship of GMM TRV to other Published TRVs	
The preference is that any differences between the GMM TRV and other published TRVs be explained based on the experiments, endpoints, test organisms, and test chemical forms, etc., considered. It is also important that the explanation provide support for or against the use of the GMM TRV. It should be verified that the GMM TRV has considered all relevant data. If relevant data have not been considered, the GMM TRV data set may need to be expanded to include the missing data. If no published TRVs are available for comparison, the GMM TRV is considered to be acceptable.	This category is given a critical weighting factor level. This evaluation category has a high influence on whether or not the GMM TRV will be used. If differences between the GMM TRV and other published TRVs are unacceptable (i.e., unexplainable, error based, or lack of data based), the GMM TRV is unacceptable and an alternative (e.g., subset GMM TRV, CS TRV) needs to be considered.

A-4.3.4 Drafting the TRV Summary Report and PTSE Part 3 Data Entry

The information organized in the Excel file(s) and presented in the graphs is used as reference and supporting documentation for the TRV summary report as it is drafted in a Microsoft Word format that contains the fields in the PTSE Part 3 data-entry database. The report is created in Word for ease of drafting, peer reviewing, and revising. The final report is then entered into the PTSE Part 3 data-entry database by copying and pasting sections one at a time into Access data fields. The graphs are copied and pasted into fields as well. However, the information in the test organism orders and original effect levels tables and the GSDs worksheet is not entered because these data are automatically generated and presented by the ECORISK Database. Rather, this information has been created in Excel for reference while working on the TRV summary report.

The PTSE Part 3 data-entry fields are detailed below, and Attachments A-1 and A-2 contain examples of user-printable TRV summary reports for GMM and CS TRVs, respectively. Note that some fields such as reviewer initials and date are not included in the printable reports because they are for quality assurance documentation purposes only.

Reviewer Initials

The initials of the person entering the information in the PTSE Part 3 record are entered here. If significant changes are made to a record at a later time, the initials of the new reviewer replace the original reviewer initials.

Date

The date the PTSE Part 3 record is created or modified is entered here.

Last Updated

If any changes are made to the TRV in the record, the version date of the ECORISK Database that these changes will appear in is entered in the last updated field.

Part 3 TRV Summary ID

A unique ID for the record is entered in this field (see Example A-18). The format, in one continuous string with each parameter separated by an underscore symbol, is as follows:

Analyte Code_ESL Medium_ESL Screening Receptor Group ID_Test Organism Group ID_Test Organism Common Name_Test Exposure Medium_TRV Type_TRV Ref ID_Primary Toxicity Study Ref ID

Example A-18 Part 3 TRV Summary IDs

107-06-2_AIR_M_TM_Mammal_Air_ChronicGMMNOAEL_1442_0001

HGI_SEDIMENT_B_TB_QuailJapanese_Diet_ChronicCSNOAEL_1230_0017

GMM TRV Record ID

The ID for GMM TRVs provides the following information in a continuous string with no spaces or underscores: Analyte Code, Test Organism Type, the acronym GMM, and Test Exposure Medium. This field is left blank for CS TRV records. See Example A-19.

Example A-19 GMM TRV Record IDs

107-06-2MGMMA

11096-82-5MGMMF

Graph Group ID

This field helps to identify all graphs belonging to a particular TRV and its data set. The format, in one continuous string with each parameter separated by an underscore symbol, is Analyte Code_Test Organism Type_TRV Type (see Example A-20).

Example A-20 Graph Group IDs

1746-01-6_TM_CS

11096-82-5_TM_GMM

TRV Type

The final TRV type is noted here. For birds and mammals, Chronic GMM NOAEL or Chronic CS TRV is entered. TRV type for earthworms and plants is entered as Chronic GMM NOEC or Chronic CS NOEC. In cases where a subset GMM TRV is created (i.e., a TRV calculated from a data set smaller than the original GMM TRV data set), the type is entered as Chronic subset GMM NOAEL or Chronic subset GMM NOEC.

TRV Final Value

The value of the GMM TRV, subset GMM TRV, or CS TRV is entered here. This is the value after all calculations have been completed. Calculations include those for daily dose rates, moisture conversions, and any others from Part 2 records plus any contributions from UFs to be accounted for in this Part 3 record.

TRV Units

For birds and mammals, the GMM or CS TRV is presented in units of mg/kg/d (representing mg chemical/kg body weight/d), while earthworms and plants have units of mg/kg (mg chemical/kg soil).

Selected TRV

In this field, YES or NO is entered for each LANL GMM or CS TRV depending on whether or not it will be used in the ESL models for the ECORISK Database. According to the tiered TRV development approach for the ECORISK Database, the most preferred TRV is an EPA ecological soil screening level (Eco-SSL)

TRV. If one does not exist, the LANL GMM TRV is used, followed by the LANL CS TRV, then a secondary source TRV from another published source. Based on this hierarchy, it is likely that if a GMM TRV is developed, an EPA Eco-SSL TRV does not exist; therefore, YES is almost always entered for GMM TRVs. However, if the GMM TRV is not considered suitable, NO will be placed in its corresponding field, and YES will be entered for an alternative TRV (i.e., subset GMM TRV, CS TRV, or secondary source TRV), whichever of the more preferred TRVs is available and most suitable. This field can later be updated should an EPA Eco-SSL become available to replace a GMM TRV or should a GMM TRV or CS TRV be developed to replace a CS TRV or secondary source TRV, respectively.[5]

ESL Media

For birds and mammals, the ESL media are soil, sediment, or water. For plants and earthworms, only one ESL medium of soil is used. If the GMM TRV data set or CS TRV represents food exposure for birds and mammals, two records are created: one each for soil and sediment ESLs. If the GMM TRV data set or CS TRV represents drinking water exposure for birds and mammals, only one record for water is created. Only one record (soil) is needed for each earthworm or plant and chemical combination.

Functional Group

The code A, for all functional groups relevant to the test organism group (bird, invertebrate, mammal, or plant), is entered for GMM or CS TRVs unless it has been determined that the TRV is protective of certain functional groups only. An example is Aroclor-1260, where it was decided that the GMM TRV was not protective enough of the carnivore functional group because according to the data set, the TRV was not protective of mustelids, in which the reproductive effects of polychlorinated biphenyl exposure is well-documented. Instead, the LANL CS TRV for Aroclor-1260 was used. The GMM TRV for Aroclor-1260, however, was used for all other functional groups (all noncarnivores). The coding for the Aroclor-1260 GMM TRV record was N-C for noncarnivores while the coding for the Aroclor-1260 CS TRV was C for carnivores.

TRV Confidence Rating

High, medium, or low is typed in this field for GMM or CS TRVs. Low is rarely, if ever, seen because data receiving a low confidence rating results in the primary toxicity study being rereviewed and eliminated from the data set for GMM or CS TRVs. For CS TRVs, a brief description of the number and type of experiments, confidence ratings, and endpoint categories also follows (e.g., “Medium. Data set consists of 1 experiment, 1 medium confidence PTV, and 1 survival endpoint.”). This extra information helps ECORISK Database users to see the breadth of the data set from which the CS TRV was chosen in addition to the confidence rating of the single value, which is based on the type and degree of detail of information of the study from which it was obtained.

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[5] In the early developmental stages of the ECORISK Database, before GMM TRVs were developed, CS TRVs representing food exposure were used in soil, sediment, and water ESL models. Likewise, CS TRVs representing drinking water exposures were used in all ESL models as well. Notes regarding bioavailability of the chemical in one medium versus the other were made in the report. Currently, GMM and CS TRVs for food are limited to soil and sediment ESL models only, while TRVs representing drinking water exposures are used only in water ESL models.

Primary Toxicity Paper Reference ID

Because the GMM TRV is usually based on more than one primary toxicity reference, this field is not applicable. Ref ID 0001, which represents not applicable, is entered. For CS TRVs, this field contains the Ref ID of the reference containing the information from which the TRV originated.

TRV Reference ID

The Ref ID for the version of the ECORISK Database in which this new record (GMM or CS TRV) will appear is entered.

Description of TRV Source

There are various options in the list, but for new Part 3 records that result in the addition of a new LANL GMM or CS TRV to the ECORISK Database, the selection should be "LANL derived value based on reviewed primary data."

Exposure Medium

The exposure medium that the GMM or CS TRV represents is selected from the drop-down list.

Exposure Route

The primary exposure route that the GMM or CS TRV represents is selected from the drop-down list.

Organism Name

The organism group representing the organisms in the GMM TRV data set (i.e., bird, mammal, invertebrate, or plant) is selected from the drop-down list. For CS TRVs, the organism name is the common name of the organism represented (e.g., "Rat, Sprague-Dawley"). This is selected from the drop-down list as well.

Organism ID

The code for the organism categories represented by the GMM or CS TRV (as seen in PTSE Part 1, Data Entry) is selected from the drop-down list. The four choices usually selected in new Part 3 records are SLE for earthworms, TB for terrestrial bird, TM for terrestrial mammals, and TP for terrestrial plants. Note that sometimes a bird that is considered an aquatic species is represented in the terrestrial data set (e.g., mallard duck). The TB code is still used for these organisms because they are considered to toxicologically represent a surrogate for terrestrial species. Other aquatic species for mammals, invertebrates, or plants are rejected from the literature set used for review, so they should not be encountered this far into the PTSE process.

Screening Receptor Group ID

The code for the organism group represented by the GMM or CS TRV is selected from the drop-down list. The four choices usually selected in new Part 3 records are B for bird, I for invertebrates (earthworms), M for mammals, and P for plants.

Chemical ID

The analyte code that the GMM or CS TRV represents is selected from the drop-down list.

Surrogate Chemical ID

If a surrogate chemical is used, the analyte code for the surrogate chemical is selected. Otherwise, the analyte code the GMM or CS TRV represents is selected from the drop down list; it matches the Chemical ID.

Discussion

GMM TRVs

For GMM TRVs, this field holds two paragraphs, the first discusses an overview of the data set used to derive the TRV, and the second is a conclusion summary. The first paragraph includes the following information:

- type of TRV (GMM),
- exposure medium,
- chemical and organism group of concern,
- value of GMM TRV and its units,
- number of chronic NOAEL- and NOEC-based effect levels (PTVs) used to calculate the GMM TRV,
- number of references in the data set,
- number of experiments in the data set,
- number of unique measurements (endpoints) in the data set,
- number of phylogenetic test organism orders,
- endpoint categories represented in the data set,
- number or percent of high, medium, and low PTV confidence ratings,
- exposure routes, and
- relevance or relationship between test exposure route and exposure route of concern for the particular ESL of concern (i.e., sediment, soil, water).

The conclusion paragraph for GMM TRVs summarizes the suitability of the GMM TRV for use in ESL models. The suitability of the GMM TRV is based on further evaluation of the distribution of chronic NOAEL- or NOEC-based effect levels, comparison of the GMM TRV to the lowest chronic LOAEL- or LOEC-based effect level, and comparison of the GMM TRV to other published TRVs. Although this general discussion field is the first of the discussion fields, this field is usually completed last in the data entry process for Part 3. Each of the other discussion fields is explained in detail below. The conclusion paragraph for GMM TRVs includes

- the GMM TRV confidence rating;
- a numbered list of scoring criteria in support of this confidence rating;

- a statement of whether the comparison of the GMM TRV to other published TRVs is acceptable;
- a statement of why bimodality of the data set distribution could not be assessed, if needed;
- another numbered list of criteria, not listed above, that lowered or do not support the confidence rating;
- brief explanation(s) of why criteria did not score well or did not strongly support confidence rating;
- explanation of whether GMM TRV is suitable or not; and
- suggested alternatives for TRVs, if needed.

