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July 9, 2025

Christine Sieger, Administrator
Division of Remediation and
Redevelopment
Wisconsin Department of Natural Resources
Madison, WI

Re: BEOH response guidance for trichloroethylene (TCE) in private well water

Ms. Sieger:

The Wisconsin Department of Health Services' (DHS') Bureau of Environmental and Occupational Health (BEOH) received a request from the Wisconsin Department of Natural Resources (DNR) to evaluate the existing practices for private well water use related to trichloroethylene (TCE). This request arose from DHS' recommendation to lower the public health enforcement standard for TCE as part of the Cycle 10 groundwater standards process in 2019.

For private wells, DHS uses the recommended groundwater enforcement standard for TCE (0.5 micrograms per liter ($\mu\text{g/L}$)) as the threshold for advising when people should take action to reduce their exposure from high consumption oral exposure routes (i.e., drinking, preparing beverages, and making of foods that take up a lot of water such as rice, oatmeal, and jello).

In the past, BEOH staff have issued "flush only advisories" for TCE when the use of private well water resulted in additional exposures (i.e., showering, running the washing machine, running the dishwasher) from inhalation of the water vapor and swallowing of water mist that pose a health risk. In these instances, water users were advised to only use the water for flushing their toilets. The threshold for these advisories (50 $\mu\text{g/L}$) was set at a TCE concentration that corresponded to a cancer risk level of one case in 10,000 people.

Moving forward, BEOH staff will be using a stepped approach to evaluate and address the risk of TCE exposure to private well users. This approach lays out three tiers of public health advisories which are based on the level of TCE in the drinking water and, in some cases, site-specific exposure parameters.

Advisory Type	TCE Concentration	Advisory Conditions
Drinking Water Health Advisory	$\geq 0.5 \mu\text{g/L}$	Water should not be used for drinking or cooking foods that take up a lot of water.
Limited Water Use Advisory	$\geq 2.5 \mu\text{g/L}$	Limits to showering and bathing may also be needed to protect people of child-bearing age.
Restricted Water Use Advisory	$\geq 50 \mu\text{g/L}$	Water should not be used for drinking, making foods that take up a lot of water, showering and bathing, and using the dishwasher, and washing machine.

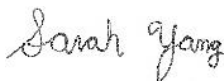
More information on this approach is available in the attached *BEOH Response Guide for Trichloroethylene in Water* document.

Should you or your staff have any questions about this approach, please do not hesitate to reach out to us for additional information.

Sincerely,



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Sarah Yang
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Cc: Steve Elmore, WIDNR

BEOH Response Guide for Trichloroethylene in Water

Trichloroethylene (TCE) is a volatile organic compound (VOC) that is primarily used as an industrial degreasing agent and an intermediate in the production of other chemicals.^{1, 2} Exposure to high levels of TCE has been associated with a number of health effects among humans including increased risk of cancers and fetal heart defects.^{1, 2}

Wisconsin's current TCE groundwater enforcement standard of 5 µg/L was adopted in 1990 (Cycle 3) and is based on EPA's maximum contaminant level.³ In 2019, we recommended that enforcement standard be lowered to 0.5 µg/L – this recommended standard is set at a cancer risk level of 1 case in 1,000,000 people using EPA's cancer slope factor from 2011.^{2, 4}

This document outlines the procedures for BEOH to follow when TCE is detected at levels above the recommended standard.

This document also includes:

- An overview of the ATSDR's SHOWER model.
- A diagram illustrating the differences between the historical and current approaches.
- An assessment of other exposure routes.
- Template health advisory letters.

For private wells, we use the recommended TCE groundwater standard (0.5 µg/L) as the threshold for advising when people should take action to reduce their exposure from oral exposure routes (e.g., drinking, preparing beverages, and preparing of foods that take up a lot of water).

In the past, we have issued "flush only advisories" for TCE when use of household water for showering, washing hands, washing laundry, and washing dishes poses a health risk due to inhalation of the water vapor and swallowing of water mist.⁵ In these instances, residents were advised to only use the water for flushing their toilets. The threshold for these advisories was 50 µg/L - corresponding with a cancer risk level of 1 case in 10,000 people.^{2, 5}

While flush only advisories have been an effective tool to reduce exposure to volatile compounds from non-drinking exposures, they have also posed restrictive limits on daily life. Recent advances in risk assessment tools make it possible to thoroughly investigate exposure from other exposure routes ensuring adequate protection from daily activities. In some cases, it may not be necessary to eliminate exposure from all other water uses (e.g, washing hands, doing dishes).

