

HUMAN HEALTH RISK ASSESSMENT (HHRA) NOTE NUMBER 3, DTSC-modified Screening Levels (DTSC-SLs)



**CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL (DTSC)
HUMAN AND ECOLOGICAL RISK OFFICE (HERO)**

HUMAN HEALTH RISK ASSESSMENT (HHRA) NOTE

HERO HHRA NOTE NUMBER: 3, DTSC-modified Screening Levels

RELEASE DATE: June 2020 – Revised April 2025

ISSUE: DTSC has developed modified screening levels based on the U.S. Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) for use in the human health risk assessment process at hazardous waste sites and permitted facilities. HHRA Note 3 is periodically updated and users should always check the DTSC website for the most recent versions, including other [HHRA Notes](#).¹

SUMMARY

In 2008, the USEPA released RSLs to replace the Preliminary Remediation Goals (PRGs) which were formerly available from several USEPA Regional Headquarters. HERO reviewed the differences in methodology and RSL concentrations to develop a methodology to incorporate the RSLs into HERO human health risk assessment consultation and review. In addition to updated toxicity criteria, several differences in methodology resulted in a subset of RSLs substantially higher (less protective) than the original PRGs and resulted in HERO issuing recommendations for use of specific screening concentrations. HERO's review of the RSLs had been conducted in two phases: Phase I (soil and tap water screening levels) and Phase II (air screening levels). Initial versions of HHRA Note 3 (November 2009; May 2011) addressed a Phase I review only. A Phase II review was incorporated into the 21 May 2013 iteration of HHRA Note 3, and an additional update released 14 July 2014. Since July 2014, DTSC is now providing regular updates to the DTSC-SLs, tracking the updates to the USEPA RSL tables after their release. HHRA Note 3 was last updated in June 2020.

The present revision of HHRA Note 3 incorporates HERO recommendations based on adoption of the *Toxicity Criteria for Human Health Risk Assessments, Screening Levels, and Remediation Goals* rule (hereafter "Toxicity Criteria Rule") and review of the

¹ <https://dtsc.ca.gov/human-health-risk-hero/>

November 2024 release of the RSL tables. Exposure factors used in this HHRA Note 3 are consistent with the October 15, 2024 update to HERO HHRA Note 1, which incorporates much of the 6 February 2014 USEPA memorandum “*Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors. OSWER Directive 9200.1-120.*”

HERO has prepared reference Tables [1](#), [2](#), and [3](#) that provide recommended screening levels for compounds in soil, tap water, and air, respectively. **In accordance with the Toxicity Criteria Rule, the DTSC-SLs provided in Note 3 should be used in preference to USEPA RSLs to evaluate chemical concentrations in environmental media at California sites and facilities. USEPA RSLs should continue to be used for contaminants for which a DTSC-SL value in Note 3 is not available. Note that the DTSC-SLs are derived at a target risk level of 1×10^{-6} (one in one million) and a target hazard quotient value of 1.** In addition, specific recommendations for several contaminants are discussed. Alternatively, in consultation with HERO, the USEPA on-line screening calculator can be used to calculate site-specific values using the more protective of Cal/EPA and USEPA toxicity criteria and applying assumptions consistent with HERO recommendations (e.g., route-to-route extrapolation between the oral and inhalation exposure pathways for inhalation toxicity criteria; and California-specific exposure factors).

HERO’s development of DTSC-SLs for air (Table 3) included route extrapolation for chemicals lacking an inhalation toxicity value but which are identified as volatile by the USEPA RSL methodology², or by DTSC’s vapor intrusion guidance. The Toxicity Criteria Rule and the USEPA Superfund hierarchy of toxicity-criteria sources provide oral toxicity criteria for more chemicals than California agency sources. Consequently, for volatile compounds without inhalation toxicity criteria, most extrapolations to derive DTSC-SLs for air are based on the USEPA oral toxicity criteria. Details on toxicity criteria references are provided in HHRA Note 10.

WHAT’S NEW (April 2025)

- A computer programming (Python 3)-based method is used to derive the DTSC-SLs in this update. This method is employed in an effort to automate the process and aid in quality control and quality assurance procedures.
- As a continuation of previous iterations of HHRA Note 3, HERO has reviewed all updates of RSL tables since 2022 (see [USEPA’s “What’s New” webpage](#)³), as well as other relevant information, including the Toxicity Criteria Rule and other updated

² In the June 2015 releases of the RSL tables, USEPA included a vapor pressure greater than 1 millimeter of mercury as a defining characteristic of volatile compounds in addition to the long-standing criterion of a Henry’s law constant greater than 1×10^{-5} **(one in one hundred thousand)** (atmosphere-cubic meter) per mole.

³ <https://www.epa.gov/risk/regional-screening-levels-rsls-whats-new>

Cal/EPA criteria. This revised HHRA Note 3 incorporates our updated recommendations for screening levels, current as of April 2025.

- The adult soil adherence factor for the industrial scenario has been changed from 0.2 to 0.12 milligrams per centimeter squared (mg/cm²) in the April 2025 update of HHRA Note 1. The soil DTSC-SLs for commercial/industrial receptors are updated in accordance with this HHRA Note 1 update.

As a reminder, chemicals are listed in alpha-numeric order to eliminate complexities in tabular formatting. HERO recommends the use of CAS (Chemical Abstracts Service) numbers to avoid problems with nomenclature and synonyms.

HERO ISSUE CONTACT PERSON:

Weiying Jiang, Ph.D., DABT

Staff Toxicologist

EMAIL: Weiying.Jiang@dtsc.ca.gov

BACKGROUND

HERO has a long history of working with the USEPA Region 9 office to integrate California-specific risk assessment concerns into the Preliminary Remediation Goal (PRG) listing and the PRG-screening risk assessment process. One example of the collaboration was the inclusion of 'Cal-modified' values into the USEPA Region 9 PRG list from 2004. In 2008, USEPA released a single set of RSL tables for national use which replaced the USEPA Region 9 PRGs (and eliminated Cal-modified values).

Since then, new USEPA RSLs have been released on a semiannual basis (Spring and Fall) and have included substantial modifications to the RSL methodology and toxicity value updates. Specific details of changes in the USEPA RSL methodology are documented in the "What's New" webpage section of the USEPA website.

HERO continues the ongoing process of reviewing new values and methodologies, and their application in screening risk assessment. HERO generally has incorporated the USEPA RSL methodological changes, except as noted later in this text. For example, the dermal exposure pathway has been incorporated into the tap water RSL calculation. There now are 873 elements, compounds and mixtures listed in the RSL tables.

A DTSC-SL value is derived for at least one combination of medium, receptor, and endpoint for 538 unique elements, compounds, and mixtures in this iteration of HHRA Note 3.

USES OF RSLs and DTSC-SLs

Section 3.0 of the [USEPA RSL Users Guide](#)⁴ lists the following uses for the RSLs:

“These concentrations can be used for:

- Prioritizing multiple sites or operable units or areas of concern within a facility or exposure units
- Setting risk-based detection limits for contaminants of potential concern (COPCs)
- Focusing future site investigation and risk assessment efforts (e.g., selecting COPCs for the baseline risk assessment)
- Identifying contamination which may warrant cleanup
- Identifying sites, or portions of sites, which warrant no further action or investigation
- Initial cleanup goals when site-specific data are lacking”

RSLs are NOT to be used to perform a human health Baseline Risk Assessment (BRA), but to assist in the tasks preceding a human health BRA.

In the past, the USEPA Region 9 PRGs had been used by HERO primarily at open, closing, and formerly-used Department of Defense (DoD) sites. Screening risk assessments at some non-military sites have in the past used different processes. However, the DTSC-SLs included in this report are being used, and are intended for use, at any DTSC site.

HHRA Note Number 4 and the [Preliminary Endangerment Assessment \(PEA\) Guidance Manual](#)⁵ provide the most recent guidance for use of screening levels in risk assessments. In general, HERO recommends compliance with the basic approach and principles outlined in Note 4. This includes the provision that DTSC-SLs and

USEPA RSLs are used for screening sites as a whole, not for “screening out” individual chemicals. Ratios of the concentration of a particular chemical in a medium (e.g., soil, water, or air) to its risk-based concentration are calculated and the ratio is summed across all chemicals and media to estimate a total risk and hazard for the site. Prior to making risk management decisions based on the results of such an evaluation, it is critical that limitations associated with the use of DTSC-SLs and USEPA RSLs be carefully noted and understood. For example, the derivation of the DTSC-SLs and USEPA RSLs did not include an evaluation of the intrusion of vapors from the subsurface to indoor air (see below for a more detailed discussion of exposure pathways). The intrusion of volatile

⁴ <https://www.epa.gov/risk/regional-screening-levels-rsls-users-guide>

⁵ https://dtsc.ca.gov/wp-content/uploads/sites/31/2023/06/PEA_Guidance_Manual.pdf

compounds from soil or groundwater to indoor air is a potentially major exposure pathway and should be evaluated. Ecological receptors were not considered in the derivation of DTSC-SLs and USEPA RSLs. The DTSC-SLs and USEPA RSLs apply only to human receptor exposure scenarios and are NOT necessarily protective of ecological receptors. The need for an ecological risk assessment should be evaluated separately.

CONCEPTUAL SITE MODEL AND INCLUDED EXPOSURE PATHWAYS

Before conducting a screening level human health risk assessment, development of a site-specific conceptual site model (CSM) or site exposure model is critical to ensure all appropriate receptors and exposure pathways are addressed by the chosen screening levels.

The risk-based residential and industrial soil screening levels consider several exposure pathways (ingestion, inhalation of particles and volatile chemicals, and dermal absorption) from each of three environmental media (soil, tap water, and air).

The tap water screening levels are based on assumed domestic use of water via ingestion from drinking, inhalation of volatile chemicals generated during household use (e.g., showering, dish washing), and dermal exposure.

Although the soil and tap water screening levels account for many typical exposure pathways, they do not account for the following potential exposure pathways (for example, as discussed in the RSL User's Guide):

- The residential and industrial soil RSLs do not account for exposure to indoor air vapors due to intrusion of subsurface soil gas emissions; ingestion via uptake of plants (home-grown fruits and vegetables), meat, or dairy products; or inhalation of particles (fugitive dust) generated by activities which elevate particulate emissions such as truck traffic and use of heavy equipment.