CS TRVs

The discussion for CS TRVs usually consists of four paragraphs. The first offers a summary of what the ideal TRV represents (i.e., the most protective value that best represents an ecologically relevant endpoint, exposure route and medium, exposure period, and effect level). The second paragraph is titled, “Data Set Considered for Selection of Value,” and describes the contents of the data set from which the CS TRV was selected. The following information is presented in the second paragraph:

- number of references,
- number of experiments,
- number of endpoint types,
- types of measurement endpoint categories,
- test organisms represented,
- types of exposure media and routes,
- types of exposure duration categories, and
- types of effect levels.

The third paragraph in the discussion for CS TRVs is “Justification for Selection of Value.” The value and effect level type of the PTV selected for use in development of the CS TRV are entered here as well as an explanation of why the PTV was selected over others in the data set. Usually, the highest NOAEL below the lowest LOAEL is selected for use, and this statement is entered. However, if this is not the case, an explanation is needed with further support as to why the TRV is still considered suitable. Some examples of further discussion supporting the selection of the PTV include the following: a comparison of the measurement endpoint the PTV represents to other measurement endpoints available in the data set, an explanation of the sensitivity of certain test organisms over others, and/or a comparison of the exposure conditions (e.g., length of exposure durations, exposures that occurred during critical life stages, *ad libitum* oral ingestion vs. scheduled feedings).

The fourth and final paragraph, “Description of Critical Study,” provides more detail of the specific study from which the PTV was selected. The following information is provided:

- exposure length,
- whether exposure occurred during a critical life stage,
- chemical,
- chemical form,

- exposure medium,
- exposure route,
- test organism,
- dose or range of doses and units,
- whether doses were nominal (target) or empirical (verified/measured) concentrations,
- relationship of test exposure route to exposure route of concern,
- whether dose rate parameters (e.g., body weight, ingestion or inhalation rates) were provided or obtained from another source, and
- whether exposure concentrations were in dry or wet weight, and if in wet weight, the moisture basis and an explanation of the conversion to dry weight.

Uncertainty Factor(s)

This field is left blank for GMM TRVs because UFs should already have been applied to PTVs to approximate chronic NOAEL- or NOEC-based effect levels used in the calculation. Rather, the statement "Prior to the calculation of the GMM TRV, the PTVs in the data set were extrapolated to chronic NOAEL-based effect levels by applying UFs." is entered, and a table of applied UFs is provided in the ECORISK Database. For CS TRVs, a brief explanation of whether UFs are needed or not is provided here. If UFs are needed, a brief description outlines the type (e.g., "A UF of 100 for extrapolation from an acute to a chronic exposure duration was applied."). Table A-13 shows the UFs applied to approximate chronic NOAEL- or NOEC-based effect levels, or TRVs, from PTVs.

Calculations

Essentially, the calculation for the GMM TRV ($\text{GMM TRV} = \sqrt[n]{EL_1 * EL_2 * EL_3 * \ldots EL_n}$) should be entered here. However, because this exact equation cannot be entered in an Access field, the following description is entered instead, "GMM TRV = nth root of (EL1 x EL2 x EL3 x …ELn) where n is greater than or equal to 3, and each effect level represents a chronic NOAEL-based effect level for an oral ingestion exposure for an ecologically relevant effect (i.e., reproduction or development, survival or adult body weight or size changes)."

For CS TRVs, if a UF is applied to the PTV to derive the TRV, this calculation is entered here [e.g., Chronic NOAEL = Chronic LOAEL(0.1)].

Data Set Distribution

This field is not applicable for CS TRVs; N/A is entered. For GMM TRVs, the data set of chronic NOAEL- or NOEC-based effect levels is evaluated to determine the type of distribution (e.g., normal, positively skewed, negatively skewed, bimodal) and the variance of the distribution based on the number of GSDs from the GMM TRV. Also, any effect levels that may appear to be outliers are discussed (see the Geometric Standard Deviations and Outliers section below). Furthermore, the distribution is also evaluated for patterns or trends based on test organisms, exposure durations, original effect level types, or endpoint categories. Any observed trends are discussed.

Types of Distributions

If the distribution is negatively skewed, there are a larger number of higher values that most likely represent chronic or C-CL NOAELs/NOECs for ecologically relevant endpoints because no UFs are applied for exposure duration or effect level type; therefore, the GMM TRV is influenced by these higher values and is more likely to approximate a true NOAEL/NOEC. A negatively skewed distribution, in the context of a GMM TRV, is preferred because of this. On the other hand, if the GMM TRV is based on a positively skewed distribution, this means it is usually biased towards the lower values of the distribution and is therefore protective of the higher ones, which are usually associated with chronic or C-CL NOAELs/NOECs. For this reason, a positively skewed distribution is also acceptable because the GMM TRV is overly conservative as a result of the large number of lower values extrapolated from original effect levels other than chronic NOAELs/NOECs. If the distribution shows a bimodal pattern, this indicates there are two clusters of values according to test organisms, original effect levels, exposure durations, and/or endpoint categories. For example, there may be a large group of effect levels associated with acute and subchronic values and another large group of effect levels associated with chronic and C-CL values. It becomes difficult to determine if the GMM TRV is appropriate in this case. Revision of the GMM TRV to a subset GMM TRV may be preferred to represent the group of values that is more ecologically relevant (e.g., the chronic and C-CL values, which are more likely to represent more ecologically relevant endpoints such as reproduction/development effects).

Geometric Standard Deviations and Outliers

Because the TRV is based on a GMM of a minimum of three NOAEL/NOEC-based effect levels, the spread of data is assessed by calculating the GSD of the GMM TRV. GSDs and outliers are discussed in the assessment of data set distributions in order to (1) describe the variability of the data set, (2) outline any patterns associated with extreme values vs. those within 2 GSDs (e.g., outliers with high values may be associated with chronic durations because no UFs were applied, while values closer to the GMM were extrapolated from exposure durations and/or effect levels other than chronic NOAELs/NOECs with the application of UFs), and (3) provide support to the confidence rating of the GMM TRV where distributions with lower variance have higher confidence (i.e., GMM TRV is a better estimate of the NOAEL) vs. where distributions with higher variance have lower confidence. Some researchers consider any values beyond 2 standard deviations extreme values, or outliers (StatSoft Inc. 2005, 089447, Ref ID 1486). However, while outliers are described to be observations that do not exist within the characteristic distribution of the data, the decision to keep or remove an outlier often relies on professional judgment based on knowledge of the parameter being studied (Samuels 1989, 089450, Ref ID 1485; StatSoft Inc. 2005, 089447, Ref ID 1486). Therefore, in GMM TRV data sets, outliers are usable because they have been evaluated and screened using the same rigorous process as all other values derived using the PTSE process. All effect levels are based on PTVs derived from the PTSE process, and if a PTV was associated with a low confidence based on little or no supporting data, it was eliminated before the formulation of the data set used for the calculation of the GMM TRV. Furthermore, effect levels allowed in the data set that have larger values are often associated with chronic or C-CL PTVs, whereas the lower effect levels allowed in the data set were extrapolated from PTVs that were subchronic or acute NOAELs/NOECs, LOAELs/LOECs, or other effect levels (e.g., LD_{50}s) with the use of UFs. The lower, extrapolated values are accepted in the GMM TRV data set because in screening-level ecological risk assessments, the use of a TRV that is conservative, rather than under-protective, is preferred (LANL 2012, 226715, Ref ID 2014). It is important to note that the nature of the data set distribution such as bimodality is evaluated for data sets with 10 or more chronic NOAEL (NOEC)-based effect levels, so for smaller data sets the reasonability of assessing true outliers is less.

Lowest LOAEL or LOEC

This field is not applicable for CS TRVs; N/A is entered. The GMM TRV is compared to the lowest chronic LOAEL- or LOEC-based effect level derived from the GMM TRV data set (see section A-4.1.5) to determine whether it is protective of the most sensitive endpoint in the data set. If the GMM TRV is below the lowest LOAEL- or LOEC-based effect level, it is protective of all possible effects in the data set. However, the GMM TRV may be much less than the LOAEL- or LOEC-based effect level, and some consideration must be taken into account to determine whether it is overly protective. On the other hand, if the GMM TRV is greater than the LOAEL- or LOEC-based effect level, further investigation is needed to determine if the GMM TRV may not be protective enough. Examples of information to examine include what endpoint the LOAEL/LOEC or LOAEL- or LOEC-based effect level represents, whether it is more or less ecologically relevant than other endpoints in the data set, if there are other similar endpoints available and how their effect levels compare to the GMM TRV, and what original effect level was used to approximate the LOAEL- or LOEC-based effect level. The application of UFs may have made the chronic LOAEL- or (LOEC)-based effect level overly conservative; therefore, the GMM TRV may still be protective even though it is above the LOAEL (LOEC)-based effect level. This is further strengthened if it can be shown that the GMM TRV includes more ecologically relevant endpoints and chronic exposure durations.

LANL CS TRV Comparison

This field is not applicable for CS TRVs; N/A is entered. The GMM TRV is compared to the LANL CS TRV if one is available for the same chemical, organism, and exposure route/medium scenario of concern. It is noted whether it is above or below the LANL CS TRV and by how much. Justification is provided for the continued use of the GMM TRV if it is deemed reasonable. If not, justification is provided for using the LANL CS TRV or an alternative TRV.

ORNL CS TRV Comparison

This field is not applicable for CS TRVs; N/A is entered. The GMM TRV is compared to the ORNL CS TRV. It is noted whether it is above or below the ORNL CS TRV and by how much. Justification is provided for the continued use of the GMM TRV if it is deemed reasonable. If not, justification is provided for using the LANL CS TRV or an alternative TRV.

USEPA R6 CS TRV Comparison

This field is not applicable for CS TRVs; N/A is entered. The GMM TRV is compared to the USEPA R6 CS TRV. It is noted whether it is above or below the USEPA R6 CS TRV and by how much. Justification is provided for the continued use of the GMM TRV if it is deemed reasonable. If not, justification is provided for using the LANL CS TRV or an alternative TRV.

SNL CS TRV Comparison

This field is not applicable for CS TRVs; N/A is entered. The GMM TRV is compared to the SNL CS TRV. It is noted whether it is above or below the SNL CS TRV and by how much. Justification is provided for the continued use of the GMM TRV if it is deemed reasonable. If not, justification is provided for using the LANL CS TRV or an alternative TRV.

LANL T&E CS TRV Comparison

This field is not applicable for CS TRVs; N/A is entered. The GMM TRV is compared to the LANL T&E CS TRV. It is noted whether it is above or below the LANL T&E CS TRV and by how much. Justification is provided for the continued use of the GMM TRV if it is deemed reasonable. If not, justification is provided for using the LANL CS TRV or an alternative TRV.

Note: More comparisons of the LANL TRV to other published TRVs may become necessary if a LANL TRV is developed and there exists a TRV from another organization not mentioned above (e.g., USACHPPM TRVs). Comparison fields will be added should this situation arise.

Associated References

A button is clicked to bring up a pop-up form for entry of Ref IDs cited in any of the fields above. First, the Part 3 Record ID is copied from the main data entry form and pasted into the Part 3 Record ID field of this new pop-up form. If references other than the primary toxicity study noted in the Primary Toxicity Paper Reference ID field are noted in the Discussion, Uncertainty Factor(s), Calculations, Data Set Distribution, Lowest LOAEL (LOEC) Comparison, or Other Published TRV Comparison fields, the Ref IDs for these are listed in the appropriate spaces. If no other references were mentioned, the default Ref ID is 0001.

