

Department of Health response to comments

Proposed amendment of chapter 11-280.1, Hawaii Administrative Rules (HAR)

Public comment period August 8, 2024 to September 19, 2024

Notes: Comments have been summarized. All written comments received and the transcript of the public hearing held on September 12, 2024 are available at <http://health.hawaii.gov/shwb/ust-har/>.

Commenter #1: Brian Carroll, Laulea Engineering Company

Summary of comment #1: We specialize in the underground storage tank closure assessments.

The reduction in the TPH groundwater EALs from 300, 400, and 500 to 70 and 90, seems like a very significant and drastic reduction of the EALs and stands out. This could have really significant implications for projects that we do where there have been small releases that are being remediated.

This could potentially have significant implications for a lot of projects in areas where there have been releases that have been remediated below the previous EALs, and that may be in areas where there are no drinking water wells or threats to any drinking water wells. I want to understand why these EALs are being reduced and if there would be any type of exceptions.

Department response:

Underground storage tank (UST) system owners and operators are required to clean up releases and remediate contaminated soil, groundwater, and surface water to a level that is protective of human health and the environment. The screening levels found in Table 1 in §11-280.1-65.3, HAR, are the default criteria for the remediation of contaminated soil and groundwater following a release from a UST system. Site-specific action levels may also be approved by the Department if they are deemed to be sufficiently protective of human health and the environment. A number of factors to take into account for alternative action levels are listed in §11-280.1-65.3(b)(2), HAR, and owners and operators must consult the department on how the alternative standard may be met. Sites with approved complete cleanups will not be affected by the change to default screening levels unless there is a new UST system release at the site. Owners and operators of sites currently undergoing cleanup can request the department's approval for alternative action levels under §11-280.1-65.3(b)(2), HAR.

The default screening levels in §11-280.1-65.3 that the commenter refers to are for groundwater where a drinking water source is threatened. The default screening levels are proposed to be reduced from 300 to 74, from 400 to 91, and from 500 to 91 (ug/l) for total petroleum hydrocarbons (TPH)-gasoline, TPH-middle distillates, and TPH-residual fuels respectively.

The default screening levels in §11-280.1-65.3 are based on the Department’s Environmental Action Levels (EALs), which are based on toxicological data (dangers of exposure to a specific chemical contaminant) and risk assessments considering potential pathways of human health and environmental exposure to contaminants.¹ The EALs these particular TPH screening levels are based on are for a groundwater utility of “drinking water resource,” meaning that the groundwater is or could be a source of drinking water. Groundwater utility is determined based on the location of the site relative to the Underground Injection Control (UIC) line and the state *Aquifer Identification and Classification* technical reports prepared by the University of Hawaii. Aquifer systems mauka (inland) of the UIC line are by default considered to be current or potential sources of drinking water. The procedure for determining groundwater utility is provided in detail in Volume 2 Appendix 7 of *Evaluation of Environmental Hazards at Sites With Contaminated Soil and Groundwater* (Hawai’i Edition, Spring 2024).²

The department recently reduced the Tier 1 EALs for TPH-gasoline, TPH-middle distillates, and TPH-residual fuels in groundwater (groundwater utility: drinking water resource) because the U.S. Environmental Protection Agency (EPA) reduced their toxicity factors³ by approximately a factor of three for a key group of compounds (>C8 aromatics, or aromatic hydrocarbon compounds with eight or more carbon molecules). This reduction in toxicity factors is based on the EPA’s updated scientific review of petroleum toxicity. Documentation regarding EPA’s toxicity factors is found in Volume 2 Appendix 2 of *Evaluation of Environmental Hazards at Sites With Contaminated Soil and Groundwater* (Hawai’i Edition, Spring 2024).⁴