Pathways not considered in the calculation of the tap water RSLs include subsurface vapor intrusion to indoor air from volatile compounds present in groundwater and transfer of contaminants in surface water or groundwater to aquatic organisms or terrestrial plants with subsequent ingestion by humans. The RSL on-line calculator and User's Guide do however include equations which can be used to calculate screening-level concentrations in fish assuming human consumption of fish. These equations do not address impacts to fish; but rather, human consumption of fish, which may be contaminated. The RSL on-line calculator and User's Guide also provide equations which can be used to evaluate recreational receptor exposures to soil/sediment and surface water.

If pathways excluded from the derivation of the soil and tap water screening levels are anticipated at the site (e.g., home-grown produce consumption or excessive dust generation), an RSL- or DTSC-SL-based screening level risk evaluation may significantly underestimate risk. In addition, if there are exposure scenarios other than residential and

industrial land use, a screening level risk evaluation using RSLs or DTSC-SLs may not be appropriate (e.g., sites in which trench workers may be exposed to shallow groundwater). In such cases, the evaluation of risk to human receptors at the site could proceed directly to the baseline human health risk assessment process. In other instances, the screening risk assessment may overestimate risk but, in these cases, a baseline human health risk assessment will likely be necessary for site-specific risk-management decisions. For reference, HERO has compiled a summary of recommended exposure factors which may be used as default values in baseline human health risk assessments for California hazardous waste sites and permitted facilities, DTSC HHRA Note 1, which is mostly consistent with the recent changes to the USEPA RSL methodology.

Additional Considerations Regarding Exposure for the Industrial Scenario

Evaluations of the industrial scenario using only the soil screening levels do not account for the following pathways: all exposures to groundwater (e.g., consumption as drinking water, vapor intrusion from ground water, or dermal contact); exposure via vapor intrusion to indoor air; exposure to contaminated surface water, and inhalation of particulates generated by activities which increase particulate levels such as truck traffic and use of heavy equipment. If these exposure pathways are significant at a site, screening risk assessment using soil screening levels is generally insufficient. In some cases, it may be possible, with the cooperation of the DTSC toxicologist, to incorporate the risk from the vapor intrusion pathway into the screening risk assessment by adding the risk from this pathway into the risk estimated from the use of the soil screening levels.

The tap water RSLs and DTSC-SLs are calculated using residential land use assumptions. As such, these screening levels are not reflective of potential industrial exposures and may over- or underestimate exposures via the water pathways (e.g., ingestion and dermal exposures to contaminated water, and inhalation exposure to volatile contaminants emitted into workplace air from contaminated water).

METHODOLOGY FOR THE DTSC-SLs

HERO developed a computer language (Python 3) based method to calculate DTSC-SLs in this update. To validate this method, the same Python scripts were used with the RSL algorithms, USEPA exposure-parameter values, USEPA toxicity criteria, and the RSL analyte roster to generate outputs and compare to USEPA RSL values downloaded from the USEPA website. Computed values matched the USEPA values for soil, tap water, and air after allowing for slight differences attributable to treatment of significant digits and rounding.

The aforementioned Python scripts were then used with toxicity criteria consistent with the Toxicity Criteria Rule and California exposure factors to derive DTSC-SLs. California exposure factors are those listed in HHRA Note 1 or the PEA Guidance

Manual, and many values match those used by USEPA. Toxicity criteria were obtained based on the Toxicity Criteria Rule, as described next. DTSC-SLs were calculated for the entire roster of RSL analytes. The final roster of soil and tap water DTSC-SLs are provided in Tables 1 and 2, respectively; air screening levels are listed in Table 3.

Toxicity Criteria Rule

On 4 September 2018, the *Toxicity Criteria for Human Health Risk Assessments, Screening Levels, and Remediation Goals* rule (“[Toxicity Criteria Rule](https://dtsc.ca.gov/regs/toxicity-criteria-for-human-health-risk-assessment/)”⁶) was approved by the State of California Office of Administrative Law and became effective immediately. The Rule requires human health risk assessments, risk-based screening levels, and remediation goals prepared pursuant to the Hazardous Substances Account Act (Health and Safety Code [HSC] §25300 et seq., “Chapter 6.8”) to be based on toxicity criteria from a specified hierarchy of sources. The Toxicity Criteria Rule’s Section (§) 69021 provides the hierarchy:

- 1) §69021(a) - toxicity criteria for a given contaminant listed in Appendix I Tables A and B of the Rule (“promulgated criteria”);
- 2) §69021(b) - toxicity criteria for contaminants that are not listed in the Rule’s Appendix I but are listed in the current USEPA *Integrated Risk Information System* (IRIS) database (“promulgated criteria”); and
- 3) §69021(c) - toxicity values for a given contaminant from “other sources” including but not limited to: the Office of Environmental Health Hazard Assessment (OEHHA) toxicity values that are not listed in the Rule’s Appendix I, USEPA Provisional Peer Reviewed Toxicity Values (PPRTVs), Agency for Toxic Substances and Disease Registry (ATSDR) Minimal Risk Levels (MRLs), USEPA PPRTV Appendix Screening Toxicity Values, USEPA Superfund Health Effects Assessment Summary Table (HEAST) values, and other additional sources (“recommended criteria”). The use of the toxicity criteria under §69021(c) requires approval from the HERO Supervising Toxicologist prior to use.

HHRA Note 10 provides additional details on the application of the Toxicity Criteria Rule in human-health risk assessments, and in derivation of screening levels and remedial goals. Notably regarding HHRA Note 3, Table 1 of HHRA Note 10 provides the recommended, approved, toxicity criteria for the roster of analytes evaluated in the USEPA RSLs. The HHRA Note 10 Table 1 values are incorporated into HHRA Note 3’s derivation of the DTSC-SLs.

In consideration of evolving methods for mutagenic carcinogens and interagency consistency, calculations for compounds identified as having a mutagenic mode of action (MMOA) utilized age-dependent adjustment factors (ADAFs) in accordance with

⁶ <https://dtsc.ca.gov/regs/toxicity-criteria-for-human-health-risk-assessment/>

the methods employed by the USEPA in their RSL tables. Trichloroethene (TCE) was evaluated using the combined MOA and non-mutagen approaches as developed in the USEPA RSL methodology. Vinyl chloride was evaluated using the same vinyl-chloride-specific methodology used in the USEPA RSL tables, although the vinyl chloride methodology may be under review. Lastly and as discussed previously, for purposes of screening air contaminants, HERO recommends the use of route extrapolation—converting an oral reference dose or slope factor to an inhalation reference concentration or unit-risk factor—when an inhalation-specific toxicity value is not available.

SITE SCREENING – SOIL, TAP WATER, and AIR CONTAMINANTS

As discussed previously, HERO reviewed the soil, tap water, and air RSLs in a phased approach. The results presented in this version provide recommendations on the use of screening levels for soil, tap water, and air, under residential and industrial/commercial land uses.

Since May 2013, USEPA has provided two sets of tables with RSLs based on target hazard quotients (THQ) of 1.0 and 0.1. The rationale for using a THQ of 0.1 for screening is that if 10 chemicals were at a site and all narrowly passed a screening at $THQ=1.0$, the resulting total HI could be 10. In general, HERO does not recommend use of screening levels based on a THQ of 0.1. Instead, screening levels based on a target HQ of 1 should be used, and cumulative noncancer hazard should be summed across all site-related contaminants, media, and exposure pathways. As of November 2017, the RSL calculator website now includes user-selectable options for the target risk and the target hazard quotient. **The DTSC-SLs are derived at a target risk level of 1×10^{-6} (one in one million) and a target hazard quotient value of 1.** All discussion below relies on a target risk of 1×10^{-6} (one in one million) or a target hazard quotient of 1.

Soil and Tap Water

While it is possible to use the [USEPA website's on-line RSL calculator](http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search)⁷ and employ the California-recommended toxicity criteria and exposure factors for each exposure pathway to derive screening levels, this would be a laborious process for DTSC managers and staff, Responsible Parties, and contractors. To address this difficulty, HERO has combined the USEPA RSL methodology and values with a DTSC-specific methodology and values for all compounds in the USEPA RSL roster. HERO then identified elements, compounds, and mixtures in which the soil, tap water, or ambient air DTSC-SL value was less (more stringent) than the corresponding USEPA RSL value.

Users of the screening levels should be aware that the values are strictly risk-based computed concentrations. The DTSC-SLs and the tabular versions of the USEPA RSL tables do not consider external practical criteria such as analytical detection limits,

⁷ http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search

naturally occurring concentrations, or physical limitations such as soil saturation (although relevant notations are provided in the USEPA RSL tables). For example, screening levels for some chemicals can exceed liquid saturation conditions (i.e., pure analyte in the soil pore space) or can exceed reasonable physical conditions in soil such as concentrations greater than 100,000 ppm (10% by weight or more). Multiple DTSC-SLs exceeded soil-saturation concentrations (particularly volatile organic compounds) or a 10% by weight threshold, so screening-level results should be carefully reviewed. Note that the online USEPA RSL calculator has a user-selectable site-specific option to substitute saturation or threshold concentrations when the calculated RSL exceeds those physical limitations. For tap water, risk-based concentrations occasionally exceed maximum contaminant level (MCL) regulatory criteria; see item #5 in the subsequent “Discussion and Recommendations for Specific Contaminants” section.

Lastly, if volatile contaminants are present at a site, soil gas data are required to evaluate the vapor intrusion to indoor air pathway. This allows a more comprehensive evaluation because the soil and tap water screening levels do not include the vapor intrusion pathway, which is often the risk driver.

Air

Subsurface vapor intrusion to indoor air from volatile compounds in soil or groundwater is a potentially major exposure pathway. The air screening levels address residential and commercial/industrial exposure scenarios and may be used for screening contaminants in indoor air. The air screening levels for volatile chemicals also have potential applications for screening soil gas data when used in concert with an appropriate attenuation factor. Please contact the DTSC site toxicologist to ensure appropriate use of air screening levels and attenuation factors on a site-specific basis.