A-5.0 PTSE PART 4, TOXICITY REFERENCE VALUE APPROVAL

After new GMM or CS TRVs are developed, the summary report Excel files containing the tables and graphs are sent to the EP Directorate's Risk Assessment Team for review. Based on their areas of knowledge and expertise, Risk Team members return comments, usually done in tracked-changes mode in the TRV summary report in Word, on TRV derivation methods, approximations of effect levels, chemical bioavailability, biological test organism or screening receptor information, etc. Sometimes their judgment may lead to an exception where a CS TRV may be used in spite of the availability of a GMM TRV. This may be done if the GMM TRV is judged to be under-protective of sensitive organisms to a particular chemical. Other times, Risk Team members may suggest a change from a GMM TRV to a subset GMM TRV, which is based on a subset of the original data set for a particular chemical, receptor group, and exposure scenario of concern, based on their knowledge of the behavior of that chemical with organisms in the wild under certain conditions. The PTSE reviewers consider the Risk Team comments and revise the information as appropriate. Documentation of any deviations is provided in the appropriate places in the PTSE Part 3 process (TRV summary report), especially in the discussion field.

A-6.0 REFERENCES

The following list includes all documents cited in this appendix. Parenthetical information following each reference provides the author(s), publication date, and ER ID. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

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Attachment A-1

GMM TRV Summary Report Example

TRV Summary Report ***Ecorisk Database Release 2.1 (September 2004)***

***TRV Summary ID:** 118-96-7_SOIL_P_TP_Plant_Soil_ChronicGMMNOEC_1442_0001

GMM TRV ID: 118-96-7PGMM

LANL TRV: YES **Data Source:** LANL derived value based on reviewed primary data

Analyte Name: Trinitrotoluene[2,4, 6-] **Analyte Code:** 118-96-7 **Analyte Group:** High Explosive

ESL Receptor Group: P **Functional Group:** A **ESL Media:** SOIL

Test Chemical Code: 118-96-7

Test Organism ID: TP **Test Organism Common Name:** Plant

Final TRV: Chronic GMM NOEC 62.1 mg/kg **Exposure Route** U_SC+R

Derivation Notes: The GMM TRV for 2, 4, 6- trinitrotoluene in soil of plants is equal to a chronic NOEC of 62.1 mg/kg. This GMM TRV is derived from a data set of 12 PTVs representing 3 references, 12 experiments, 6 unique measurements, and 3 phylogenetic test organism orders. Endpoint categories included in the data set are reproduction and development. Six of 12 PTVs (50%) are associated with high confidence while the rest are associated with medium confidence. Only uptake via seed coat and/or roots exposure route studies were included in the GMM TRV data set; therefore, the test exposure route matches the exposure route of concern for soil ESLs for plants. See the PTVs Considered, Test Organisms, and Original Effect Level Types tables for more details of the data set.

Conclusion:
Based on the evaluation of the GMM TRV data set distribution and trends (see Data Set Distribution Comments section) and the comparison of the GMM TRV to the lowest chronic LOEC-based EL (see the Lowest LOEC Comparison section) and other published TRVs (see the Comparison of GMM TRV to other Published TRVs section), the confidence in the GMM TRV is medium because the data set contains: 1) 10 or more experiments, 2) only uptake via seed coat and/or roots which match the exposure route of concern for plant, soil-ESLs, 3) 3 or more test organism orders, 4) more than 3 unique measurements, 5) only R/D endpoints, 6) 2 or more chronic or C-CL NOEC/LOEC pairs, 7) ELs associated with a mixture of high and medium confidence ratings, and 8) no bimodality or other pattern that negatively biases the GMM TRV. Also, the comparison of the GMM TRV to other published TRVs (LANL CS TRV and SNL CS TRV) is acceptable because it is lower than the LANL CS TRV, higher than the SNL CS TRV by only a factor of 2.1, and represents more supporting data than both CS TRVs. The confidence rating was lowered from high to medium because: 1) the GMM TRV is higher than the lowest chronic LOEC-based EL by a factor of 3 or more, and 2) greater than 75% of the ELs were more than 10 GSDs from the GMM TRV, indicating a moderately high variance for the distribution. The lowest chronic-LOEC based EL represents a study in which barley was exposed to TNT in forest soil, which may hold different soil properties than soil exposure media in other studies of this data set (e.g., artificial soil, soil collected from experimental field in Germany). The forest soil has a pH of 7.6, which is within the range of soil values at LANL (5.2 to 8.2; Ref ID 1380). Furthermore, the GMM TRV for different soil properties minimizes the chance that the value can be over or under conservative. Also, the moderately high variance is overridden by the fact that the GMM TRV is protective of the majority (8 of 12) of R/D endpoints in the data set. See the GMM TRV Confidence Rating table for details. In conclusion, the GMM TRV is considered protective of plant populations and the more sensitive individuals of threatened and endangered species because it considers multiple ecologically relevant endpoints and thus provides a more comprehensive TRV than a single CS TRV.

Uncertainty: Prior to the calculation of the GMM TRV, the PTVs in the data set were extrapolated to chronic NOEC-based ELs by applying UFs.

Calculations: GMM TRV = nth root of (EL1 x EL2 x EL3 x …ELn) where n is greater than or equal to 3 and each EL represents a chronic NOEC-based EL for a seed coat and/or root uptake via soil exposure for an ecologically relevant effect (i.e., reproduction or development, survival, or mature plant weight or size changes).

Log Kow: **KocVu:** **Foc:**

Text Last Updated On: 10-Sep-04 **Value Last Updated On:** 20-Aug-04

Confidence Rating: Medium **NMED Concurrence Date:**

** Further details on the study/ effects/ toxicity values reviewed for this TRV are provided in the PTSE Part 1 (Study Details) and 2s (Study Evaluations) and in the Part 3 (TRV Summary) graph.*

Page 1 of 4

TRV Summary Report ***Ecorisk Database Release 2.1 (September 2004)***

***TRV Summary ID:** 118-96-7_SOIL_P_TP_Plant_Soil_ChronicGMMNOEC_1442_0001

GMM TRV ID: 118-96-7PGMM

LANL TRV: YES **Data Source:** LANL derived value based on reviewed primary data

Data Set Distribution Comments:

The distribution of chronic NOEC-based ELs ranging from 5.59 to 355 mg/kg is positively skewed. One of the 12 ELs (8%) is within 2 GSDs, 3 (25%) are between 2 and 6 GSDs, 2 (17%) are between 6 and 10 GSDs, and the rest extend out to 71 GSDs from the GMM TRV, indicating moderately high variance. All but one of the chronic NOEC-based ELs are considered to be outliers (extreme values, or values beyond 2 GSDs), yet they are still usable because the high GSDs indicate a larger spread of data rather than errors in the values. The moderately high variance indicates that the GMM TRV may not as closely approximate the true TRV as one with a lower variability in its data set would. No bimodality was present in the data set distribution. It was observed that the test species in the Order Capparales (cress and turnip) had a narrow range in their chronic NOEC-based values (24-49 mg/kg) compared to Order Cyperales (barley, oat, wheat, yellow nutsedge) values which ranged from 5.59 to 355 mg/kg. Lettuce was the only test species present for Order Asterales. Original effect level types may have also played a role in the 2 lowest chronic NOEC-based values in Order Cyperales (and the data set) because UFs of 10 were applied to C-CL LOECs to extrapolate them to NOEC-based ELs. Patterns could not be evaluated for endpoint category or exposure duration because all chronic NOEC-based ELs represent C-CL values for R/D endpoints. The GMM TRV is below 42% of NOEC-based ELs. However, it's below 67% LOEC-based ELs (see the Lowest LOEC Comparison section), so it is still protective of the majority of endpoints.

Based on the evaluation of the distribution of the GMM TRV data set of chronic NOEC-based ELs, the GMM TRV is suitable because 1) it is based on a positively skewed distribution, and 2) and 3) it represents a variety of test species with different sensitivities and is protective of the majority of the data set because it is lower than 67% of the LOEC-based ELs. See the Graph of NOEC-based ELs for details.

Lowest LOAEL (LOEC) Comparison:

The range of chronic LOEC-based ELs is 13.66 to 461.5 mg/kg. The GMM TRV is above the lowest chronic LOEC-based EL (13.66 mg/kg) by a factor of 4.5. The lowest chronic LOEC-based EL is based on a C-CL LOEC for an R/D endpoint. The lowest chronic LOEC-based EL is based on barley exposure in forest soil, whereas in the other barley study, barley is exposed to TNT in artificial soil. The chronic LOEC-based EL for the barley exposure in artificial soil is also below the GMM TRV but by a factor of only 1.1, indicating that barley may be less sensitive in artificial soil. The GMM TRV is also above 2 other chronic LOEC-based ELs representing C-CL LOECs for R/D endpoints. These chronic LOEC-based ELs represent exposure to cress and turnip test species via soil collected from an experimental field at a biological station in Berlin, Germany. There are two other studies using the cress and turnip species as well, but they use a different type of soil that was provided by a Germany company. Therefore, the lower sensitivities the cress and turnip in the soil collected from the biological station may be due to the soil properties (e.g., pH, organic matter content). These 2 types of Germany soils were also used in studies for oat and wheat test species, but these plants were less sensitive; 3 of 4 chronic LOEC-based ELs were derived from C-CL NOECs for R/D endpoints, indicating that no adverse effects were observed at the highest concentration administered in the study and that the chronic LOEC-based ELs may be overly conservative due to the application of test organism specific LOEC/NOEC factors (Ref ID 1487) to extrapolate the LOECs from the NOECs. Still, the GMM TRV is protective of these 3 chronic LOEC-based ELs as well as the 4th one which is based on a C-CL LOEC for an R/D endpoint. The GMM TRV is also below the remaining 4 chronic LOEC-based ELs which are based on C-CL NOECs (1) and LOECs (3) for R/D endpoints. Although the GMM TRV is below 4 chronic LOEC-based ELs, it is protective of the majority of the data set (67%) which contains a variety of test species and soil types. See the Graph of LOEC-based ELs for details.

LANL CS TRV Comparison:

The GMM TRV is lower than the LANL CS TRV (80 mg/kg) by a factor of 4. This CS TRV is based on a chronic NOEC for a WC endpoint (PTV ID 0379_118-96-7_1A) and is included in the data set for the GMM TRV. The LANL CS TRV represents effects on yield (as above-ground plant material) of yellow nutsedge. This endpoint was selected for the CS TRV because at the time, it was the only endpoint available in a data set of 1 reference and 1 experiment. More data was obtained, leading to the derivation of a GMM

TRV Summary Report ***Ecorisk Database Release 2.1 (September 2004)***

***TRV Summary ID:** 118-96-7_SOIL_P_TP_Plant_Soil_ChronicGMMNOEC_1442_0001

GMM TRV ID: 118-96-7PGMM

LANL TRV: YES **Data Source:** LANL derived value based on reviewed primary data TRV.

ORNL CS TRV Comparison: ORNL does not have a CS TRV available for comparison.

USEPA R6 CS TRV Comparison: USEPA R6 does not have a CS TRV available for comparison.

SNL CS TRV Comparison: The GMM TRV is higher than the SNL CS TRV (30 mg/kg) by a factor of only 2.1. This CS TRV is based on a LOAEL for growth effects on blando brome grass in soil. No UFs were applied. The endpoint that the SNL CS TRV represents is not included in the GMM TRV data set because a hard copy of the reference (Ref ID 0463) could not be located at the time.