Figure 1. Past and current approach to evaluating risk from TCE in water

Past Approach

TCE $\geq 5 \mu\text{g/L}$
(Enforcement Standard)



Drinking Water Advisory



Water should not be used for drinking or cooking foods that take up a lot of water.

TCE $\geq 50 \mu\text{g/L}$
(1 in 10,000 Cancer Risk)



Flush Only Advisory



Water should not be used for any purpose except flushing toilets.

Current Approach

TCE $\geq 0.5 \mu\text{g/L}$
(Recommended Standard)



Drinking Water Advisory



Water should not be used for drinking or cooking foods that take up a lot of water.

TCE $\geq 2.5 \mu\text{g/L}$
(Screening Threshold 1)



Limited Use Advisory



Water should not be used for drinking or cooking foods that take up a lot of water.



Limits to showering and bathing may be needed.

TCE $\geq 50 \mu\text{g/L}$
(Screening Threshold 2)



Restricted Use Advisory



Water should not be used for drinking, making food that take up a lot of water, showering, bathing, and using the dishwasher and washing machine

Water can be used for all other purposes at TCE levels up to 500 $\mu\text{g/L}$.

DHS' Guide for Evaluating Risk from TCE Exposure in Private Well Water

Initial Response

Review TCE concentrations in private well sampling.

- a. If less than 0.5 µg/L, no action needed.
- b. If between 0.5 and 2.5 µg/L, issue a drinking water advisory.*
- c. If greater than or equal to 50 µg/L, issue a restricted use advisory.†
- d. If between 2.5 and 50 µg/L, determine if there are people of child-bearing age in the home.

-If not, then no short-term or intermediate threat.‡ Issue a drinking water advisory.

-If there are, collect information on the number of people in house, ages, and bathrooms (go to next section).

>Number of individuals in household

>Age of individuals (note children, people of childbearing age).

>Number of bathrooms in household and layout (shower/tub/exhaust fans).

>Shower/bathing schedule for household.

Reminder: Make sure to communicate with all relevant partners (LHD, DNR, etc.).

Shower Model Analysis

1. Click *Run New Scenario*.
2. On the **Site Information** page, fill in any relevant information from the case.
Note: This is the file name that will be used when the results are exported.
3. Click *Next*.
4. On the **Simulation Type** page, select *Run Custom Scenario (optional)* and click *Next*.
5. On the **Chemical Information** page:

* The 2.5 µg/L health guideline was determined by running a dose range finding analysis in the ATSDR SHOWER Model using a worst-case scenario of eight individuals living in one house with one bathroom. See appendix 2.

† The 50 µg/L health guideline was determined using the Average Daily Effective Concentration as determined by the ATSDR SHOWER Model (the shower and bathroom stay are set to the lowest time limit allowable (one min) and the sink duration is set at 0 min) and the ATSDR's intermediate inhalation MRL (2.15 µg/m³).

‡ Acute and intermediate risk determinations are based on ATSDR's intermediate oral MRL set from health risks observed in individuals of childbearing age and the developing fetus.

- In the Chemical Name box, type “TCE” and select “Trichloroethylene” (CASRN 79-01-6) from the drop-down menu.
- In the Concentration in Water box, fill in the **highest** concentration detected in water at the site.
- The Concentration in Outdoor Air box will automatically populate with 0, no need for action here.
- The Report Units will automatically select $\mu\text{g}/\text{m}^3$, no need for action here.

6. Click **Next**.
7. On the **Household Scenarios** page, select the number of people who reside on the property (including children) from the drop-down menu.

Household Scenarios

8. Select the shower/bathing schedule for the household
 Note: When in doubt, it is best to use the scenario that provides the most protection.
 For households with older children or only adults, that is all morning showers.
 For household with young children, that is baths with persons helping.
9. Unless specific information is available, leave exhaust fan set to “off” and bathroom door set to “closed”.

ATSDR SHOWER Model - Unsaved

Site Information Simulation Type Chemical Information **Household Scenarios** House Information Appliance Parameters Activity Patterns

Household Scenarios

4-Person Household

[View Default Parameter Values](#)

☒ Four morning showers
 ☐ Two morning showers and two evening showers
 ☐ Two morning showers and two evening baths (persons not helping with tub baths)
 ☐ Two morning showers and two evening baths (persons helping with tub baths)

Other Scenario Options

Exhaust fan when bathrooms are occupied? ☒ Off ☐ On

Bathroom door when bathrooms are occupied? ☒ Closed ☐ Open

Exposure Groups

The SHOWER model automatically displays results for nine standard ATSDR exposure groups. To consider an additional

10. Click *Next*.
 11. On the **House Information** page, enter the number of bathrooms used for showering and bathing specified by the resident.
 12. Click *Next*.
 13. No action is needed for the **Appliance Parameters** page
 14. Click *Next*.
 15. No action is needed for the **Activity Patterns** page
 16. Click *Run Custom Scenario* to generate the SHOWER Model Report.
 17. Click *Export Word*.
- Note: This export function takes several minutes, depending on computer processor speed, and creates a temporary file.