To facilitate site screening, HERO herein provides recommendations on use of air screening levels for chemicals identified as volatile in the USEPA RSL tables or DTSC’s VIG, and non-volatile compounds with inhalation-based toxicity criteria (no route extrapolation). HERO’s derivation is based on a comparison of the inhalation toxicity criteria used to derive the USEPA’s air RSLs relative to California toxicity criteria and HERO recommendations (e.g., route-to-route extrapolation for volatile chemicals). As noted previously, screening levels for air contaminants are the more stringent of USEPA or DTSC screening values.

DISCUSSION AND RECOMMENDATIONS FOR SPECIFIC CONTAMINANTS

Lead (Soil)

In 2007, Cal/EPA OEHHA developed a new toxicity evaluation of lead replacing the 10 µg/dL threshold blood lead concentration with a source-specific “benchmark change” of 1 µg/dL (OEHHA 2007, 2009). 1 µg/dL is the estimated incremental increase in children’s blood lead that would reduce IQ by up to 1 point. LeadSpread 8 was developed in 2011 to

reflect the updated Cal/EPA lead toxicity criterion, as well as the need for revision to ensure that the model is adequately protective of women of child-bearing age. Two key exposure parameters utilized in LeadSpread 8 have been updated resulting in [LeadSpread 9.1](#)⁸. The two key exposure parameters are soil ingestion rate and bioavailability of ingested lead. Values for inhalation rate and body surface area, which have a lesser effect on blood lead levels have also changed since the publication of LeadSpread 8 and are updated in LeadSpread 9.1. For a detailed discussion on the updates to LeadSpread please see [Information for Users](#)⁹ and [Frequently Asked Questions](#)¹⁰ documents.

Unlike LeadSpread 8, LeadSpread 9.1 does not include a separate worksheet for evaluating adult exposure scenarios. In LeadSpread 9.1, the residential child, residential adult and adult industrial scenarios are all available on the same worksheet and the child and adult calculations are all implemented within the LeadSpread 9.1 computational format. The basic equations and majority of default input values in the LeadSpread 9.1, Worksheet 1 are similar to previous versions. Worksheet 1 of the LeadSpread 9.1 file include PRG90 calculations for soil under residential and industrial land use scenarios (80 mg/kg and 500 mg/kg, respectively). These PRG90s represent concentrations in soil corresponding to a 90th percentile estimate of blood lead in a child or the fetus of a pregnant adult worker equal to 1 µg/dL. While DTSC has historically used the 99th percentile estimate of blood lead, HERO considers the 90th percentile of the distribution appropriate for use in evaluating lead exposures given that the target blood lead level of concern was updated to the more recent health-protective incremental criterion of 1 µg/dL. For most sites without special circumstances, such as markedly elevated or reduced lead soil bioavailability, the difference in predicted incremental blood lead and IQ change for exposures to soil lead between 70 mg/kg and 80 mg/kg is within the LeadSpread model uncertainty and does not exceed the *de minimis* level of 1 IQ point identified by OEHHA. The previous residential lead (Pb) soil screening level is 80 mg/kg, based on an estimated increase in blood Pb in a 90th percentile child of 1 µg/dL. At 80 mg/kg soil lead concentration, LeadSpread 9.1 estimates the increase in blood Pb in a 90th percentile child as 1.14 µg/dL which, in turn, is associated with an upper-bound estimate of a loss of 1 IQ point. The change is not discernable at one significant figure, the maximum justifiable significant figure. Results of IQ tests are reported as an integer. Fractional IQ points are not measured.

The blood lead value of 1.14 would have to rise to 1.5 µg/dL (which would round up to 2.0) to be considered a significant increase. Therefore, HERO continues to recommend that the remedial/mitigation level for residential soil exposure remain at the residential

⁸ <https://dtsc.ca.gov/leadspread-9/>

⁹ <https://dtsc.ca.gov/wp-content/uploads/sites/31/2025/05/LeadSpread-9.1-Information-for-Users-December-2024.pdf>

¹⁰ <https://dtsc.ca.gov/wp-content/uploads/sites/31/2022/02/LeadSpread9.1-FREQUENTLY-ASKED-QUESTIONS-Revised-December-2024-A.pdf>

default value of 80 mg/kg lead. Future development of better-defined childhood exposure parameters may change this recommendation. HERO implements this risk-based soil concentration as an Exposure Point Concentration (EPC), calculated as the 95 percent upper confidence limit on the arithmetic mean (95% UCL) of 80 mg/kg or less soil lead for the residential scenario and a 95% UCL of 500 mg/kg or less soil lead for the industrial/commercial scenario.

Regarding assessment of lead risk and evaluating cleanup options, if sufficient data are available, HERO recommends calculating the 95% UCL on the arithmetic mean lead concentration for each exposure area. If individual samples exceed the PRG90, it will not mean that the exposure area itself is in exceedance of the PRG90 as long as the 95% UCL itself is below 80 mg/kg for residential and 500 mg/kg for industrial/commercial, assuming “hot spots” are not present. If “hot spots” (i.e., geographically collocated areas of elevated concentration, “outliers” or individual samples with elevated concentrations) are present, they must be addressed separately.

For initial site screening, when soil sampling results are insufficient to calculate a 95% UCL, comparison of the maximum detected concentration to the PRG90s would be appropriate. If individual sample results exceed the PRG90s, depending on site-specific conditions and sampling results, additional investigation, evaluation, and potentially remediation may be warranted to address concerns about lead exposure. The exposure area used in calculating the 95% UCL should be of appropriate size for the anticipated land use, e.g., a smaller exposure area for residential use. Depending on the size of the site, multiple exposure areas may need to be evaluated. If there are any questions on the appropriate size of the exposure area, please contact your site toxicologist.

It is important to note that background exposures to lead, and media other than soil which may be impacted by lead, are not considered in LeadSpread 9.1. If lead is present at levels above background in media other than soil (e.g., water, air) or if the home grown produce pathway is anticipated at the site, please contact the HERO toxicologist. DTSC’s LeadSpread model is currently undergoing additional revision, and we hope to incorporate additional exposure pathways and environmental media in the near future.

Arsenic

The arsenic cancer oral slope factor (CSFo) value [9.5 (mg/kg-d)⁻¹] promulgated in the Toxicity Criteria Rule is lower than CSFo value [32 (mg/kg-d)⁻¹] published in the USEPA Integrated Risk Information System (IRIS) in January 2025. This IRIS CSFo value was published after the November 2024 USEPA RSL update, so it has not been incorporated in the latest USEPA RSL table. In the Toxicity Criteria Rule, the USEPA IRIS is categorized as a § 69021, subdivision (b) source, which should be used to develop human health risk-based screening levels if the promulgated Toxicity Criteria Rule value is less stringent than the IRIS value. Therefore, the CSFo value of 32 (mg/kg-d)⁻¹ is used to calculate the cancer DTSC-SLs for arsenic.

USEPA incorporates a relative bioavailability factor (RBA) into the RSL calculations for screening level concentrations for ingestion of soil-borne arsenic (a dimensionless value of 0.6, in contrast to a default value of 1.0 for all other compounds). HERO supports the use of this default RBA value for the adjustment of the ingestion of arsenic bound to soils and the DTSC-SL reflects this modification to the risk calculation. HERO has prepared HHRA Note 6 that provides recommendations for completing site-specific evaluations of the [arsenic RBA in site soils](#)¹¹. Please consult with the DTSC toxicologist for sites where soil-borne arsenic is a site-related contaminant for the current recommendations for arsenic bioavailability. Note that risk-based screening-level concentrations of arsenic in soil are often below naturally occurring (background) concentrations. Consequently, HERO strongly recommends consideration of site-specific background concentrations of inorganic constituents.

***cis*- and *trans*-Dichloroethylene**

The reference concentration (RfCs) for both *cis*- and *trans*-1,2-dichloroethylene (DCE) is 40 µg/m³. The previous RfCs for these two compounds were derived based on their reference dose (RfD) values and using a route-to-route extrapolation method. The screening chronic RfC for *cis*-1,2-DCE from the September 2022 PPRTV is 40 µg/m³. This same value has been also adopted by the USEPA as the November 2022 RSLs. The screening chronic RfC for *trans*-1,2-DCE from the September 2020 PPRTV is 40 µg/m³. This same value has been also adopted by the USEPA as the November 2020 RSLs. The DTSC-SLs for the inhalation pathway have been removed from HHRA Note 3 as HERO recommends the use of the USEPA RSLs for these two compounds.

Toluene

The toluene chronic REL value promulgated in the Toxicity Criteria Rule is 300 µg/m³ and is from [OEHHA](#)¹². In 2020 after the Toxicity Criteria Rule was promulgated, OEHHA adopted a new chronic REL value of 420 µg/m³. As both REL values are from the same source (OEHHA), and the REL listed in the TCR has been updated to reflect best available science, until formal rulemaking can be done, HHRA Note 3 is updated to use the latter 420 µg/m³ to calculate the non-cancer DTSC-SLs.

1,1-Dichloroethylene

The 1,1-dichloroethylene chronic REL value (70 µg/m³) promulgated in the Toxicity Criteria Rule is higher than the USEPA RSL RfC (3.96 µg/m³) in the November 2024 RSL table. The USEPA RSL RfC value is cited from the Agency for Toxic Substances and Disease Registry Minimal Risk Levels, which is categorized as a §69021, subdivision (c) source in the Toxicity Criteria Rule. Using the promulgated Toxicity Criteria Rule REL value will result in the calculated non-cancer DTSC-SLs higher (less

¹¹ <https://www.dtsc.ca.gov/AssessingRisk/humanrisk2.cfm>

¹² <https://oehha.ca.gov/media/downloads/crn/appendixd3final.pdf>

health protective) than the USEPA RSLs. Therefore, the non-cancer DTSC-SLs for 1,1-dichloroethylene are removed in this update. Before the Toxicity Criteria Rule is updated, HERO recommends using USEPA RSL table to evaluate the concentrations of 1,1-dichloroethylene in environmental media and the non-cancer health effects.