TRV Summary Report

Ecorisk Database Release 2.1 (September 2004)

***TRV Summary ID:** 118-96-7_SOIL_P_TP_Plant_Soil_ChronicGMMNOEC_1442_0001

GMM TRV ID: 118-96-7PGMM

LANL TRV: YES **Data Source:** LANL derived value based on reviewed primary data

REFERENCE LIST	Ref ID	Citation
Primary Toxicity Study Reference CS TRV:	0001	NOT APPLICABLE
Primary Toxicity Study Reference(s) GMM TRV:		**(NOT APPLICABLE, if no references are listed in this section)**
	0379	Pennington, JC. 1988. Soil Sorption and Plant Uptake of 2,4,6-Trinitrotoluene. AD A200 502. Technical Report EL-88-12. US Army Biomedical Research and Development Laboratory, Fort Detrick, Frederick, MD.
	1455	Robidoux, PY, G Bardai, L Paquet, G Ampleman, S Thiboutot, J Hawari, and GI Sunahara. 2003. Phytotoxicity of 2,4,6-Trinitrotoluene (TNT) and Octahydro-1,3,5,7-Tetranitro-1,3,5,7-Tetrazocine (HMX) in Spiked Artificial and Natural Forest Soils. Arch. Environ. Contam. Toxicol., 44: 198-209.
	1459	Gong, P, B-M Wilke, and S Fleischmann. 1999. Soil-Based Phytoxicity of 2,4,6-Trinitrotoluene (TNT) to Terrestrial Higher Plants. Arch. Environ. Contam. Toxicol., 36: 152-157.
TRV reference:	1442	Los Alamos National Laboratory (LANL), 2004 (Sept.). ECORISK Database (Release 2.1). LA-UR-04-7304. RRES-R package #186, ER ID 87386. Risk Reduction and Environmental Stewardship Remediation Service Program, Los Alamos National Laboratory, Los Alamos, NM.
Additional References:	0463	Cataldo, DA, SD Harvey, RJ Fellows, et al. 1989. An evaluation of environmental fate behavior of munitions material (TNT, RDX) in soil and plant systems. PNL-7370; AD-A223 5446. US Army Medical Research and Development Command, Fort Detrick, Frederick, MD.
	1380	Longmire, PA, SL Reneau, PM Watt, LD McFadden, JN Gardner, CJ Duffy, and RT Ryti. 1996 (May). Natural Background Geochemistry, Geomorphology, and Pedogenesis of Selected Soil Profiles and Bandelier Tuff, Los Alamos, New Mexico. Los Alamos National Laboratory Report LA-12913-MS. Los Alamos, New Mexico. Pages 21-33
	1487	Newell, PG, and JS Podolsky. 2004. PTSE Methods (Draft). Risk Reduction and Environmental Stewardship Remediation Services, Los Alamos National Laboratory, Los Alamos, New Mexico.
	0001	NOT APPLICABLE
	0001	NOT APPLICABLE

*** Citations for up to 5 additional references associated with this TRV are listed. If the Ref ID for one or more additional references is 0001 that indicates that there are not any or anymore references associated with the TRV.*

Attachment B-1

CS TRV Summary Report Example

TRV Summary Report ***Ecorisk Database Release 2.1 (September 2004)***

***TRV Summary ID:** 11097-69-1_SOIL_B_TB_ChickenWhiteLeghorn_Diet_ChronicNOAEL_1105_0756

GMM TRV ID:

LANL TRV: YES **Data Source:** LANL derived value based on reviewed primary data

Analyte Name: Aroclor-1254 **Analyte Code:** 11097-69-1 **Analyte Group:** Polychlorinated Biphenyl

ESL Receptor Group: B **Functional Group:** A **ESL Media:** SOIL

Test Chemical Code: 11097-69-1

Test Organism ID: TB **Test Organism Common Name:** Chicken, White Leghorn

Final TRV: Chronic CS NOAEL 0.1 mg/kg/d **Exposure Route** OD

Derivation Notes: The chronic NOAEL of 0.1 with an accompanying chronic LOAEL of 1 was derived from a primary toxicity value (PTV) selected from a data set of 3 references and 8 effects (4 reproduction/development, 2 survival, and 1 growth). Effects considered in the selection included adult and chick mortality, adult and chick body weight, egg production, and hatchability. The PTV chosen for the derivation of the toxicity reference value (TRV) is from Ref ID 0756 and is based on hatchability (Experiment Effect ID (0756_11097-69-1_1A). Mortality in Ref ID 0707 was eliminated from consideration because it was from a study in which only high-dose, relatively short-term (5 day) exposures were evaluated. The other study (Ref ID 0758) reported adverse results (LOAEL) at 2.63 mg/kg/d, and with conversion to NOAEL, this would produce a value of 0.263 mg/kg/d which is close to the value selected for the TRV. The 0.1 mg/kg/d TRV is considered protective of wildlife populations because hatchability is an indicator of the ability of the species to successfully reproduce. Poor reproduction leads to lower success of breeding and less individuals to maintain a viable population. The NOAEL and LOAEL were based on two concentrations (unknown whether they were nominal or empirical) administered.

In this chronic (9 weeks and during a critical life stage) study, Aroclor 1242 was administered orally through food to white leghorn chicken. This test exposure route is related to the exposure route of concern for soil ESLs (food web transfer through consumption of contaminated plants and/or animals and incidental ingestion of soil) because both are oral through the diet. Dose rates were not reported in mg/kg/d, and body weight and food intake data were not available in the primary study; therefore, these parameters had to be obtained from other sources. The moisture basis of the dose is unknown, but will be considered dry weight for conservativism.

Uncertainty: Because the exposure was chronic during a critical life stage and the TRV is based on a no observed adverse effects level, the application of an Uncertainty Factor is unnecessary.

Calculations: N/A

Log Kow: **KocVu:** **Foc:**

Text Last Updated On: 10-Sep-04 **Value Last Updated On:** 28-Sep-01

Confidence Rating: **NMED Concurrence Date:**

** Further details on the study/ effects/ toxicity values reviewed for this TRV are provided in the PTSE Part 1 (Study Details) and 2s (Study Evaluations) and in the Part 3 (TRV Summary) graph.*

Page 1 of 3

TRV Summary Report ***Ecorisk Database Release 2.1 (September 2004)***

***TRV Summary ID:** 11097-69-1_SOIL_B_TB_ChickenWhiteLeghorn_Diet_ChronicNOAEL_1105_0756

GMM TRV ID:

LANL TRV: YES **Data Source:** LANL derived value based on reviewed primary data

Data Set Distribution Comments:

Lowest LOAEL (LOEC) Comparison:

LANL CS TRV Comparison:

ORNL CS TRV Comparison:

USEPA R6 CS TRV Comparison:

SNL CS TRV Comparison:

TRV Summary Report ***Ecorisk Database Release 2.1 (September 2004)***

***TRV Summary ID:** 11097-69-1_SOIL_B_TB_ChickenWhiteLeghorn_Diet_ChronicNOAEL_1105_0756

GMM TRV ID:

LANL TRV: YES **Data Source:** LANL derived value based on reviewed primary data

REFERENCE LIST	Ref ID	Citation
Primary Toxicity Study Reference CS TRV:	0756	Cecil, HC, J Bitman, RJ Lilie, GF Fries and J Verrett. 1974. Embryotoxic and Teratogenic Effects in Unhatched Fertile Eggs for Hens Fed PCBs. Bull Environ Contam Toxicol 11(6):489-495.
Primary Toxicity Study Reference(s) GMM TRV:	**(NOT APPLICABLE, if no references are listed in this section)**	
TRV reference:	1105	Los Alamos National Laboratory (LANL). 2001 (Sept). ECORISK Database (Release 1.3), ER package #186. Environmental Restoration Project, Los Alamos National Laboratory, Los Alamos, NM.
Additional References:	0707	Hill, EF and MB Camardese. 1986. Lethal Dietary Toxicities of Environmental Contaminants and Pesticides to Coturnix. United States Fish And Wildlife Service: Fish and Wildlife Tech Rep 2 (NTIS PB86-176914). Laurel, MD. 154 pp.
	0758	Dahlgren, RB, RL Linder, and CW Carlson. 1972. Polychlorinated Biphenyls: Their Effects on Penned Pheasants. Environ Health Perspec 1:89-101.
	0001	NOT APPLICABLE
	0001	NOT APPLICABLE
	0001	NOT APPLICABLE

*** Citations for up to 5 additional references associated with this TRV are listed. If the Ref ID for one or more additional references is 0001 that indicates that there are not any or anymore references associated with the TRV.*

Page 3 of 3

Appendix B

Derivation of Chemical-Specific Toxicity Reference Values for Polycyclic Aromatic Hydrocarbons and Dichlorodiphenyltrichloroethane and Metabolites

OBJECTIVE

The objective of this process was to develop toxicity reference values (TRVs) for individual polycyclic aromatic hydrocarbons (PAHs) and dichlorodiphenyltrichloroethane (DDT) and metabolites using the toxicity data published in 2007 by the U.S. Environmental Protection Agency's (EPA's) ecological soil screening level (Eco-SSL) workgroup. These TRVs are used to calculate receptor ecological screening levels (ESLs) specific to Los Alamos National Laboratory (LANL or the Laboratory).

BACKGROUND

EPA's Eco-SSL workgroup reviewed the primary literature to develop TRVs and Eco-SSLs for high and low molecular weight PAHs (Table B-1). This class of organic compounds is grouped into two condensed aromatic ring structures: those with low molecular weight compounds composed of fewer than four rings and those with high molecular weight compounds composed of four or more rings. The workgroup also developed TRVs and Eco-SSLs for DDT and metabolites as a group (Table B-2).

Table B-1
EPA Eco-SSL TRVs for PAHs

Receptor	Low Molecular Weight TRV	High Molecular Weight TRV
Soil invertebrates	29 mg/kg soil dry weight	18 mg/kg soil dry weight
Mammals	170 mg/kg/d	0.615 mg/kg/d
Birds	Not available	Not available
Plants	Not available	Not available

Table B-2
EPA Eco-SSL TRVs for DDT and Metabolites

Receptor	DDT and Metabolite TRV
Birds	0.227 mg/kg/d
Mammals	0.147 mg/kg/d
Soil invertebrates	Not available
Plants	Not available

In accordance with its screening-level ecological risk assessment (SLERA) methods, the Laboratory generates TRVs for individual chemicals to be used to calculate Laboratory-specific receptor ecological screening levels (ESLs). Therefore, to remain consistent with the Laboratory's SLERA methods, the chemical-group TRVs/ESLs derived by EPA were not adopted. The Laboratory is, however, using the primary toxicity values (PTVs) for birds, mammals, plants, and invertebrates (earthworms) for reproduction/development, growth, and survival endpoints that the EPA compiled with Eco-SSL methodology to derive Laboratory TRVs and ESLs per Laboratory methods.

The EPA generates nationally accepted Eco-SSLs/TRVs through Eco-SSL methodology, and these toxicity values are considered to have a high confidence rating compared with other sources. Therefore, the Eco-SSL dataset is appropriate for use in the Laboratory's primary toxicity study evaluation (PTSE) method, which is similar in many respects to the Eco-SSL method. One notable exception is that the Laboratory uses acute/subacute and subchronic data by applying exposure duration uncertainty factors (UFs) to extrapolate to a chronic effect level, while EPA excludes these data, even if they have an expectable evaluation score otherwise. EPA does this to focus their efforts on establishing a dose protective of most species from adverse effects associated with long-term exposures and sublethal reproductive and growth effects. Another notable exception is that the Laboratory uses reproduction/development, growth, and survival endpoints to calculate a TRV, while EPA only uses the reproduction/development and growth endpoints to calculate the TRV. EPA then uses the survival endpoints in a comparative manner to evaluate the protectiveness of the TRV for lethality.

The Laboratory has chosen to include, along with chronic studies, those of acute, subacute, and subchronic duration and to utilize reproduction/development, growth, and survival endpoints to minimize data gaps for toxicological information for chemicals of potential ecological concern (COPECs) in the SLERA process.

The EPA PTVs are used to augment existing Laboratory PTVs compiled using the Laboratory's PTSE method or to fill data gaps using the Laboratory's PTSE method for Laboratory COPECs.

