What's New

This document provides a history of updates to the NC DEQ Risk Calculator, the Preliminary Soil Remediation Goals (PSRG) table and other risk evaluation resources. The DEQ Risk Calculator and PSRG table are typically updated semiannually with the revised US EPA Regional Screening Level (RSL) information usually released in May and November. However, US EPA has not updated the RSLs since November 2024. Changes in toxicity values, exposure parameters, chemical-specific parameters, equation formats and any other screening level changes can be found on the EPA RSL What's New web page at: https://www.epa.gov/risk/regional-screening-levels-rsls-whats-new

Updates – July 2026

1. EPA Practical quantitation limits are used in the DEQ Risk Calculator and Preliminary Soil Remediation Goals table as groundwater target concentrations for five PFAS.
2. The *DEQ Risk Calculator User Guide* document was updated.
3. The *DEQ Technical Guidance for Risk-Based Environmental Remediation of Sites* document was updated to better align with the statutory requirements.

Updates – December 2025

1. There have been no updates to the US EPA RSLs since November 2024, so the most current PSRG Table is dated January 2025, and all risk calculations are the same as those in the January 2025 version of the DEQ Risk Calculator.
2. The risk calculator "January 2025 Version 2" has been augmented with a simple and optional data upload tool that facilitates the transfer of laboratory data in Excel directly into a risk calculator data input sheet for a specific medium. Instructions for DEQ Risk Calculator Data Import are located here: Risk Evaluation Resources | NC DEQ.

Additional Updates – January 2025

3. Health-based PSRGs for 1,1-DCE significantly decreased and slightly increased for Chromium (VI) and cyanide (CN-).
4. PSRGs were added for several less common chemicals, six PFAS, and phosphorus.
5. Protection of groundwater PSRGs were added for the PFAS with IMACs.
6. Added compound-specific notes for (1) Ammonia, Nitrate and Nitrite, (2) Trimethylbenzene (aka Benzene, Trimethyl) and its isomers, and (3) xylenes.
7. Blue highlighting on both the PSRG Table and Risk Calculator was limited to chemical categories rather than the entire list of those chemicals where appropriate (e.g., PFAS and PCBs, etc.) to minimize the amount of blue shading.

Additional Updates - July 2024 (rev)

8. On August 12, 2024, the calculator was re-released with construction worker risk calculations updated. All other risk calculations remain the same.
9. EPA added a RSL of 100 mg/kg for scenarios where additional sources of lead are present, e.g., lead water service lines, lead-based paint, or non-attainment areas where the air lead concentrations exceed National Ambient Air Quality Standards (EPA Memorandum dated January 17, 2024), so the PSRG table reflects this addition. Please note that EPA has no consensus on reference dose or cancer slope factor values for lead, therefore the DEQ Risk Calculator does not calculate a lead cancer risk or hazard quotient.
10. The PSRGs for PFOS and PFOA and their associated forms have been lowered based on EPA changes to the reference dose and oral slope factor.
11. The PSRGs and vapor intrusion screening levels for 1-methylnaphthalene have been lowered based on EPA changes to the inhalation reference concentration.
12. Protection of Groundwater PSRGs for PFAS have been removed from the table. As stated in the PSRG notes, if PFAS are detected in soil, co-located groundwater samples should be tested for PFAS to determine if the protection of groundwater criterium is met and if nearby water supplies could be at risk.
13. The default exposure frequencies for a recreator and trespasser have been modified in the DEQ Risk Calculator to more closely align with EPA Region 4 guidance and likely human behaviors. For a recreator, the new default exposure timeframes are 150 days/year for soil exposure and 90 days/year for water exposure. Both exposure frequencies were formerly 195 days/year. For a trespasser, there are no changes to the default exposure timeframe for soil exposure (the default is still 90 days/year), but the new timeframe for water exposure is 45 days.
14. The DEQ Risk Calculator has been modified so that a hazard index of 1.0 is not flagged as an unacceptable risk (risk levels equal to a hazard index of 1.0 are considered acceptable, but risk levels of 1.1 or greater are flagged as an exceedance which is in agreement with EPA).
15. The Risk Evaluation Equations and Calculations document was updated according to the changes described in item 5 above.

Additional Updates - February 2024

1. Additional Per- and Polyfluoroalkyl Substances (PFAS) have been added to the PSRG Table.
2. EPA added a RSL for Chromium(III) (Soluble Compounds). When speciation data are available, trivalent chromium, or Chromium(III), should be compared with or entered into the risk calculator as Chromium(III) Insoluble Salts.
3. The residential RSL for lead in soil (which also serves as the PSRG) was lowered from 400 mg/kg to 200 mg/kg. However, a RSL of 100 mg/kg may be needed when additional sources of lead are present, e.g., lead water service lines, lead-based paint, or non-attainment areas where the air lead concentrations exceed National Ambient Air Quality Standards (EPA Memorandum dated January 17, 2024).

Additional Updates - July 2023

1. Several Per- and Polyfluoroalkyl Substances (PFAS) have been added to the PSRG Table.
2. Hexachlorocyclohexane, Gamma- (Lindane) has been added to the PSRG Table
3. In May 2023, EPA proposed Maximum Contaminant Levels for PFOS and PFOA, and a hazard index limit of 1.0 was proposed for a mixture containing one or more of PFNA, PFHxS, PFBS, and/or GenX chemicals. These groundwater threshold levels for drinking water are not used to calculate Protection of Groundwater PSRGs.

Additional Updates - January 2023

1. Protection of groundwater PSRGs are provided only for the PFAS compounds where final EPA Health Advisory Levels (HALs) exist or where a screening level can be calculated. PFOS and PFOA currently have interim HALs. Therefore, if PFOS or PFOA are detected in soil, potentially affected drinking water supplies nearby should be tested for PFAS.