Formaldehyde

The formaldehyde chronic REL value promulgated in the Toxicity Criteria Rule is 9 $\mu\text{g}/\text{m}^3$, which is higher than the USEPA RSL RfC (7 $\mu\text{g}/\text{m}^3$) in the November 2024 RSL table. The USEPA RSL RfC value is cited from the USEPA IRIS, which is categorized as a § 69021, subdivision (b) source in the Toxicity Criteria Rule and should be used to develop human health risk-based screening levels if the promulgated Toxicity Criteria Rule value is less stringent than the IRIS value. Therefore, 7 $\mu\text{g}/\text{m}^3$ is used as the formaldehyde RfC value to calculate the non-cancer DTSC-SLs.

Screening Levels and Maximum Contaminant Levels (MCLs).

As noted previously, the DTSC-SL and USEPA RSL values are derived strictly as risk-based concentrations—mathematical constructs of the exposure calculation algorithms—that may be independent of certain practical constraints (e.g., solubility, detection limits, or background concentrations). Additionally, there may be risk management considerations (such as regulatory thresholds) that affect decision-making for contaminated sites outside of the risk assessment process. Maximum Contaminant Levels (MCLs) are enforceable regulatory criteria for protection of the drinking water resource and in several examples, are at concentrations lower than risk-based screening levels. Table 4 presents the roster of analytes for which a DTSC-SL or USEPA RSL screening value exceeds an MCL regulatory criterion. These MCL criteria may need additional consideration during scoping for remedial or environmental investigations.

TABULAR RESULTS

HERO has calculated soil and tap water DTSC-SLs for all chemicals on the USEPA RSL roster and several additional analytes. The tabular results list the DTSC-SLs when the DTSC-SL is more stringent than the corresponding USEPA RSL; USEPA RSL values are also provided for completeness for the other combinations of receptor and endpoint when the USEPA RSL was more stringent. Screening concentrations for air were derived for all of the volatile chemicals and several other airborne contaminants, and a DTSC-SL is listed when the value is more stringent than the corresponding USEPA RSL value.

Alternatively, the USEPA on-line screening calculator available at the [USEPA RSL website](https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search)¹³ can be used to calculate site-specific values using the more protective of Cal/EPA or USEPA toxicity criteria, applying assumptions consistent with HERO

¹³ https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search

recommendations (e.g., route-to-route extrapolation between the oral and inhalation exposure pathways where no toxicity value is available for the inhalation route of exposure but an oral toxicity value is available), and site-specific values as agreed upon in consultation with HERO.

Screening Levels for Soil (Table 1)

Table 1 presents DTSC-modified screening values for soil that are more stringent than the corresponding USEPA value. For this roster of analytes (i.e., with at least one DTSC-SL), available USEPA RSL values are also provided for receptors or endpoints that lack a designated DTSC-SL, for table completeness. A Microsoft Excel® version of Table 1 is available for download from the DTSC website.

Screening Levels for Tap Water (Table 2)

Table 2 presents DTSC-modified screening values for tap water that are more stringent than the corresponding USEPA value. For this roster of analytes (i.e., with at least one DTSC-SL), available USEPA RSL values are also provided for receptors or endpoints that lack a designated DTSC-SL, for table completeness. A Microsoft Excel® version of Table 2 is available for download from the DTSC website.

Screening Levels for Air (Table 3)

Table 3 presents DTSC-modified screening values for air contaminants that are more stringent than the corresponding USEPA RSL value. For this roster of analytes (i.e., with at least one DTSC-SL), available USEPA RSL values are also provided for receptors or endpoints that lack a designated DTSC-SL, for table completeness. A Microsoft Excel® version of Table 3 is available for download from the DTSC website.

Maximum Contaminant Levels (MCLs) (Table 4)

Table 4 presents the roster of analytes for which a DTSC-SL or USEPA RSL exceeds an MCL regulatory criterion. A Microsoft Excel® version of Table 4 is available for download from the DTSC website.

Supporting Documentation

Supporting documentation of the computations for the DTSC-SLs can be provided upon request (see the HERO Issue Contact information earlier in this Note). These documentation files provide the exposure factors, exposure algorithms, toxicity criteria, and computed screening-level concentrations for soil, tap water, and air, for exposures via ingestion, dermal contact, and inhalation.

Table 1: HHRA Note 3, March 2025, DTSC-recommended Screening Levels for Soil Analytes

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Residential Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Residential Soil, Cancer Endpoint	Screening Level for Residential Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Residential Soil, Noncancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Cancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Noncancer Endpoint
Acephate	30560-19-1	--	--	19	USEPA RSL	--	--	200	DTSC-SL
Acetaldehyde	75-07-0	9.1	DTSC-SL	82	USEPA RSL	40	DTSC-SL	340	USEPA RSL
Acetochlor	34256-82-1	--	--	1300	USEPA RSL	--	--	14000	DTSC-SL
Acetophenone	98-86-2	--	--	6000	DTSC-SL	--	--	55000	DTSC-SL
Acetylaminofluorene, 2-	53-96-3	0.14	USEPA RSL	--	--	0.5	DTSC-SL	--	--
Acrylamide	79-06-1	0.24	USEPA RSL	130	USEPA RSL	3.8	DTSC-SL	1400	DTSC-SL
Alachlor	15972-60-8	9.7	USEPA RSL	630	USEPA RSL	34	DTSC-SL	6800	DTSC-SL
Aldicarb	116-06-3	--	--	63	USEPA RSL	--	--	680	DTSC-SL
Aldicarb Sulfone	1646-88-4	--	--	63	USEPA RSL	--	--	680	DTSC-SL
Ametryn	834-12-8	--	--	570	USEPA RSL	--	--	6100	DTSC-SL
Aminobiphenyl, 4-	92-67-1	0.026	USEPA RSL	--	--	0.09	DTSC-SL	--	--
Aminophenol, m-	591-27-5	--	--	5100	USEPA RSL	--	--	54000	DTSC-SL
Aminophenol, o-	95-55-6	--	--	250	USEPA RSL	--	--	2700	DTSC-SL
Aminophenol, p-	123-30-8	--	--	1300	USEPA RSL	--	--	14000	DTSC-SL
Amitraz	33089-61-1	--	--	160	USEPA RSL	--	--	1700	DTSC-SL
Aniline	62-53-3	95	USEPA RSL	440	USEPA RSL	330	DTSC-SL	4700	DTSC-SL
Anthraquinone, 9,10-	84-65-1	14	USEPA RSL	130	USEPA RSL	47	DTSC-SL	1400	DTSC-SL
Arsenic, Inorganic	7440-38-2	0.032	DTSC-SL	0.41	DTSC-SL	0.13	DTSC-SL	5	DTSC-SL
Asulam	3337-71-1	--	--	23000	USEPA RSL	--	--	240000	DTSC-SL

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Residential Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Residential Soil, Cancer Endpoint	Screening Level for Residential Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Residential Soil, Noncancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Cancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Noncancer Endpoint
Atrazine	1912-24-9	2.4	USEPA RSL	190	USEPA RSL	8.2	DTSC-SL	2000	DTSC-SL
Auramine	492-80-8	0.62	USEPA RSL	--	--	2.2	DTSC-SL	--	--
Avermectin B1	65195-55-3	--	--	25	USEPA RSL	--	--	270	DTSC-SL
Azinphos-methyl	86-50-0	--	--	190	USEPA RSL	--	--	2000	DTSC-SL
Benfluralin	1861-40-1	--	--	390	USEPA RSL	--	--	4800	DTSC-SL
Benomyl	17804-35-2	--	--	3200	USEPA RSL	--	--	34000	DTSC-SL
Bensulfuron-methyl	83055-99-6	--	--	13000	USEPA RSL	--	--	140000	DTSC-SL
Bentazon	25057-89-0	--	--	1900	USEPA RSL	--	--	20000	DTSC-SL
Benzaldehyde	100-52-7	46	DTSC-SL	4300	DTSC-SL	210	DTSC-SL	29000	DTSC-SL
Benzene	71-43-2	0.33	DTSC-SL	11	DTSC-SL	1.4	DTSC-SL	46	DTSC-SL
Benzenediamine-2-methyl sulfate, 1,4-	6369-59-1	5.4	USEPA RSL	19	USEPA RSL	19	DTSC-SL	200	DTSC-SL
Benzenethiol	108-98-5	--	--	40	DTSC-SL	--	--	260	DTSC-SL
Benzidine	92-87-5	0.00024	DTSC-SL	190	USEPA RSL	0.0038	DTSC-SL	2000	DTSC-SL
Benzoic Acid	65-85-0	--	--	250000	USEPA RSL	--	--	2700000	DTSC-SL
Benzotrichloride	98-07-7	0.028	DTSC-SL	--	--	0.13	DTSC-SL	--	--
Benzyl Alcohol	100-51-6	--	--	6300	USEPA RSL	--	--	68000	DTSC-SL
Beryllium and compounds	7440-41-7	1600	USEPA RSL	16	DTSC-SL	6900	USEPA RSL	230	DTSC-SL
Bifenox	42576-02-3	--	--	570	USEPA RSL	--	--	6100	DTSC-SL
Biphenthrin	82657-04-3	--	--	950	USEPA RSL	--	--	10000	DTSC-SL
Biphenyl, 1,1'-	92-52-4	56	DTSC-SL	47	USEPA RSL	260	DTSC-SL	200	USEPA RSL