METHODS

Data acquisition:

- PTVs reported in the EPA Eco-SSL reports for PAHs (EPA 2007, 253394) and DDT and metabolites (EPA 2007, 253393) were reviewed.

Data coding – effect levels and endpoints:

- Selected no-effect levels (no observed adverse effect levels [NOAELs]/no observed effect concentrations [NOECs]), low-effect levels (lowest observed adverse effect levels [LOAELs]/ lowest observed effect concentration [LOECs]), median-effect levels (effective doses for 50% of the population [ED_{50}s]/effective concentrations for 50% of the population [EC_{50}s]) and median lethality effect levels (lethal doses for 50% of the population [LD_{50}s]/lethal concentrations for 50% of the population [LC_{50}s]) data for individual PAHs and DDT and metabolites that are Laboratory COPECs (Table B-3) that represented reproduction/development, growth, or survival endpoints were selected for use in the Laboratory TRV data set. Table B-4 contains a description of endpoint group coding.

Table B-3
EPA Eco-SSL Toxicity Data for PAHs and DDT and Metabolites That Are Laboratory COPECs

Molecular Weight[a]	COPEC	Receptor Group[b]
LMW	Anthracene	P
HMW	Benzo(a)pyrene	M
LMW	Fluoranthene	I
LMW	Fluorene	I
LMW	Naphthalene	M
LMW	Phenanthrene	I
HMW	Pyrene	I
n/a	DDT[4,4'-]	B, M
n/a	DDE[4,4'-]	B, M
n/a	DDD[4,4'-]	B, M

[a] LMW = Low molecular weight, HMW = high molecular weight, n/a = Not applicable.
[b] P = Plant, M = mammal, I = invertebrate, B = bird.

Table B-4
Laboratory Endpoint Groups

Endpoint Group	Description
Reproduction/development	Development or mortality measured in juvenile organisms or immature plants that were exposed to the chemical through parental exposure because it is considered to be a measurement of the ability of the parents to produce offspring that can develop into reproductive adults. Also, growth of a juvenile organism or immature plant that was directly exposed to the chemical because it reflects the potential for the juvenile or immature plant to develop normally into a reproductive adult.
Survival	Mortality in an adult organism or in a juvenile organism or immature plant directly exposed to the chemical because it is considered a measurement of the ability of the organism to survive to reproductive maturity.
Growth	Weight change for mature organisms is measured or a change occurs in size of a mature organism (e.g., height or root length of plants).

Data coding - handling of repetitive values:

- In the cases where Laboratory- and EPA-derived toxicity values exist from the same reference, the Laboratory-derived value(s) is used. The exception to this rule is if the Laboratory value is associated with Laboratory Tier 4 TRV data (Table B-5). Tier 4 TRV data are not included because this type of toxicity data was taken from secondary data sources other than the nationally accepted EPA Eco-SSL documents and is not considered appropriate for deriving higher tier Laboratory TRVs. Tier 4 TRV data are not included because of differences in the level of detail in documentation of the TRV derivation process compared with the Laboratory PTSE method. Only Tier 1, 2, and 3 TRV data are included in the Laboratory TRV data sets. Table B-5 defines the Laboratory TRV tiers and their hierarchy for use in calculating TRVs/ESLs.
- Only one effect type per reference per receptor/COPEC pair is included in the data set. Best professional judgment is used to select the most ecologically relevant and/or sensitive value per ecologically relevant endpoint category per study/reference. For example, if one experiment had three reproduction/development endpoints, one survival endpoint, and one adult growth endpoint, the most ecologically relevant and/or sensitive reproduction/development endpoint of the three available would be included in the data set along with the single survival and single growth change endpoints. This exclusion process minimizes the possibility of a TRV being skewed to the results of any particular study as a result of repetitive values for the same endpoint category within a study.

Table B-5
Laboratory TRV Tiers and Hierarchy for Use Calculating ESLs

TRV Tier	Description	Hierarchy for Use
1	Nationally accepted TRV (e.g., EPA Eco-SSL TRV)	First
2	Geometric mean (GMM) TRV derived through the PTSE process	Second
3	Critical study (CS) TRV derived through the PTSE process	Third
4	Secondary source TRV (e.g., Oak Ridge National Laboratory, Sandia National Laboratories)	Fourth

Normalization of toxicity values to chronic no-effect levels:

- All toxicity values were normalized to chronic no-effect levels (NOAELs/NOECs) using UFs for differences in exposure duration (Table B-6) and/or effect level per the Laboratory's PTSE methods. Table B-7 indicates the UFs applied for various exposure durations and effect level combinations.
- One exposure duration classification that is used that is not necessarily based on the actual chemical administration period is the chronic-critical life stage (C-CL) designation. A C-CL endpoint is equivalent to a chronic exposure endpoint regardless of the actual chemical exposure duration associated with the endpoint because it is more likely to capture effects that reflect critical life stages that are relevant to population success. For the purpose of deriving TRVs, a critical life stage is defined as a life stage associated with a chemical exposure occurring during the reproductive cycle of the test organism and/or during the development of the immature test organism. For an endpoint to be considered development, it has to fall into one of two scenarios in which measurements must reflect either the development of immature organisms that were exposed via parents or the development of immature organisms directly exposed to the chemical.

Table B-6
Exposure Duration Categories and IDs for Birds, Mammals, Earthworms, and Plants

Duration	Duration ID	Birds and Mammals	Earthworms and Plants
Chronic	C	91 days or more	7 days or more
Chronic-critical life stage	C-CL	All reproduction/development endpoints	
Subchronic	SC	14 to 90 days	3 to 6 days
Acute	A	13 days or less	2 days or less
Single dose	SD	One-time administration	One-time administration
Not reported	NR	Not applicable	Not applicable

Table B-7
Uncertainty Factors Applied to Derive Chronic NOAEL- or NOEC-based Effect Levels

Type of Effect Level Available*	UF Applied to Derive a TRV That Is a Chronic NOAEL- (NOEC-) Based Effect Level
C-CL or C NOAEL (NOEC)	1
C-CL or C LOAEL (LOEC)	10
C-CL or C LD_{50} (LC_{50}), ED_{50} (EC_{50})	100
SC NOAEL (NOEC)	10
SC LOAEL (LOEC), LD_{50} (LC_{50}), ED_{50} (EC_{50})	100
A or SD NOAEL (NOEC)	100
A or SD LOAEL (LOEC), LD_{50} (LC_{50}), ED_{50} (EC_{50})	100

*C = Chronic, SC = subchronic, A = acute, SD = single dose.

Calculation of TRV:

- A Tier 2 GMM TRV was calculated per Laboratory PTSE methods (Equation B-1) when there were three or more PTVs for a particular COPEC and receptor group. A CS TRV was derived per Laboratory PTSE methods when there were less than three PTVs for a particular COPEC and receptor group.

  GMM TRV = nth root of (EL1 x EL2 x EL3 x …ELn) **Equation B-1**

  Where n is greater than or equal to 3, and each effect level (EL) represents a chronic NOAEL-based effect level for an oral ingestion exposure for an ecologically relevant effect (i.e., reproduction or development, survival or adult body weight or size changes).

RESULTS

See individual TRV summary reports and supporting PTSE documentation in the ECORISK Database (LANL 2012, 226667).

Table B-8 contains TRVs generated through this process.

Table B-8
TRVs

Molecular Weight[a]	COPEC	Receptor Group[b]	GMM TRV[c]	CS TRV[c]
LMW	Anthracene	P	6.88	n/a[d]
HMW	Benzo(a)pyrene	M	5.58	n/a
LMW	Fluoranthene	I	10.2	n/a
LMW	Fluorene	I	3.7	n/a
LMW	Naphthalene	M	14.3	n/a
LMW	Phenanthrene	I	5.5	n/a
HMW	Pyrene	I	10.6	n/a
n/a	DDD	B	0.016	n/a
n/a	DDD	M	5.83	n/a
n/a	DDE	B	0.48	n/a
n/a	DDE	M	9.02	n/a
n/a	DDT	B	2.01	n/a
n/a	DDT	M	n/a	0.139

[a] LMW = Low molecular weight, HMW = high molecular weight.
[b] P = Plant, M = mammal, I = invertebrate, B = bird.
[c] Units are mg/kg for receptor groups I and P and mg/kg/d for receptor groups B and M.
[d] n/a = Not applicable.

SUMMARY

Based on the primary toxicity data available in EPA's Eco-SSL 2007 reports for PAHs (EPA 2007, 253394) and DDT and metabolites (EPA 2007, 253393), the Laboratory was able to augment existing PTSE method derived data sets or fill Laboratory COPEC TRV data gaps for 10 COPEC/receptor group pairs. GMM TRVs were derived for 2 high molecular weight PAHs (benzo[a]pyrene/mammal and pyrene/invertebrate [earthworm]), 2 low molecular weight PAHs (fluorene/invertebrate [earthworm], naphthalene/bird, and naphthalene/mammal), DDD/bird, DDD/mammal, DDE/bird, DDE/mammal, DDT/bird, and DDT/mammal.

REFERENCES

The following list includes all documents cited in this appendix. Parenthetical information following each reference provides the author(s), publication date, and ER ID. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

EPA (U.S. Environmental Protection Agency), April 2007. "Ecological Soil Screening Levels for DDT and Metabolites," OSWER Directive No. 9285.7-57, Office of Solid Waste and Emergency Response, Washington, D.C. (EPA 2007, 253393)

EPA (U.S. Environmental Protection Agency), June 2007. "Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs), Interim Final," OSWER Directive No. 9285.7-78, Office of Solid Waste and Emergency Response, Washington, D.C. (EPA 2007, 253394)

LANL (Los Alamos National Laboratory), October 2012. "ECORISK Database (Release 3.1)," on CD, LA-UR-12-24548, Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 2012, 226667)

LA-UR-17-26376
September 2017
ESHID-602538

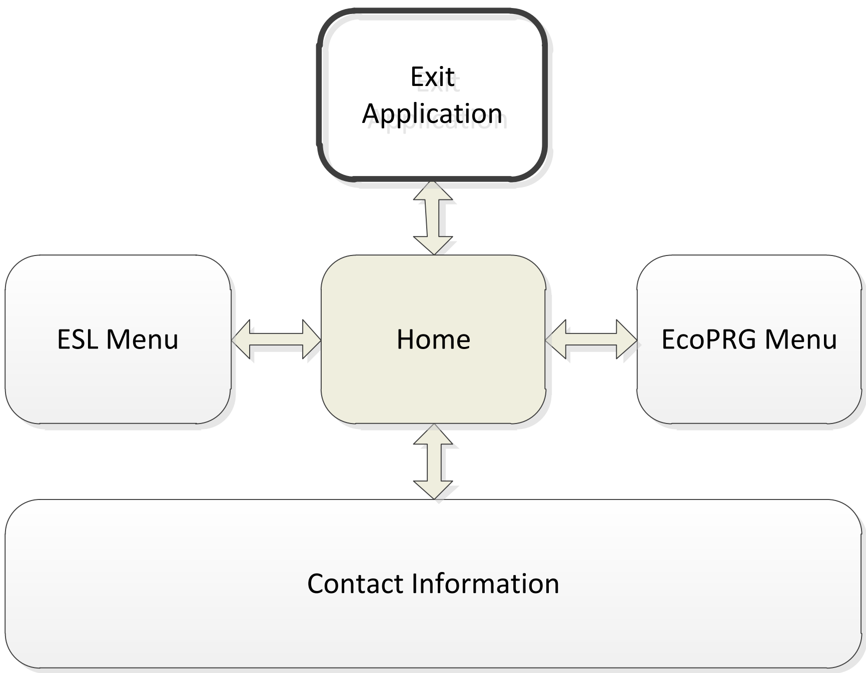
ECORISK Database Visual Guide, Revision 1