To determine the Tier 1 EALs for groundwater (groundwater utility: drinking water resource), the Department independently calculated action levels for drinking water toxicity, drinking water secondary concerns (taste and odor), vapor intrusion, and chronic aquatic toxicity and then used the lowest (most protective) action level as the Tier 1 EAL. For TPH-gasoline, TPH-middle distillates, and TPH-residual, the lowest action level is for drinking water toxicity, so the Tier 1 EAL is based on this. The equations for calculating screening levels to account for drinking water toxicity assume additive exposure combining drinking the water (ingestion), bathing in it

¹ For an introduction to this risk assessment modeling, see chapter 2 in *Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater* (Hawai’i Edition, Spring 2024), Volume 1: User’s Guide, <https://health.hawaii.gov/heer/files/2024/06/EALs-Volume-1-Spring-2024.pdf>. The complete document is available at <https://health.hawaii.gov/heer/guidance/ehe-and-eals/>.

² Volume 2 appendix 7 starts on page 408 of the PDF <https://health.hawaii.gov/heer/files/2024/10/EALsVol2App2-5and7-9HDOHSpring2024revOct2024.pdf>. The complete document is available at <https://health.hawaii.gov/heer/guidance/ehe-and-eals/>.

³ The more toxic a substance is, the lower the toxicity factor that goes into risk assessment equations, resulting in a lower screening level.

⁴ Volume 2 appendix 2 starts on page 4 of this PDF <https://health.hawaii.gov/heer/files/2024/10/EALsVol2App2-5and7-9HDOHSpring2024revOct2024.pdf>. The complete document is available at <https://health.hawaii.gov/heer/guidance/ehe-and-eals/>.

(dermal exposure), and inhalation of volatiles from tap water.⁵ Plugging the new, lower toxicity factor into these equations yields lower action levels.

Commenter #2: Honolulu Board of Water Supply (BWS)

Summary of comment #2: The BWS supports the proposed introduction of a screening level to "methyl-naphthalene, 1-" and "methyl-naphthalene, 2-", and the reduction in screening level for "dichloroethylene, trans 1, 2-", "TPH-gasolines", "TPH-middle distillates", and "TPH-residual fuels", as reflected on proposed revision of Table 1 Tier 1 Screen Levels for Soil and Groundwater. The proposed introduction of screening levels and reduction in screening level for contaminants in soil and groundwater aligns with the BWS's mission to provide safe, dependable, and affordable drinking water now and into the future.

It is unclear why the screening levels of "dichloroethylene, cis 1,2-" increased from 0.36 to 1.8 mg/kg for soil in drinking water source threatened and soil in drinking water source not threatened. BWS urges the DOH to provide a scientific justification to the public on the proposed amendments, including all research and analysis used before adopting these rules.

Department response:

The department appreciates the BWS's support for the reduced default screening levels.

The default screening levels in Table 1 in §11-280.1-65.3, HAR, are based on the department's EALs. Please see details on this in the response to comment #1.

The department recently increased the Tier 1 EALs for cis 1,2-dichloroethylene in soil based on a comparable increase in the EPA inhalation toxicity factor for ambient air³ for cis 1,2-dichloroethylene. The updated value is noted in Table H of Volume 2 Appendix 1 of *Evaluation of Environmental Hazards at Sites With Contaminated Soil and Groundwater* (Hawai'i Edition, Spring 2024).⁶

To determine the Tier 1 EALs for soil, the Department independently calculated action levels for direct exposure, vapor intrusion into buildings, leaching to groundwater, and gross contamination (odors, etc.) and then used the lowest (most protective) action level as the Tier 1

⁵ Tier 1 EALs for groundwater (groundwater utility: drinking water resource) are based on residential exposure for children (i.e., the most protection set of exposure assumptions). The equations used to calculate these EALs are shown in section 4.1.2.1 of EPA's Regional Screening Levels User's Guide in Volume 2 Appendix 2 of *Evaluation of Environmental Hazards at Sites With Contaminated Soil and Groundwater* (Hawai'i Edition, Spring 2024) on pages 56 to 57 of the PDF at <https://health.hawaii.gov/heer/files/2024/10/EALsVol2App2-5and7-9HDOHSpring2024revOct2024.pdf> and also found at <https://www.epa.gov/risk/regional-screening-levels-rsls-users-guide>. Symbols used in the equations are defined here: <https://semspub.epa.gov/work/HQ/404322.pdf>.