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Residential Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Residential Soil, Cancer Endpoint	Screening Level for Residential Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Residential Soil, Noncancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Cancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Noncancer Endpoint
Cadmium (Diet)	7440-43-9	910	DTSC-SL	7.1	USEPA RSL	4000	DTSC-SL	100	USEPA RSL
Caprolactam	105-60-2	--	--	31000	USEPA RSL	--	--	330000	DTSC-SL
Captafol	2425-06-1	3.6	USEPA RSL	130	USEPA RSL	13	DTSC-SL	1400	DTSC-SL
Captan	133-06-2	240	USEPA RSL	8200	USEPA RSL	820	DTSC-SL	88000	DTSC-SL
Carbaryl	63-25-2	--	--	6300	USEPA RSL	--	--	68000	DTSC-SL
Carbofuran	1563-66-2	--	--	320	USEPA RSL	--	--	3400	DTSC-SL
Carbon Tetrachloride	56-23-5	0.65	USEPA RSL	52	DTSC-SL	2.9	USEPA RSL	250	DTSC-SL
Carbonyl Sulfide	463-58-1	--	--	6.7	DTSC-SL	--	--	28	DTSC-SL
Carbosulfan	55285-14-8	--	--	630	USEPA RSL	--	--	6800	DTSC-SL
Carboxin	5234-68-4	--	--	6300	USEPA RSL	--	--	68000	DTSC-SL
Chloral Hydrate	302-17-0	--	--	6900	DTSC-SL	--	--	80000	DTSC-SL
Chloramben	133-90-4	--	--	950	USEPA RSL	--	--	10000	DTSC-SL
Chloranil	118-75-2	1.3	USEPA RSL	--	--	4.7	DTSC-SL	--	--
Chlordecone (Kepone)	143-50-0	0.054	USEPA RSL	19	USEPA RSL	0.19	DTSC-SL	200	DTSC-SL
Chlorfenvinphos	470-90-6	--	--	44	USEPA RSL	--	--	470	DTSC-SL
Chlorimuron, Ethyl-	90982-32-4	--	--	5700	USEPA RSL	--	--	61000	DTSC-SL
Chloro-2-methylaniline HCl, 4-	3165-93-3	1.2	USEPA RSL	--	--	4.1	DTSC-SL	--	--
Chloro-2-methylaniline, 4-	95-69-2	2	DTSC-SL	190	USEPA RSL	7	DTSC-SL	2000	DTSC-SL
Chloroacetaldehyde, 2-	107-20-0	0.53	DTSC-SL	--	--	2.4	DTSC-SL	--	--
Chloroaniline, p-	106-47-8	2.7	USEPA RSL	32	USEPA RSL	9.5	DTSC-SL	340	DTSC-SL

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Residential Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Residential Soil, Cancer Endpoint	Screening Level for Residential Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Residential Soil, Noncancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Cancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Noncancer Endpoint
Chlorobenzene sulfonic acid, p-	98-66-8	--	--	6300	USEPA RSL	--	--	68000	DTSC-SL
Chlorobenzilate	510-15-6	4.9	USEPA RSL	1300	USEPA RSL	17	DTSC-SL	14000	DTSC-SL
Chlorobenzoic Acid, p-	74-11-3	--	--	1900	USEPA RSL	--	--	20000	DTSC-SL
Chlorobutane, 1-	109-69-3	--	--	270	DTSC-SL	--	--	1200	DTSC-SL
Chloroethanol, 2-	107-07-3	--	--	1300	DTSC-SL	--	--	13000	DTSC-SL
Chloronitrobenzene, o-	88-73-3	1.8	USEPA RSL	190	USEPA RSL	6.3	DTSC-SL	2000	DTSC-SL
Chloronitrobenzene, p-	100-00-5	9	USEPA RSL	44	USEPA RSL	32	DTSC-SL	470	DTSC-SL
Chlorophenol, 2-	95-57-8	--	--	340	DTSC-SL	--	--	3900	DTSC-SL
Chlorothalonil	1897-45-6	32	USEPA RSL	950	USEPA RSL	110	DTSC-SL	10000	DTSC-SL
Chlorotoluene, o-	95-49-8	--	--	470	DTSC-SL	--	--	2500	DTSC-SL
Chlorotoluene, p-	106-43-4	--	--	440	DTSC-SL	--	--	2300	DTSC-SL
Chlorozotocin	54749-90-5	0.0023	USEPA RSL	--	--	0.0079	DTSC-SL	--	--
Chlorpropham	101-21-3	--	--	320	USEPA RSL	--	--	3400	DTSC-SL
Chlorpyrifos	2921-88-2	--	--	63	USEPA RSL	--	--	680	DTSC-SL
Chlorpyrifos Methyl	5598-13-0	--	--	630	USEPA RSL	--	--	6800	DTSC-SL
Chlorsulfuron	64902-72-3	--	--	3200	USEPA RSL	--	--	34000	DTSC-SL
Chlorthal-dimethyl	1861-32-1	--	--	630	USEPA RSL	--	--	6800	DTSC-SL
Chlorthiophos	60238-56-4	--	--	51	USEPA RSL	--	--	540	DTSC-SL
Chromium(VI)	18540-29-9	0.3	DTSC-SL	70	USEPA RSL	6.2	DTSC-SL	1000	USEPA RSL
Clofentezine	74115-24-5	--	--	820	USEPA RSL	--	--	8800	DTSC-SL

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Residential Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Residential Soil, Cancer Endpoint	Screening Level for Residential Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Residential Soil, Noncancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Cancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Noncancer Endpoint
Cresol, m-	108-39-4	--	--	3200	USEPA RSL	--	--	34000	DTSC-SL
Cresol, o-	95-48-7	--	--	3200	USEPA RSL	--	--	34000	DTSC-SL
Cresol, p-	106-44-5	--	--	1300	USEPA RSL	--	--	14000	DTSC-SL
Cresol, p-chloro-m-	59-50-7	--	--	6300	USEPA RSL	--	--	68000	DTSC-SL
Cresols	1319-77-3	--	--	6300	USEPA RSL	--	--	68000	DTSC-SL
Crotonaldehyde, trans-	123-73-9	0.086	DTSC-SL	39	DTSC-SL	0.38	DTSC-SL	260	DTSC-SL
Cupferron	135-20-6	2.5	USEPA RSL	--	--	8.6	DTSC-SL	--	--
Cyanazine	21725-46-2	0.65	USEPA RSL	130	USEPA RSL	2.3	DTSC-SL	1400	DTSC-SL
Cyclohexane, 1,2,3,4,5-pentabromo-6-chloro-	87-84-3	27	USEPA RSL	1300	USEPA RSL	95	DTSC-SL	14000	DTSC-SL
Cyclohexylamine	108-91-8	--	--	13000	DTSC-SL	--	--	120000	DTSC-SL
Cyfluthrin	68359-37-5	--	--	1600	USEPA RSL	--	--	17000	DTSC-SL
Cyromazine	66215-27-8	--	--	32000	USEPA RSL	--	--	340000	DTSC-SL
Dalapon	75-99-0	--	--	1900	USEPA RSL	--	--	20000	DTSC-SL
Daminozide	1596-84-5	30	USEPA RSL	9500	USEPA RSL	110	DTSC-SL	100000	DTSC-SL
Decabromodiphenyl ether, 2,2',3,3',4,4',5,5',6,6'-(BDE-209)	1163-19-5	780	USEPA RSL	440	USEPA RSL	2700	DTSC-SL	4700	DTSC-SL
Demeton	8065-48-3	--	--	2.5	USEPA RSL	--	--	27	DTSC-SL
Di(2-ethylhexyl)adipate	103-23-1	450	USEPA RSL	38000	USEPA RSL	1600	DTSC-SL	410000	DTSC-SL
Diallate	2303-16-4	8.9	USEPA RSL	--	--	31	DTSC-SL	--	--
Diazinon	333-41-5	--	--	44	USEPA RSL	--	--	470	DTSC-SL

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Residential Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Residential Soil, Cancer Endpoint	Screening Level for Residential Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Residential Soil, Noncancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Cancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Noncancer Endpoint
Dieldrin	60-57-1	0.034	USEPA RSL	3.2	USEPA RSL	0.12	DTSC-SL	34	DTSC-SL
Diethanolamine	111-42-2	--	--	130	USEPA RSL	--	--	1400	DTSC-SL
Diethylene Glycol Monobutyl Ether	112-34-5	--	--	1900	USEPA RSL	--	--	20000	DTSC-SL
Diethylene Glycol Monoethyl Ether	111-90-0	--	--	3800	USEPA RSL	--	--	40000	DTSC-SL
Diethylformamide	617-84-5	--	--	69	DTSC-SL	--	--	790	DTSC-SL
Diethylstilbestrol	56-53-1	0.0016	USEPA RSL	--	--	0.0054	DTSC-SL	--	--
Difenzoquat	43222-48-6	--	--	5200	USEPA RSL	--	--	56000	DTSC-SL
Diflubenzuron	35367-38-5	--	--	1300	USEPA RSL	--	--	14000	DTSC-SL
Diisopropyl Methylphosphonate	1445-75-6	--	--	4200	DTSC-SL	--	--	34000	DTSC-SL
Dimethipin	55290-64-7	--	--	1400	USEPA RSL	--	--	15000	DTSC-SL
Dimethoate	60-51-5	--	--	140	USEPA RSL	--	--	1500	DTSC-SL
Dimethoxybenzidine, 3,3'-	119-90-4	0.076	USEPA RSL	--	--	1.2	DTSC-SL	--	--
Dimethyl methylphosphonate	756-79-6	320	USEPA RSL	3800	USEPA RSL	1100	DTSC-SL	41000	DTSC-SL
Dimethylamino azobenzene [p-]	60-11-7	0.12	USEPA RSL	--	--	0.41	DTSC-SL	--	--
Dimethylaniline HCl, 2,4-	21436-96-4	0.94	USEPA RSL	--	--	3.3	DTSC-SL	--	--
Dimethylaniline, 2,4-	95-68-1	2.7	USEPA RSL	130	USEPA RSL	9.5	DTSC-SL	1400	DTSC-SL
Dimethylaniline, N,N-	121-69-7	8.6	DTSC-SL	98	DTSC-SL	39	DTSC-SL	750	DTSC-SL
Dimethylbenzidine, 3,3'-	119-93-7	0.011	USEPA RSL	--	--	0.17	DTSC-SL	--	--
Dimethylphenol, 2,4-	105-67-9	--	--	1300	USEPA RSL	--	--	14000	DTSC-SL
Dimethylphenol, 2,6-	576-26-1	--	--	38	USEPA RSL	--	--	410	DTSC-SL