Los Alamos
NATIONAL LABORATORY

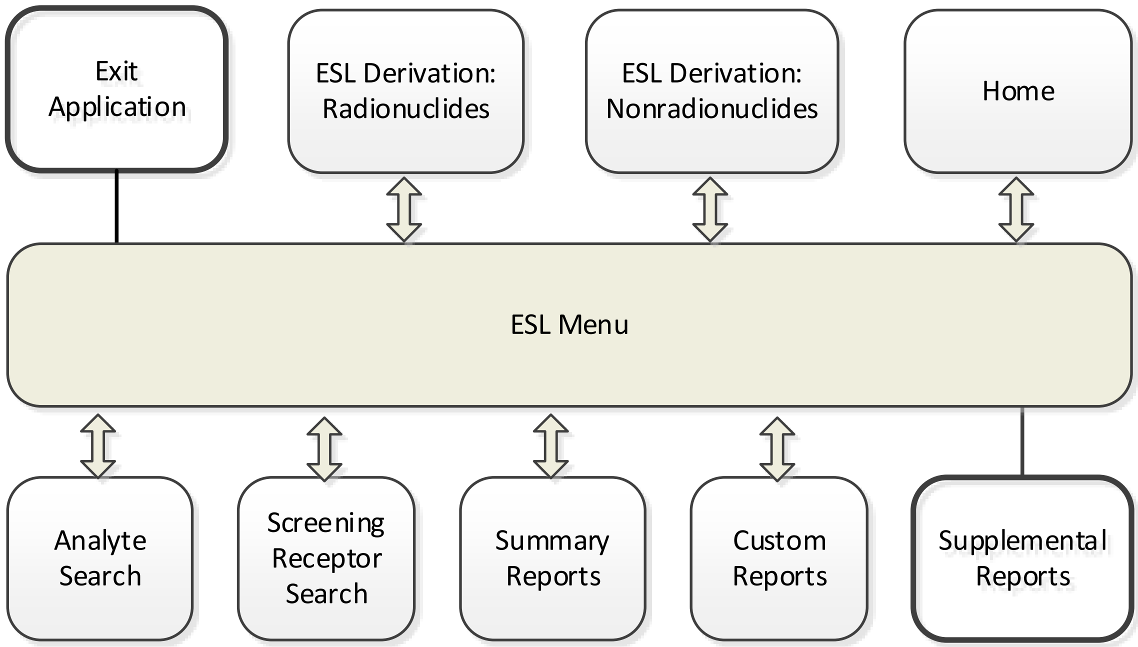
Prepared by the Environmental Programs Directorate

CONTENTS

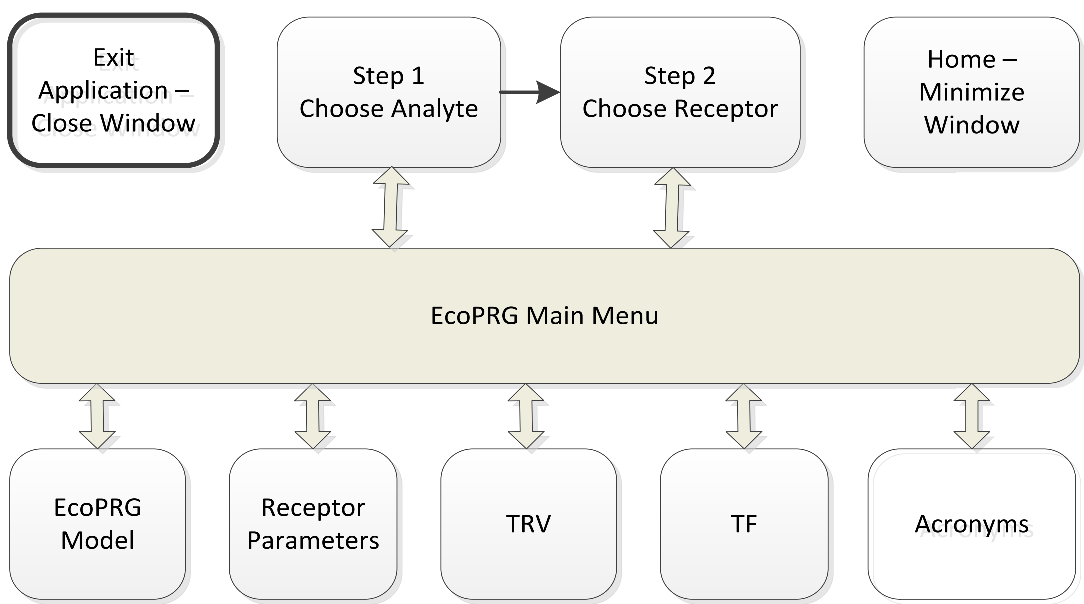
The ECORISK Database was developed by Los Alamos National Laboratory to support the evaluation of the impacts on the ecology associated with solid waste management units or areas of concern. The visual guide to the ECORISK Database is applicable to release 3.3 or later if accessing ecological screening levels (ESLs) and supporting documentation and release 4.0 or later if accessing ecological preliminary remediation goals (EcoPRGs) and supporting documentation. This visual guide is a companion to the full documentation of database operation provided by the user guide. The database and guides are available for download at http://www.lanl.gov/environment/protection/eco-risk-assessment.php. This guide provides a series of flow diagrams depicting navigation among the major components of the database interface screens. For more detailed information and documentation, refer to the full ECORISK Database User Guide.