Additional Updates - July 2022

1. Select Per- and Polyfluoroalkyl Substances (PFAS) have toxicity values to allow calculation of a health-based Preliminary Soil Remediation Goal (PSRG).
2. EPA established new final drinking water health advisories for GenX and PFBS and lowered the interim drinking water health advisories for PFOA and PFOS (June 15, 2022):

PFOA	0.004 parts per trillion (ppt) - interim
PFOS	0.02 ppt - interim
GenX	10 ppt - final
PFBS	2,000 ppt - final

3. A note was added to the PSRG Notes to provide the carbon ranges associated with the six fractions of Total Petroleum Hydrocarbons that have PSRGs and a link to more information.
4. The Risk Evaluation Equations and Calculations document was updated to clarify the justification for several contaminant migration default values. No equations were modified.

Additional Updates - January 2022

There are no updates to the associated risk evaluation resources.

Additional Updates - June 2021

There are no updates to the associated risk evaluation resources.

Additional Updates - February 2021

1. Specific chemicals are highlighted blue in the Risk Calculator to indicate that there are data entry notes for that chemical that can be found on the PSRG Preliminary Soil Remediation Goals Table or in the NCDEQ Risk Calculator User Guide.
2. The NCDEQ Risk Calculator User Guide has been updated to include the following:
   a. Added or clarified the underlined language on page 3: "Note, contaminants with concentrations demonstrated to be within naturally occurring background levels should be included in the initial risk evaluation and any unacceptable risk noted for communication purposes. Reasons for excluding naturally occurring contaminants from the risk evaluation must be well-documented. Cleanup of contaminants above naturally occurring levels is not required."
   b. Added or clarified the underlined language on page 5: "Facilities whose chemical exposures fall under the purview of the Occupational Safety and Health Administration (OSHA) should have those risks evaluated separately. As stated in the DWM Vapor Intrusion Guidance document, If OSHA standards currently govern the amount of chemical allowed in indoor air, future exposures from subsurface contamination should be evaluated using soil gas data to account for potential changes in use of the building or changes in land use."
   c. Added the underlined language on page 5: "**Construction Worker** – Assumes that adult construction/utility workers may be exposed to soils through large-scale redevelopment activities that disturb at least ½ acre of contaminated soil. The associated exposure parameters assume a shorter exposure duration and higher contamination exposure relative to residential and non-residential worker scenarios. The additional particulate emission factor (PEF) and volatilization factor (VF) equations are unique to this scenario.
   d. Updated the version of the Risk Calculator's Main Menu page on page 7.
   e. Added to the "Notes on the Construction Worker Scenario" on page 12 that USEPA does not provide RSLs for this pathway.
   f. Instructions on how to enter chemicals highlighted in blue in the calculator have been updated on page 20. These instructions are similar to those provided in the PSRG Table Notes.
   g. The links to the DWM vapor intrusion screening levels and what to do if a screening level is exceeded is added to page 25. In addition, A list of mutagens has been added to the Vapor Intrusion Calculators section on page 27.

Additional Updates - July 2020

1. The NCDEQ vapor intrusion (VI) screening levels are now only accessible in the Risk Calculator. If a VI screening level is exceeded, the user is directed to enter the site data into the Risk Calculator to calculate risk. See the *NCDEQ Risk Calculator User Guide* for detailed instructions. **It is NCDEQ policy to base mitigation decisions on risk to human health and not screening levels**.

Note that the NCDEQ Risk Calculator does not allow modification of the residential VI exposure duration for mutagens and conservatively applies a default of 26-years regardless of the site-specific exposure duration entered into the calculator. Consult with a NCDEQ toxicologist if you need to adjust exposure parameters at a site with mutagenic contaminants.

2. The *Risk Evaluation Equations and Calculations* document was updated according to the May 2020 US EPA RSLs.

Additional Updates - April 2020

1. The *Technical Guidance for Risk-Based Environmental Remediation of Sites* was revised and posted in April 2020.
2. The *Administrative Procedures for Risk-Based Environmental Remediation of Contaminated Sites* and associated forms were revised and posted in April 2020.

Additional Updates - December 2019

There are no additional updates to the associated risk evaluation resources.

Additional Updates - May 2019.

1. The Risk Calculator Main Menu updates include:
    a. links to the User Guide, PSRG Table, Risk Evaluation Equations and Calculations, and this What's New update;
    b. combining the Soil and Subsurface Soil Exposure Point Concentration tables into one table (see User Guide for details);
    c. simplifying nomenclature of the Direct Contact Soil and Water Calculators and the Contaminant Migration Worksheets to reduce confusion;
    d. flagging the Protect/Unprotect buttons as NCDEQ Use Only and moving them to the bottom of the Main Menu; and
    e. adding a Sitewide Risk output sheet (see User Guide for details).
2. Updates to the Complete Exposures Pathway sheet include:
    a. having only the Resident and Non-Residential Worker Soil pathways (for Direct Contact Pathways) checked as "complete"; and
    b. adding pop-up boxes to provide additional information when pathways for Resident Groundwater Use, Non-Residential Worker Groundwater Use, Construction Worker, or Recreator/Trespasser are checked as complete.
3. Updates to the Soil, Groundwater, and Surface Water Exposure Point Concentrations sheets include:
    a. requiring that Total Chromium data be entered as Chromium (III) and/or Chromium (VI) based on speciated analytical results and site knowledge; and

b. adding a pop-up box that provides instruction for entering Chromium (III) concentrations.

4. The NCDEQ Risk Calculator User Guide was Updated to reflect the changes.