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Residential Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Residential Soil, Cancer Endpoint	Screening Level for Residential Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Residential Soil, Noncancer Endpoint	Screening Level for Commercial/ Industrial Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Commercial/ Industrial Soil, Cancer Endpoint	Screening Level for Commercial/ Industrial Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Commercial/ Industrial Soil, Noncancer Endpoint
Dimethylphenol, 3,4-	95-65-8	--	--	63	USEPA RSL	--	--	680	DTSC-SL
Dinitro-o-cresol, 4,6-	534-52-1	--	--	5.1	USEPA RSL	--	--	54	DTSC-SL
Dinitro-o-cyclohexyl Phenol, 4,6-	131-89-5	--	--	130	USEPA RSL	--	--	1400	DTSC-SL
Dinitrobenzene, 1,2-	528-29-0	--	--	6.3	USEPA RSL	--	--	68	DTSC-SL
Dinitrobenzene, 1,3-	99-65-0	--	--	6.3	USEPA RSL	--	--	68	DTSC-SL
Dinitrobenzene, 1,4-	100-25-4	--	--	6.3	USEPA RSL	--	--	68	DTSC-SL
Dinitrophenol, 2,4-	51-28-5	--	--	130	USEPA RSL	--	--	1400	DTSC-SL
Dinitrotoluene Mixture, 2,4/2,6-	E1615210	0.8	USEPA RSL	57	DTSC-SL	2.8	DTSC-SL	610	DTSC-SL
Dinitrotoluene, 2,4-	121-14-2	1.7	USEPA RSL	130	USEPA RSL	6.1	DTSC-SL	1300	DTSC-SL
Dinitrotoluene, 2,6-	606-20-2	0.36	USEPA RSL	19	USEPA RSL	1.3	DTSC-SL	200	DTSC-SL
Dinitrotoluene, Technical grade	25321-14-6	1.2	USEPA RSL	57	USEPA RSL	4.2	DTSC-SL	610	DTSC-SL
Dinoseb	88-85-7	--	--	63	USEPA RSL	--	--	680	DTSC-SL
~Hexachlorodibenzo-p-dioxin, Mixture	34465-46-8	0.0001	DTSC-SL	--	--	0.00043	DTSC-SL	--	--
Diphenamid	957-51-7	--	--	1900	USEPA RSL	--	--	20000	DTSC-SL
Diphenyl Sulfone	127-63-9	--	--	51	USEPA RSL	--	--	540	DTSC-SL
Diphenylamine	122-39-4	--	--	6300	USEPA RSL	--	--	68000	DTSC-SL
Diphenylhydrazine, 1,2-	122-66-7	0.68	USEPA RSL	--	--	2.4	DTSC-SL	--	--
Diquat	2764-72-9	--	--	140	USEPA RSL	--	--	1500	DTSC-SL
Direct Black 38	1937-37-7	0.073	USEPA RSL	--	--	0.26	DTSC-SL	--	--
Direct Blue 6	2602-46-2	0.073	USEPA RSL	--	--	0.26	DTSC-SL	--	--

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Residential Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Residential Soil, Cancer Endpoint	Screening Level for Residential Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Residential Soil, Noncancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Cancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Noncancer Endpoint
Direct Brown 95	16071-86-6	0.081	USEPA RSL	--	--	0.28	DTSC-SL	--	--
Disulfoton	298-04-4	--	--	2.5	USEPA RSL	--	--	27	DTSC-SL
Dithiane, 1,4-	505-29-3	--	--	550	DTSC-SL	--	--	4700	DTSC-SL
Diuron	330-54-1	--	--	130	USEPA RSL	--	--	1400	DTSC-SL
Dodine	2439-10-3	--	--	1300	USEPA RSL	--	--	14000	DTSC-SL
EPTC	759-94-4	--	--	3400	DTSC-SL	--	--	37000	DTSC-SL
Endosulfan	115-29-7	--	--	470	USEPA RSL	--	--	6000	DTSC-SL
Endosulfan Sulfate	1031-07-8	--	--	380	USEPA RSL	--	--	4100	DTSC-SL
Endothall	145-73-3	--	--	1300	USEPA RSL	--	--	14000	DTSC-SL
Endrin	72-20-8	--	--	19	USEPA RSL	--	--	200	DTSC-SL
Epichlorohydrin	106-89-8	1.8	DTSC-SL	19	USEPA RSL	8.1	DTSC-SL	82	USEPA RSL
Ethanol, 2-(2-methoxyethoxy)-	111-77-3	--	--	2500	USEPA RSL	--	--	27000	DTSC-SL
Ethephon	16672-87-0	--	--	320	USEPA RSL	--	--	3400	DTSC-SL
Ethion	563-12-2	--	--	32	USEPA RSL	--	--	340	DTSC-SL
Ethyl Ether	60-29-7	--	--	2200	DTSC-SL	--	--	10000	DTSC-SL
Ethyl-p-nitrophenyl Phosphonate	2104-64-5	--	--	0.63	USEPA RSL	--	--	6.8	DTSC-SL
Ethylene Cyanohydrin	109-78-4	--	--	4400	USEPA RSL	--	--	47000	DTSC-SL
Ethylene Diamine	107-15-3	--	--	7000	USEPA RSL	--	--	77000	DTSC-SL
Ethylene Glycol	107-21-1	--	--	51000	USEPA RSL	--	--	540000	DTSC-SL
Ethylene Glycol Monobutyl Ether	111-76-2	--	--	6300	USEPA RSL	--	--	68000	DTSC-SL

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Residential Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Residential Soil, Cancer Endpoint	Screening Level for Residential Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Residential Soil, Noncancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Cancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Noncancer Endpoint
Ethylene Thiourea	96-45-7	12	USEPA RSL	5.1	USEPA RSL	42	DTSC-SL	54	DTSC-SL
Ethylphthalyl Ethyl Glycolate	84-72-0	--	--	190000	USEPA RSL	--	--	2000000	DTSC-SL
Fenamiphos	22224-92-6	--	--	16	USEPA RSL	--	--	170	DTSC-SL
Fenpropathrin	39515-41-8	--	--	1600	USEPA RSL	--	--	17000	DTSC-SL
Fenvalerate	51630-58-1	--	--	1600	USEPA RSL	--	--	17000	DTSC-SL
Fluometuron	2164-17-2	--	--	820	USEPA RSL	--	--	8800	DTSC-SL
Fluridone	59756-60-4	--	--	5100	USEPA RSL	--	--	54000	DTSC-SL
Flurprimidol	56425-91-3	--	--	2500	USEPA RSL	--	--	27000	DTSC-SL
Flusilazole	85509-19-9	--	--	130	USEPA RSL	--	--	1400	DTSC-SL
Flutolanil	66332-96-5	--	--	32000	USEPA RSL	--	--	340000	DTSC-SL
Fluvalinate	69409-94-5	--	--	630	USEPA RSL	--	--	6800	DTSC-SL
Folpet	133-07-3	--	--	5700	USEPA RSL	--	--	61000	DTSC-SL
Fomesafen	72178-02-0	--	--	630	USEPA RSL	--	--	6800	DTSC-SL
Fonofos	944-22-9	--	--	130	USEPA RSL	--	--	1400	DTSC-SL
Formaldehyde	50-00-0	4.3	USEPA RSL	550	DTSC-SL	70	USEPA RSL	2400	DTSC-SL
Fosetyl-AL	39148-24-8	--	--	160000	USEPA RSL	--	--	1700000	DTSC-SL
~Dibenzofuran	132-64-9	--	--	70	DTSC-SL	--	--	820	DTSC-SL
~Furan	110-00-9	--	--	9.6	DTSC-SL	--	--	44	DTSC-SL
Furazolidone	67-45-8	0.14	USEPA RSL	--	--	0.5	DTSC-SL	--	--
Furium	531-82-8	0.36	USEPA RSL	--	--	1.3	DTSC-SL	--	--

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Residential Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Residential Soil, Cancer Endpoint	Screening Level for Residential Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Residential Soil, Noncancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Cancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Noncancer Endpoint
Furmecyclox	60568-05-0	18	USEPA RSL	--	--	63	DTSC-SL	--	--
Glufosinate, Ammonium	77182-82-2	--	--	380	USEPA RSL	--	--	4100	DTSC-SL
Glutaraldehyde	111-30-8	--	--	6000	USEPA RSL	--	--	59000	DTSC-SL
Glyphosate	1071-83-6	--	--	6300	USEPA RSL	--	--	68000	DTSC-SL
Guanidine	113-00-8	--	--	690	DTSC-SL	--	--	8000	DTSC-SL
Guanidine Chloride	50-01-1	--	--	1300	USEPA RSL	--	--	14000	DTSC-SL
Guanidine Nitrate	506-93-4	--	--	1900	USEPA RSL	--	--	20000	DTSC-SL
Haloxyfop, Methyl	69806-40-2	--	--	3.2	USEPA RSL	--	--	34	DTSC-SL
Hexabromobenzene	87-82-1	--	--	160	USEPA RSL	--	--	2000	DTSC-SL
Hexabromodiphenyl ether, 2,2',4,4',5,5'- (BDE-153)	68631-49-2	--	--	13	USEPA RSL	--	--	140	DTSC-SL
Hexachlorobenzene	118-74-1	0.19	DTSC-SL	0.61	DTSC-SL	0.86	DTSC-SL	5.9	DTSC-SL
Hexachlorobutadiene	87-68-3	1.2	USEPA RSL	29	DTSC-SL	5.3	USEPA RSL	160	DTSC-SL
Hexachlorocyclohexane, Alpha-	319-84-6	0.086	USEPA RSL	57	USEPA RSL	0.3	DTSC-SL	610	DTSC-SL
Hexachlorocyclohexane, Beta-	319-85-7	0.3	USEPA RSL	--	--	1.1	DTSC-SL	--	--
Hexachlorocyclohexane, Technical	608-73-1	0.14	DTSC-SL	--	--	0.47	DTSC-SL	--	--
Hexachlorophene	70-30-4	--	--	19	USEPA RSL	--	--	200	DTSC-SL
Hexamethylphosphoramide	680-31-9	--	--	25	USEPA RSL	--	--	270	DTSC-SL
Hexanedioic Acid	124-04-9	--	--	130000	USEPA RSL	--	--	1400000	DTSC-SL
Hexazinone	51235-04-2	--	--	2100	USEPA RSL	--	--	22000	DTSC-SL
Hexythiazox	78587-05-0	--	--	1600	USEPA RSL	--	--	17000	DTSC-SL