Initial database interface screens

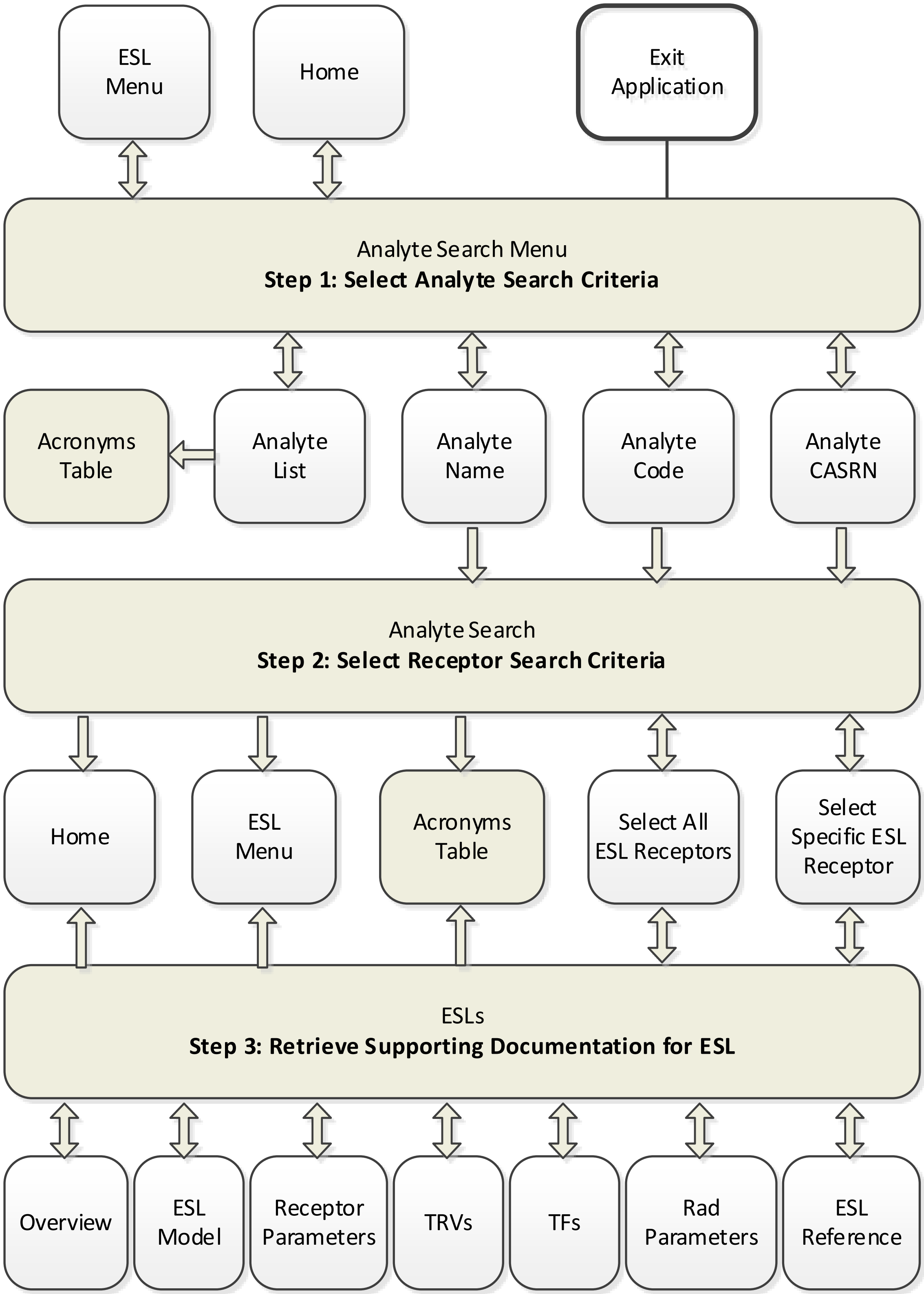


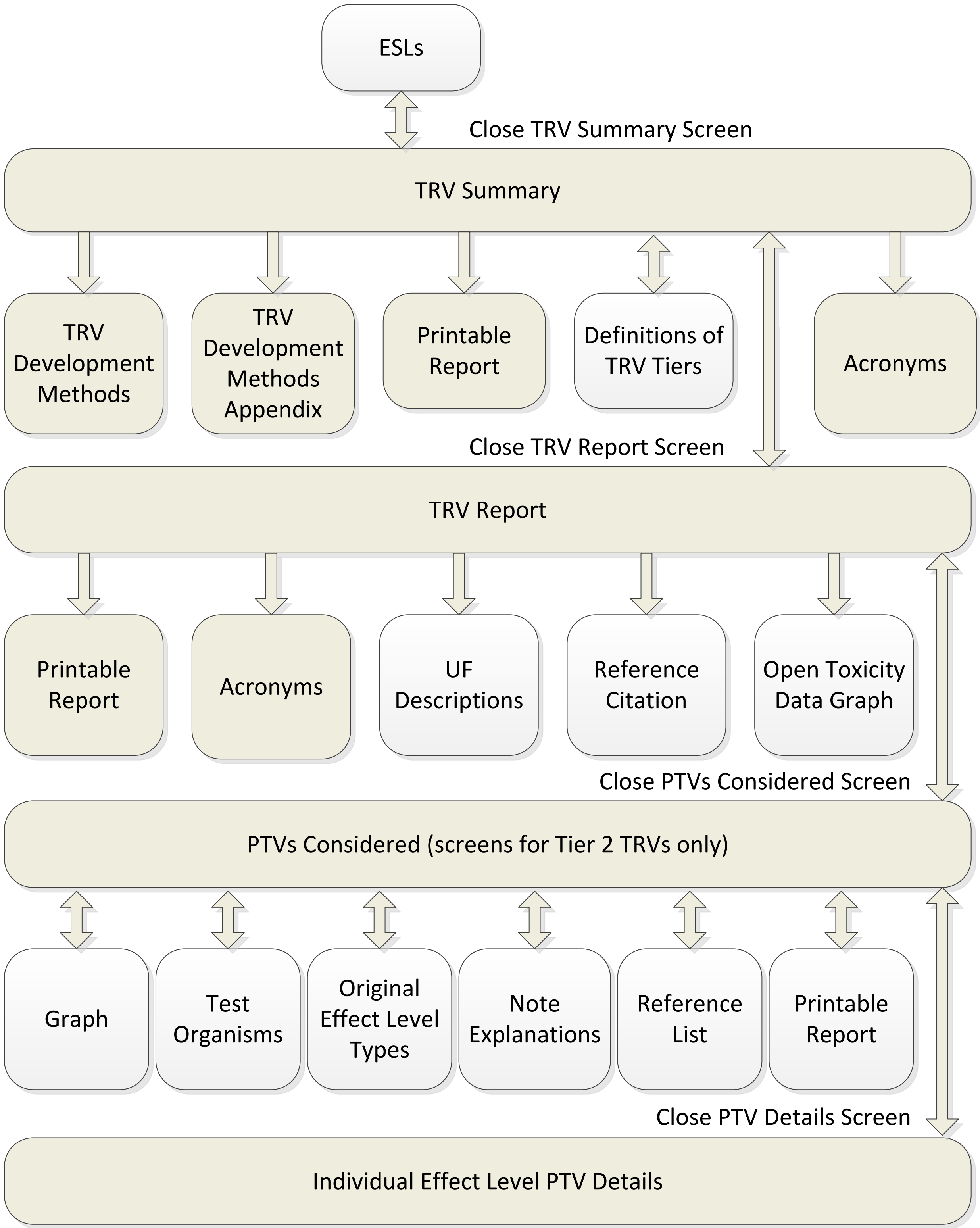
ESL Main menu option screens



EcoPRG Main menu option screens

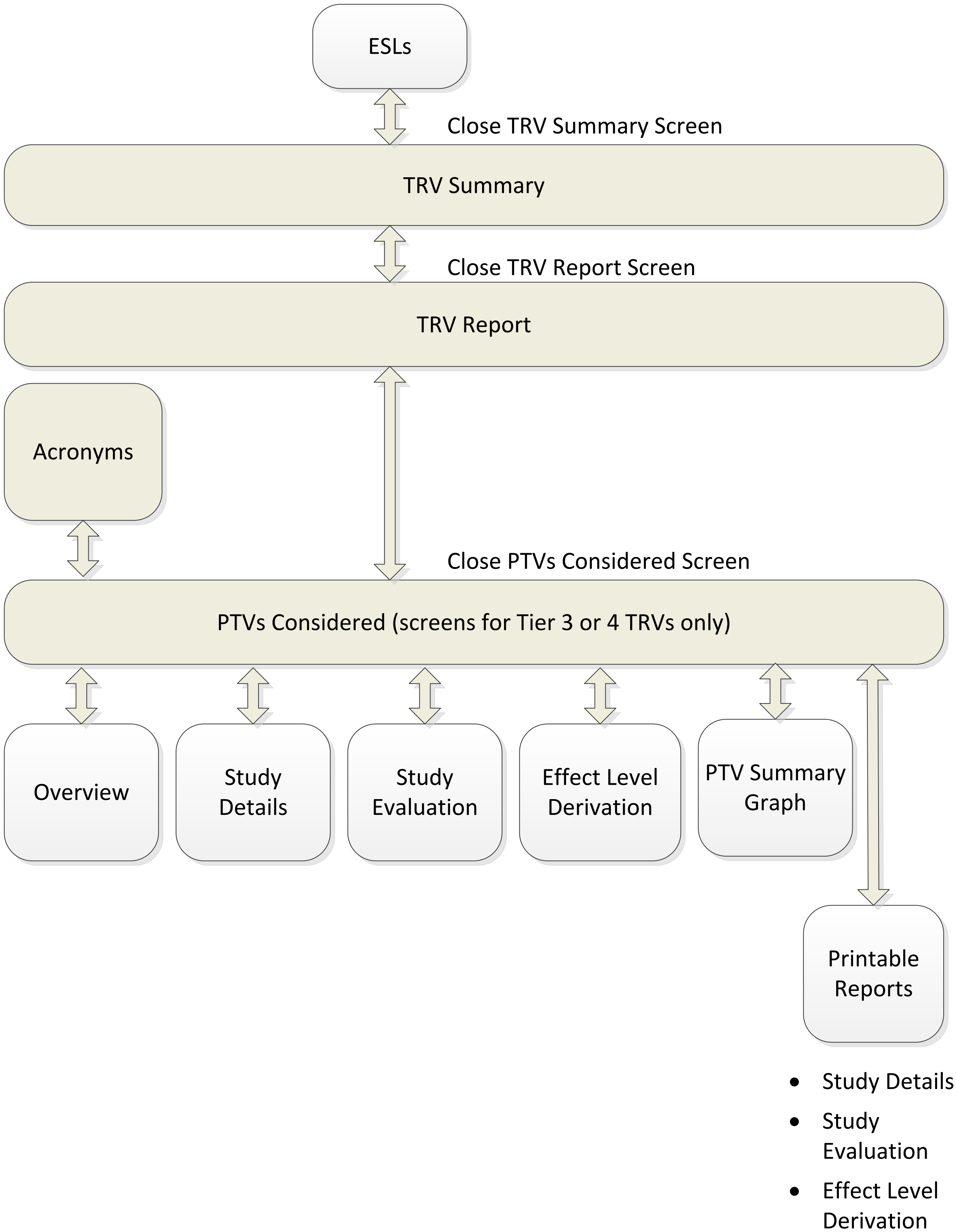
Analyte search and data retrieval screens





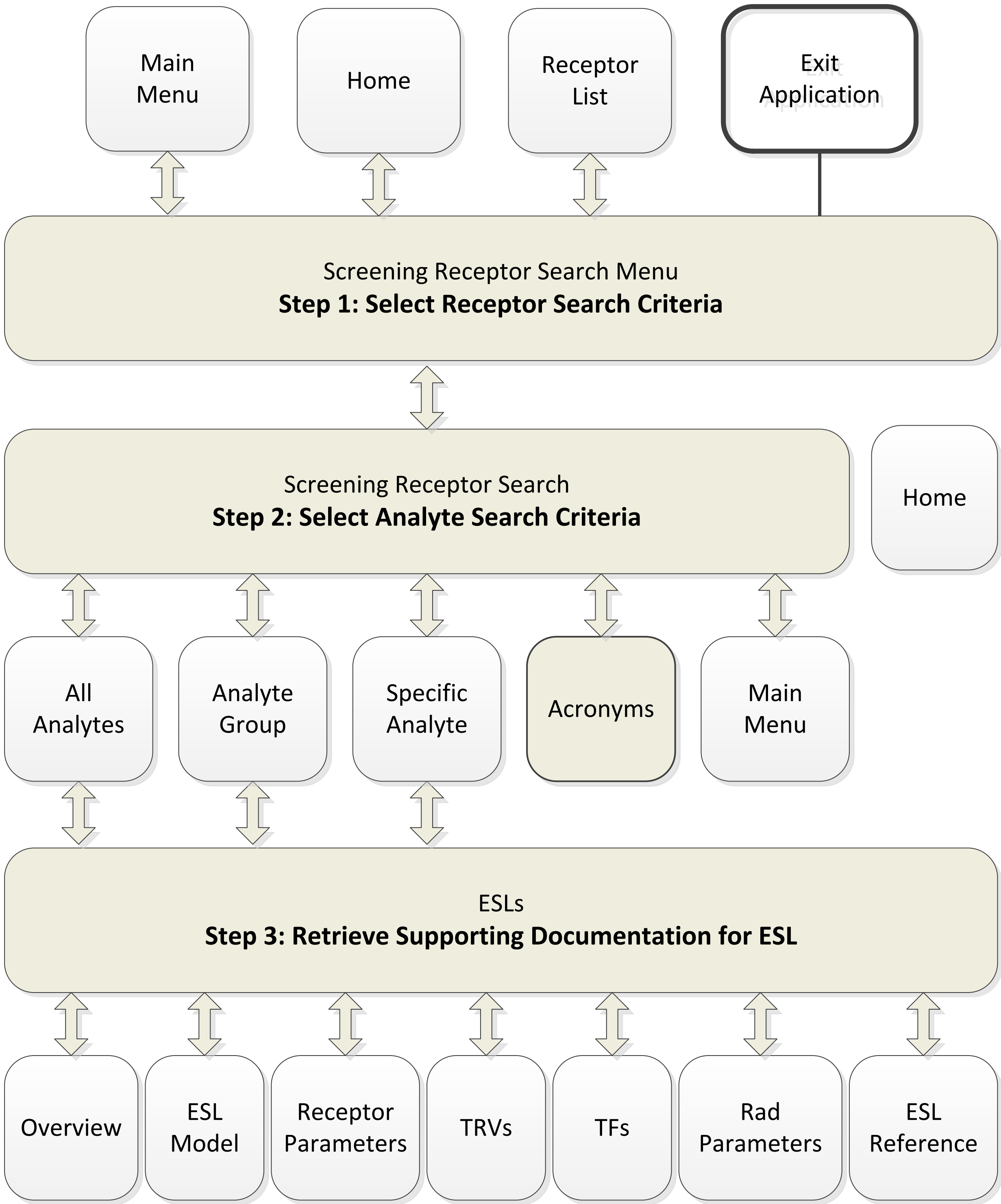
Note: The PTVs considered option is not available for Tier 1 TRVs.

Toxicity data documentation screens for Tier 2 TRVs



Note: See previous chart for expanded TRV summary and report screens.