⁶ Table H starts on page 227 of the PDF <https://health.hawaii.gov/heer/files/2024/07/EALsVol2Appendix1HDOHSpring2024Rev071024.pdf>. The complete document is available at <https://health.hawaii.gov/heer/guidance/ehe-and-eals/>.

EAL. For cis 1,2-dichloroethylene, the lowest action level is for vapor intrusion, so the Tier 1 EAL is based on the equation for vapor intrusion concerns.⁷ Plugging the new, higher toxicity factor into this equation yields the higher action level.

Commenter #3: Korynn Grenert, student at the William S. Richardson School of Law

Summary of comment #3: I oppose the increased levels allowed in soil for Dichloroethylene, cis 1,2- from 0.36 mg/kg to 1.8 mg/kg. According to the State of Oregon, consuming water with high levels of cis-1,2- dichloroethylene over a long time can cause health effects including liver and kidney problems, drowsiness and nausea, and cardiovascular issues [citation]. Also according to Oregon’s Public Health Division, soil and groundwater with high levels of Dichloroethylene, cis 1,2- should not be used to bathe or to irrigate a yard with, much less to drink. Dichloroethylene, cis 1,2-’s ability to absorb through human skin and travel through soil to contaminate groundwater makes it even more important that this chemical is limited by law to low amounts in our soil.

With fresh water in Hawai’i being such a sensitive subject after over 19,000 gallons of JP-5 jet fuel leaked and contaminated the Red Hill drinking water well in 2021, I believe it unwise for the Hawai’i State Department of Health to increase without explanation the allowance of any toxic substance in Hawai’i’s groundwater or soil.

Furthermore, the U.S. EPA has established a maximum contaminant level of 70 ug/L for drinking water for cis-1,2-dichloroethene [citation]. 70 ug/L translates to 0.7 mg/kg, making DOH’s proposed soil allowance level (1.8 mg/kg) more than double what the EPA allows in drinking water. With the uncertainty and various factors affecting how much of the chemical can leak from the soil into groundwater, the DOH should retain the former allowed level of cis-1,2-dichloroethene (0.36 mg/kg).

Department response:

This comment expresses concerns about “high levels of cis-1,2- dichloroethylene” in drinking water. The proposed revisions to which the comment is directed, however, relate only to cleanup levels for soil. Notably, the cleanup levels remain very low, even after the proposed increase. The pathways of exposure for drinking water and soil are not the same, so the appropriate screening levels for protecting human health from contaminants in drinking water

⁷ The equation used to calculate this EAL is shown in section 4.1.3.1 of EPA’s Regional Screening Levels User’s Guide in Volume 2 Appendix 2 of *Evaluation of Environmental Hazards at Sites With Contaminated Soil and Groundwater* (Hawai’i Edition, Spring 2024) on page 71 of the PDF at <https://health.hawaii.gov/heer/files/2024/10/EALsVol2App2-5and7-9HDOHSpring2024revOct2024.pdf> and also found at <https://www.epa.gov/risk/regional-screening-levels-rsls-users-guide>. Symbols used in the equations are defined here: <https://semspub.epa.gov/work/HQ/404322.pdf>.

and in soil differ. Consequently, a comparison between acceptable drinking water levels and those in soil is not consistent with the scientific methodology used to calculate these numbers.

The EALs—which the UST program’s default screening levels are based on—and the maximum contamination levels (MCLs) used in the drinking water program are both set using the latest available scientific information and risk assessment in order to protect human health and the environment. Please see details on the change to soil action levels for cis 1,2-dichloroethylene in the response to comment #2.