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Residential Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Residential Soil, Cancer Endpoint	Screening Level for Residential Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Residential Soil, Noncancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Cancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Noncancer Endpoint
Hydramethylnon	67485-29-4	--	--	1100	USEPA RSL	--	--	12000	DTSC-SL
Hydrogen Chloride	7647-01-0	--	--	13000000	DTSC-SL	--	--	54000000	DTSC-SL
Hydroquinone	123-31-9	9	USEPA RSL	2500	USEPA RSL	32	DTSC-SL	27000	DTSC-SL
Imazalil	35554-44-0	8.9	USEPA RSL	6800	USEPA RSL	31	DTSC-SL	75000	DTSC-SL
Imazaquin	81335-37-7	--	--	16000	USEPA RSL	--	--	170000	DTSC-SL
Imazethapyr	81335-77-5	--	--	160000	USEPA RSL	--	--	1700000	DTSC-SL
Iprodione	36734-19-7	--	--	2500	USEPA RSL	--	--	27000	DTSC-SL
Isophorone	78-59-1	570	USEPA RSL	13000	USEPA RSL	2000	DTSC-SL	140000	DTSC-SL
Isopropalin	33820-53-0	--	--	1200	USEPA RSL	--	--	15000	DTSC-SL
Isopropyl Methyl Phosphonic Acid	1832-54-8	--	--	6300	USEPA RSL	--	--	68000	DTSC-SL
Isoxaben	82558-50-7	--	--	3200	USEPA RSL	--	--	34000	DTSC-SL
Lactofen	77501-63-4	--	--	510	USEPA RSL	--	--	5400	DTSC-SL
Lactonitrile	78-97-7	--	--	13	USEPA RSL	--	--	140	DTSC-SL
~Lead acetate	301-04-2	1.9	DTSC-SL	--	--	6.8	DTSC-SL	--	--
~Lead and Compounds	7439-92-1	--	--	80	DTSC-SL	--	--	500	DTSC-SL
~Lead subacetate	1335-32-6	14	DTSC-SL	--	--	50	DTSC-SL	--	--
~Tetraethyl Lead	78-00-2	--	--	0.00072	DTSC-SL	--	--	0.0033	DTSC-SL
Lewisite	541-25-3	--	--	0.23	DTSC-SL	--	--	1.6	DTSC-SL
Linuron	330-55-2	--	--	490	USEPA RSL	--	--	5200	DTSC-SL
MCPA	94-74-6	--	--	32	USEPA RSL	--	--	340	DTSC-SL

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Residential Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Residential Soil, Cancer Endpoint	Screening Level for Residential Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Residential Soil, Noncancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Cancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Noncancer Endpoint
MCPB	94-81-5	--	--	2800	USEPA RSL	--	--	30000	DTSC-SL
MCPP	93-65-2	--	--	63	USEPA RSL	--	--	680	DTSC-SL
Malathion	121-75-5	--	--	1300	USEPA RSL	--	--	14000	DTSC-SL
Maleic Anhydride	108-31-6	--	--	6300	USEPA RSL	--	--	67000	DTSC-SL
Maleic Hydrazide	123-33-1	--	--	32000	USEPA RSL	--	--	340000	DTSC-SL
Malononitrile	109-77-3	--	--	6.3	USEPA RSL	--	--	68	DTSC-SL
Mancozeb	8018-01-7	--	--	1900	USEPA RSL	--	--	20000	DTSC-SL
Maneb	12427-38-2	--	--	320	USEPA RSL	--	--	3400	DTSC-SL
Mephosfolan	950-10-7	--	--	5.7	USEPA RSL	--	--	61	DTSC-SL
Mepiquat Chloride	24307-26-4	--	--	1900	USEPA RSL	--	--	20000	DTSC-SL
Mercaptobenzothiazole, 2-	149-30-4	49	USEPA RSL	250	USEPA RSL	170	DTSC-SL	2700	DTSC-SL
~Mercuric Chloride (and other Mercury salts)	7487-94-7	--	--	13	DTSC-SL	--	--	190	DTSC-SL
~Mercury (elemental)	7439-97-6	--	--	0.67	DTSC-SL	--	--	2.9	DTSC-SL
~Phenylmercuric Acetate	62-38-4	--	--	5.1	USEPA RSL	--	--	54	DTSC-SL
Metalaxyl	57837-19-1	--	--	3800	USEPA RSL	--	--	41000	DTSC-SL
Methamidophos	10265-92-6	--	--	3.2	USEPA RSL	--	--	34	DTSC-SL
Methidathion	950-37-8	--	--	95	USEPA RSL	--	--	1000	DTSC-SL
Methomyl	16752-77-5	--	--	1600	USEPA RSL	--	--	17000	DTSC-SL
Methoxy-5-nitroaniline, 2-	99-59-2	11	USEPA RSL	--	--	39	DTSC-SL	--	--
Methoxychlor	72-43-5	--	--	320	USEPA RSL	--	--	3400	DTSC-SL

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Residential Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Residential Soil, Cancer Endpoint	Screening Level for Residential Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Residential Soil, Noncancer Endpoint	Screening Level for Commercial/ Industrial Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Commercial/ Industrial Soil, Cancer Endpoint	Screening Level for Commercial/ Industrial Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Commercial/ Industrial Soil, Noncancer Endpoint
Nitroguanidine	556-88-7	--	--	6300	USEPA RSL	--	--	68000	DTSC-SL
Nitroso-N-ethylurea, N-	759-73-9	0.0045	USEPA RSL	--	--	0.07	DTSC-SL	--	--
Nitroso-N-methylurea, N-	684-93-5	0.001	USEPA RSL	--	--	0.016	DTSC-SL	--	--
Nitroso-di-N-butylamine, N-	924-16-3	0.049	DTSC-SL	--	--	0.23	DTSC-SL	--	--
Nitroso-di-N-propylamine, N-	621-64-7	0.078	USEPA RSL	--	--	0.27	DTSC-SL	--	--
Nitrosodiethanolamine, N-	1116-54-7	0.19	USEPA RSL	--	--	0.68	DTSC-SL	--	--
Nitrosodiethylamine, N-	55-18-5	0.00081	USEPA RSL	--	--	0.013	DTSC-SL	--	--
Nitrosodiphenylamine, N-	86-30-6	110	USEPA RSL	--	--	390	DTSC-SL	--	--
Nitrosomorpholine [N-]	59-89-2	0.081	USEPA RSL	--	--	0.28	DTSC-SL	--	--
Nitrosopiperidine [N-]	100-75-4	0.058	USEPA RSL	--	--	0.2	DTSC-SL	--	--
Nitrosopyrrolidine, N-	930-55-2	0.26	USEPA RSL	--	--	0.9	DTSC-SL	--	--
Nitrotoluene, m-	99-08-1	--	--	6.3	USEPA RSL	--	--	68	DTSC-SL
Nitrotoluene, o-	88-72-2	2.2	DTSC-SL	62	DTSC-SL	10	DTSC-SL	710	DTSC-SL
Nitrotoluene, p-	99-99-0	34	USEPA RSL	250	USEPA RSL	120	DTSC-SL	2700	DTSC-SL
Norflurazon	27314-13-2	--	--	95	USEPA RSL	--	--	1000	DTSC-SL
Octabromodiphenyl Ether	32536-52-0	--	--	190	USEPA RSL	--	--	2000	DTSC-SL
Octamethylpyrophosphoramide	152-16-9	--	--	130	USEPA RSL	--	--	1400	DTSC-SL
Oryzalin	19044-88-3	70	USEPA RSL	12000	USEPA RSL	240	DTSC-SL	130000	DTSC-SL
Oxadiazon	19666-30-9	--	--	320	USEPA RSL	--	--	3400	DTSC-SL
Oxamyl	23135-22-0	--	--	1600	USEPA RSL	--	--	17000	DTSC-SL

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Residential Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Residential Soil, Cancer Endpoint	Screening Level for Residential Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Residential Soil, Noncancer Endpoint	Screening Level for Commercial/ Industrial Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Commercial/ Industrial Soil, Cancer Endpoint	Screening Level for Commercial/ Industrial Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Commercial/ Industrial Soil, Noncancer Endpoint
Oxyfluorfen	42874-03-3	7.4	USEPA RSL	2500	USEPA RSL	26	DTSC-SL	27000	DTSC-SL
Paclobutrazol	76738-62-0	--	--	820	USEPA RSL	--	--	8800	DTSC-SL
Paraquat Dichloride	1910-42-5	--	--	280	USEPA RSL	--	--	3000	DTSC-SL
Parathion	56-38-2	--	--	380	USEPA RSL	--	--	4100	DTSC-SL
Pebulate	1114-71-2	--	--	2800	DTSC-SL	--	--	24000	DTSC-SL
Pendimethalin	40487-42-1	--	--	19000	USEPA RSL	--	--	200000	DTSC-SL
Pentabromodiphenyl Ether	32534-81-9	--	--	160	USEPA RSL	--	--	2100	DTSC-SL
Pentabromodiphenyl ether, 2,2',4,4',5- (BDE-99)	60348-60-9	--	--	6.3	USEPA RSL	--	--	68	DTSC-SL
Pentachlorobenzene	608-93-5	--	--	51	DTSC-SL	--	--	510	DTSC-SL
Pentachloroethane	76-01-7	1	DTSC-SL	--	--	4.6	DTSC-SL	--	--
Pentachloronitrobenzene	82-68-8	2.3	DTSC-SL	230	USEPA RSL	11	DTSC-SL	3000	DTSC-SL
Pentachlorophenol	87-86-5	1	USEPA RSL	250	USEPA RSL	2.9	DTSC-SL	2100	DTSC-SL
Pentaerythritol tetranitrate (PETN)	78-11-5	130	USEPA RSL	570	USEPA RSL	440	DTSC-SL	6100	DTSC-SL
Permethrin	52645-53-1	--	--	3200	USEPA RSL	--	--	34000	DTSC-SL
Phenacetin	62-44-2	250	USEPA RSL	--	--	860	DTSC-SL	--	--
Phenmedipham	13684-63-4	--	--	15000	USEPA RSL	--	--	160000	DTSC-SL
Phenol	108-95-2	--	--	19000	USEPA RSL	--	--	200000	DTSC-SL
Phenol, 2-(1-methylethoxy)-, methylcarbamate	114-26-1	--	--	250	USEPA RSL	--	--	2700	DTSC-SL
Phenothiazine	92-84-2	--	--	32	USEPA RSL	--	--	340	DTSC-SL
Phenyl Isothiocyanate	103-72-0	--	--	4.3	DTSC-SL	--	--	22	DTSC-SL