Toxicity data documentation screens for Tier 3 or 4 TRVs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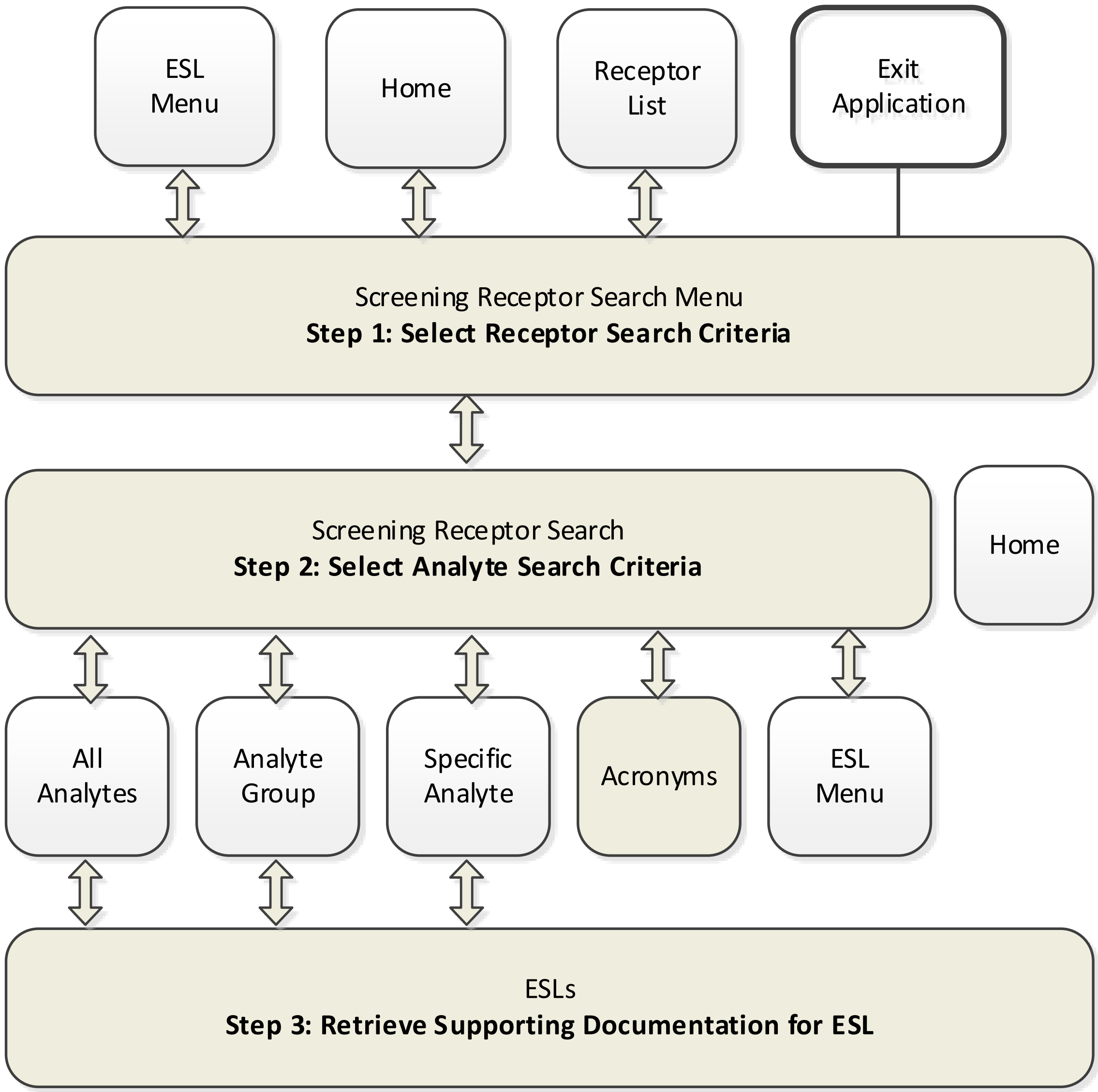
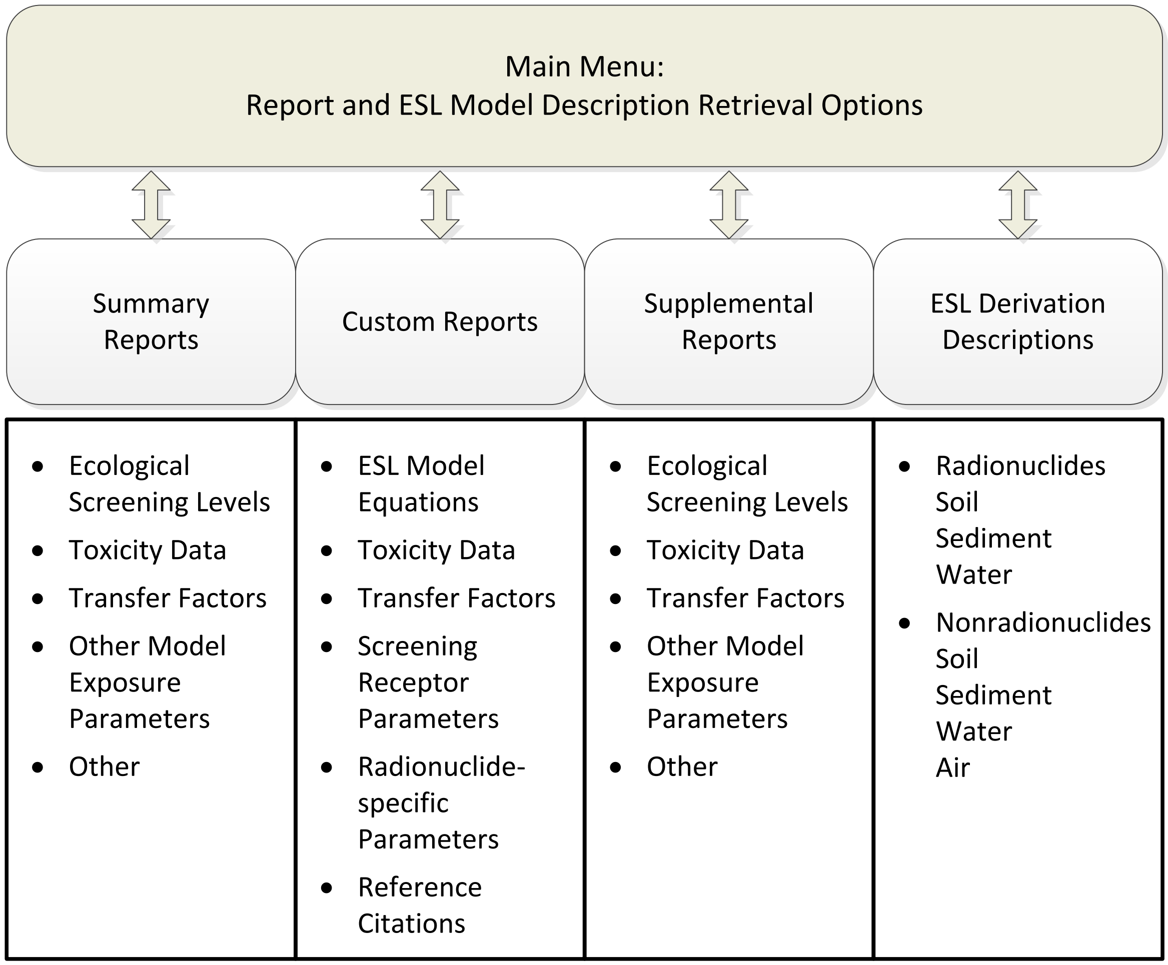
Home
Receptor List
Exit Application
Screening Receptor Search Menu
Step 1: Select Receptor Search Criteria
Screening Receptor Search
Step 2: Select Analyte Search Criteria
Home
All Analytes
Analyte Group
Specific Analyte
Acronyms
Main Menu
ESLs
Step 3: Retrieve Supporting Documentation for ESL
Overview
ESL Model
Receptor Parameters
TRVs
TFs
Rad Parameters
ESL Reference



Screening receptor search and data retrieval screens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Report and ESL Model Description Retrieval Options
Summary Reports
Custom Reports
Supplemental Reports
ESL Derivation Descriptions
Ecological Screening Levels
Toxicity Data
Transfer Factors
Other Model Exposure Parameters
Other
ESL Model Equations
Toxicity Data
Transfer Factors
Screening Receptor Parameters
Radionuclide-specific Parameters
Reference Citations
Ecological Screening Levels
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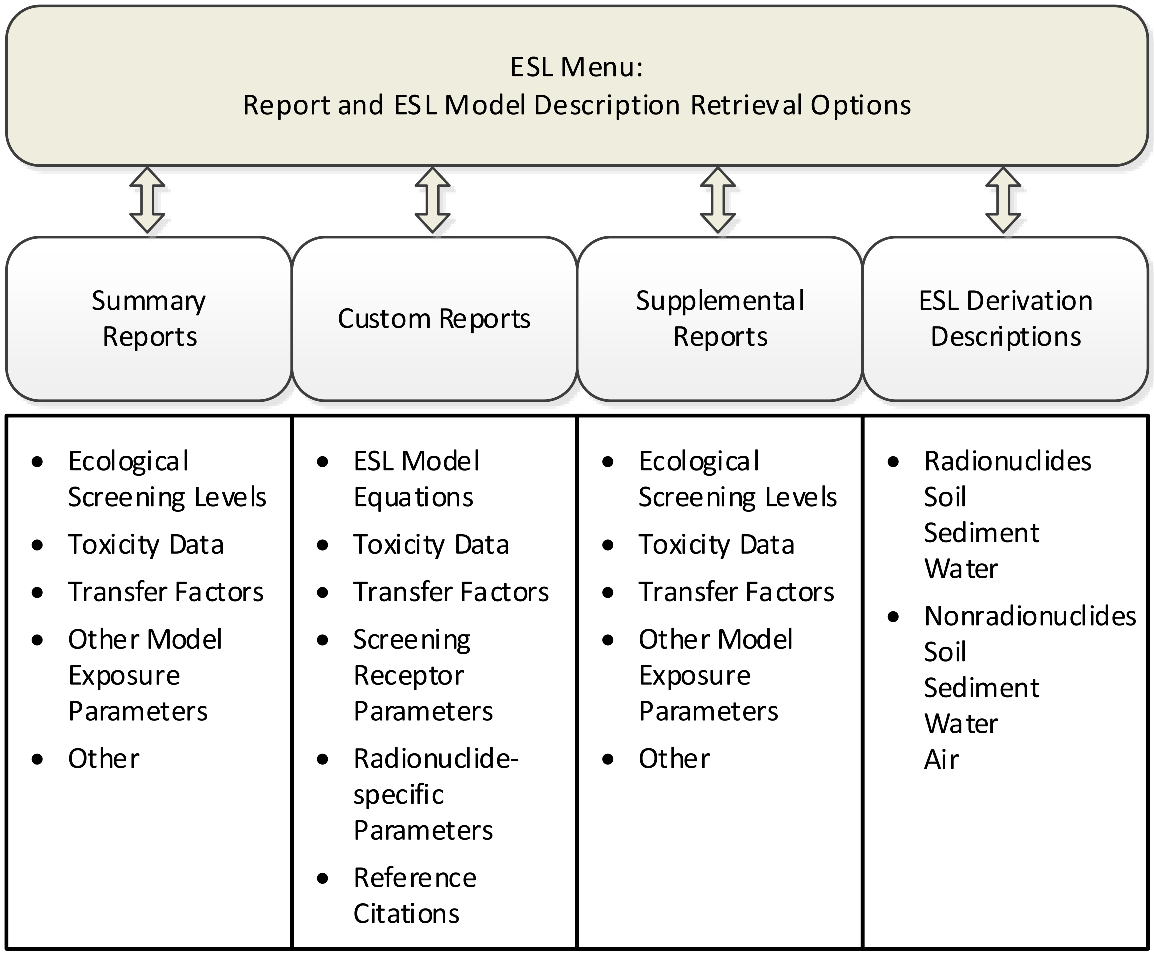
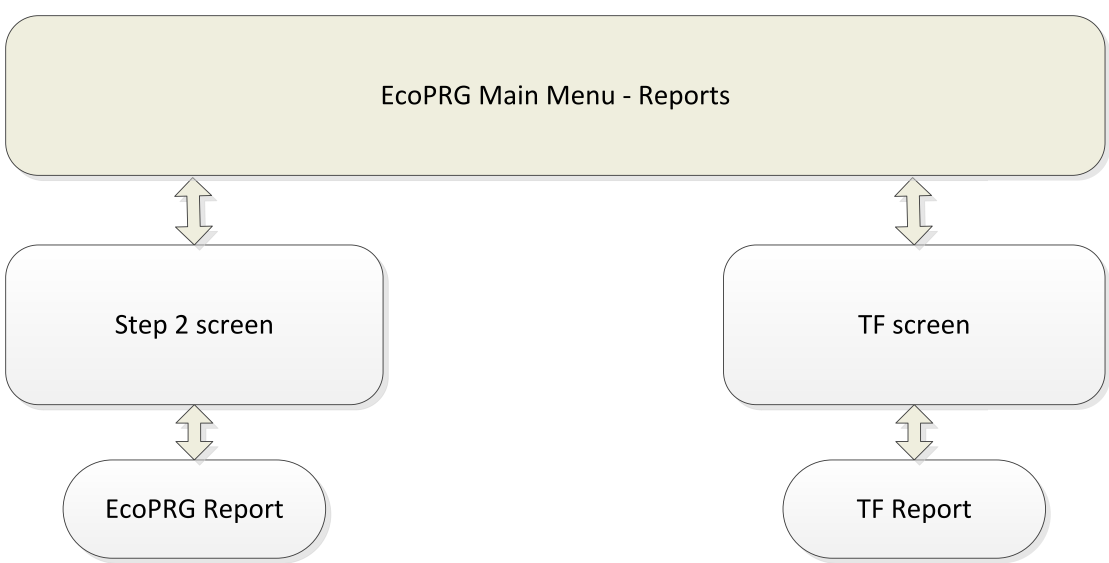


ESL Main menu report option screens



EcoPRG Main menu report option screens