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Residential Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Residential Soil, Cancer Endpoint	Screening Level for Residential Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Residential Soil, Noncancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Cancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Cancer Endpoint	Screening Level for Commercial/Industrial Soil (mg/kg), Noncancer Endpoint	Reference for Screening Level for Commercial/Industrial Soil, Noncancer Endpoint
Phenylenediamine, m-	108-45-2	--	--	380	USEPA RSL	--	--	4100	DTSC-SL
Phenylenediamine, o-	95-54-5	1	USEPA RSL	250	USEPA RSL	16	DTSC-SL	2700	DTSC-SL
Phenylenediamine, p-	106-50-3	--	--	63	USEPA RSL	--	--	680	DTSC-SL
Phenylphenol, 2-	90-43-7	280	USEPA RSL	--	--	980	DTSC-SL	--	--
Phorate	298-02-2	--	--	13	USEPA RSL	--	--	140	DTSC-SL
Phosmet	732-11-6	--	--	1300	USEPA RSL	--	--	14000	DTSC-SL
Phosphorus, White	12185-10-03	--	--	0.59	DTSC-SL	--	--	3.4	DTSC-SL
~Bis(2-ethylhexyl)phthalate	117-81-7	39	USEPA RSL	1300	USEPA RSL	140	DTSC-SL	14000	DTSC-SL
~Butyl Benzyl Phthalate	85-68-7	290	USEPA RSL	13000	USEPA RSL	1000	DTSC-SL	140000	DTSC-SL
~Butylphthalyl Butylglycolate	85-70-1	--	--	63000	USEPA RSL	--	--	680000	DTSC-SL
~Dibutyl Phthalate	84-74-2	--	--	6300	USEPA RSL	--	--	68000	DTSC-SL
~Diethyl Phthalate	84-66-2	--	--	51000	USEPA RSL	--	--	540000	DTSC-SL
~Dimethylterephthalate	120-61-6	--	--	4200	DTSC-SL	--	--	28000	DTSC-SL
~Octyl Phthalate, di-N-	117-84-0	--	--	630	USEPA RSL	--	--	6800	DTSC-SL
~Phthalic Acid, p-	100-21-0	--	--	32000	USEPA RSL	--	--	340000	DTSC-SL
~Phthalic Anhydride	85-44-9	--	--	130000	USEPA RSL	--	--	1300000	DTSC-SL
Picloram	1918-02-1	--	--	4400	USEPA RSL	--	--	47000	DTSC-SL
Picramic Acid (2-Amino-4,6-dinitrophenol)	96-91-3	--	--	6.3	USEPA RSL	--	--	68	DTSC-SL
Picric Acid (2,4,6-Trinitrophenol)	88-89-1	--	--	130	USEPA RSL	--	--	1400	DTSC-SL

Table 2: HHRA Note 3 March 2025, DTSC-recommended Screening Levels for Tap Water Analytes

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Tap Water (µg/L), Cancer Endpoint	Reference for Screening Level for Tap Water, Cancer Endpoint	Screening Level for Tap Water (µg/L), Noncancer Endpoint	Reference for Screening Level for Tap Water, Noncancer Endpoint
Acetaldehyde	75-07-0	2.1	DTSC-SL	19	USEPA RSL
Acetophenone	98-86-2	--	--	580	DTSC-SL
Aldrin	309-00-2	0.00092	USEPA RSL	0.18	DTSC-SL
Arsenic, Inorganic	7440-38-2	0.0024	DTSC-SL	0.07	DTSC-SL
Benfluralin	1861-40-1	--	--	17	DTSC-SL
Benzaldehyde	100-52-7	4.3	DTSC-SL	580	DTSC-SL
Benzene	71-43-2	0.15	DTSC-SL	5.7	DTSC-SL
Benzenethiol	108-98-5	--	--	5.6	DTSC-SL
Benzidine	92-87-5	0.000049	DTSC-SL	59	USEPA RSL
Benzotrichloride	98-07-7	0.0011	DTSC-SL	--	--
Beryllium and compounds	7440-41-7	--	--	4	DTSC-SL
Biphenyl, 1,1'-	92-52-4	1.6	DTSC-SL	0.83	USEPA RSL
Bis(2-chloro-1-methylethyl) ether	108-60-1	--	--	230	DTSC-SL
Bis(2-chloroethyl)ether	111-44-4	0.0063	DTSC-SL	--	--
Bromo-3-fluorobenzene, 1-	1073-06-9	--	--	1.7	DTSC-SL
Bromo-4-fluorobenzene, 1-	460-00-4	--	--	1.6	DTSC-SL
Bromodichloromethane	75-27-4	0.13	USEPA RSL	46	DTSC-SL
Bromoform	75-25-2	3.3	USEPA RSL	120	DTSC-SL
Bromophos	2104-96-3	--	--	19	DTSC-SL
Bromoxynil Octanoate	1689-99-2	0.24	USEPA RSL	57	DTSC-SL

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Tap Water (µg/L), Cancer Endpoint	Reference for Screening Level for Tap Water, Cancer Endpoint	Screening Level for Tap Water (µg/L), Noncancer Endpoint	Reference for Screening Level for Tap Water, Noncancer Endpoint
Butanol, N-	71-36-3	--	--	590	DTSC-SL
Butylate	2008-41-5	--	--	220	DTSC-SL
Butylbenzene, n-	104-51-8	--	--	290	DTSC-SL
Butylbenzene, sec-	135-98-8	--	--	590	DTSC-SL
Butylbenzene, tert-	98-06-6	--	--	380	DTSC-SL
Cadmium (Diet)	7440-43-9	--	--	2	DTSC-SL
Carbon Tetrachloride	56-23-5	0.46	USEPA RSL	37	DTSC-SL
Carbonyl Sulfide	463-58-1	--	--	21	DTSC-SL
Chloral Hydrate	302-17-0	--	--	590	DTSC-SL
Chloro-2-methylaniline, 4-	95-69-2	0.26	DTSC-SL	54	USEPA RSL
Chloroacetaldehyde, 2-	107-20-0	0.064	DTSC-SL	--	--
Chlorobutane, 1-	109-69-3	--	--	220	DTSC-SL
Chloroethanol, 2-	107-07-3	--	--	120	DTSC-SL
Chlorophenol, 2-	95-57-8	--	--	29	DTSC-SL
Chlorotoluene, o-	95-49-8	--	--	98	DTSC-SL
Chlorotoluene, p-	106-43-4	--	--	100	DTSC-SL
Crotonaldehyde, trans-	123-73-9	0.0091	DTSC-SL	5.9	DTSC-SL
~Cyanogen	460-19-5	--	--	5.9	DTSC-SL
~Cyanogen Bromide	506-68-3	--	--	530	DTSC-SL
~Cyanogen Chloride	506-77-4	--	--	290	DTSC-SL
~Thiocyanic Acid	463-56-9	--	--	1.2	DTSC-SL

Analyte	Chemical Abstracts Service Registry Number	Screening Level for Tap Water (µg/L), Cancer Endpoint	Reference for Screening Level for Tap Water, Cancer Endpoint	Screening Level for Tap Water (µg/L), Noncancer Endpoint	Reference for Screening Level for Tap Water, Noncancer Endpoint
Cyclohexylamine	108-91-8	--	--	1200	DTSC-SL
Dibromobenzene, 1,3-	108-36-1	--	--	2	DTSC-SL
Dibromobenzene, 1,4-	106-37-6	--	--	51	DTSC-SL
Dibromochloromethane	124-48-1	0.2	DTSC-SL	120	DTSC-SL
Dibromoethane, 1,2-	106-93-4	0.0075	USEPA RSL	1.7	DTSC-SL
Dichlorobenzidine, 3,3'-	91-94-1	0.047	DTSC-SL	--	--
Dichlorodiphenyldichloroethylene, p,p` - (DDE)	72-55-9	0.046	USEPA RSL	3	DTSC-SL
Dichloroethane, 1,1-	75-34-3	2.8	USEPA RSL	1200	DTSC-SL
Dichloroethylene, 1,1-	75-35-4	--	--	--a	--a
Dichloropropane, 1,3-	142-28-9	--	--	110	DTSC-SL
Dieldrin	60-57-1	0.00072	DTSC-SL	0.2	DTSC-SL
Diethylformamide	617-84-5	--	--	5.9	DTSC-SL
Diisopropyl Methylphosphonate	1445-75-6	--	--	470	DTSC-SL
Dimethylaniline, N,N-	121-69-7	0.63	DTSC-SL	11	DTSC-SL
Dinitrotoluene Mixture, 2,4/2,6-	E1615210	0.11	USEPA RSL	17	DTSC-SL
Dithiane, 1,4-	505-29-3	--	--	59	DTSC-SL
EPTC	759-94-4	--	--	270	DTSC-SL
Endosulfan	115-29-7	--	--	33	DTSC-SL
Epichlorohydrin	106-89-8	0.19	DTSC-SL	2	USEPA RSL
Ethyl Ether	60-29-7	--	--	1200	DTSC-SL
Ethylene Diamine	107-15-3	--	--	530	DTSC-SL

RSL = Regional Screening Level SL = screening level
USEPA = U.S. Environmental Protection Agency
^a: SLs calculated based on a RfC of 420 µg/m³.