ATSDR SHOWER Model - Unsaved

ATSDR SHOWER Model Report

Custom 4-Person Household
Four morning showers

Site and Model Input Information

Information	Report Setting
Site Information	
Site name:	Sample_ID
Address:	
Application:	Version 3.0.0
CASRN:	79-01-6
Contaminant:	Trichloroethylene
Synonym:	1,1,2-trichloroethylene TCE Trichloroethene
Model Input Information	
Chemical name:	Trichloroethylene
Chemical properties:	ATSDR-Defined
Exposure routes available:	Inhalation and Dermal
Water concentration:	500 µg/L
Outdoor air concentration:	0 µg/m ³
Number of persons in household:	4
Household scenario:	Four morning showers
Number of bathrooms in house:	1

[Back](#)
[Export Raw Data](#)
[Export Word](#)
[Export to PHAST](#)
[Save](#)

18. Save the file in the appropriate site file location in the BEOH_atcdr folder on the L:/ Drive.

19. Obtain the average daily exposure concentration for the target person from Table 1 of the report.

Note: The Target Person is the individual in the household who will be exposed to the highest concentration of TCE throughout the day. They are indicated by an "X" on the table (outlined in red below).

Table 1. Average daily exposure concentration in µg/m³ for each person in the house

Person	Target Person	Main Activities	Average Daily Exposure Concentration
1	—	Showering in Shower #1 at 6:22 a.m.	102
2	—	Showering in Shower #1 at 6:35 a.m.	145
3	—	Showering in Shower #1 at 6:48 a.m.	183
4	X	Showering in Shower #1 at 7:01 a.m.	218

Abbreviations: µg/m³ = micrograms chemical per cubic meter air

20. Use the Average Daily Exposure Concentration of the Target Person to calculate the Hazard Quotient (HQ) for the household. Note: An HQ greater than or equal to one indicates a potential health risk.

-Hazard Quotient equals Exposure Concentration divided by recommended Enforcement Standard

>Exposure Concentration is the Average Daily Exposure Concentration outlined in the ATSDR SHOWER Model

>Recommended Enforcement Standard (ES) is the ATSDR's intermediate inhalation Minimum Risk Level of $2.15 \mu\text{g}/\text{m}^3$ for TCE. .

Documentation and Conclusions

1. If TCE levels are at or above public health values but HQ does not exceed 1, issue a drinking water advisory (see template letter A).
2. If $\text{HQ} \geq 1$, issue a limited use advisory (see template letter B).
3. If TCE value is greater than $50 \mu\text{g}/\text{L}$, issue a restricted use advisory (see template letter C).

Overview of the SHOWER Model

Appendix 1. Model Overview

ATSDR's Shower and Household Water-use Exposure (SHOWER) model evaluates exposures to volatile organic compounds (VOCs) from indoor household water use.^{6, §} The model works by simulating contaminant releases from common household water uses and generating average daily exposure concentrations to household members.

Accounting for Exposure Routes

The model accounts for chemicals entering a compartment either directly or indirectly (**Figure B1**). Direct sources include the shower, toilet, bath sink, kitchen sink, utility sink, dishwasher, and washing machine. Indirect sources include air exchange between showers and bathrooms, bathrooms and the main house, and the main house and the outdoors. The model can also simulate the movement of air from bathrooms to the outdoors via exhaust fans.

Exposure Estimations

The model estimates contaminant air concentration throughout the house for each second of the day using information on the timing and duration of water source usage. The model then uses this information to calculate an average daily exposure concentration for each person based on that their daily activities.^{**} The SHOWER model typically reports the results for the most highly exposed person in the household at the end of each simulation.

In addition to predicting an average daily exposure concentration in air, the SHOWER model also predicts dermal and inhalation doses. Dermal doses are based on contaminants absorbed from contact with water during a shower or a bath and from hands contacting water during faucet use. Inhalation doses are based on age-specific breathing rates and contaminants inhaled by household members as they move throughout the house during the day.

[§] The current version of the model (v3.0) was released in May 2022.

^{**} More specifics on this analysis can be found on pg. 5-6 of ATSDR's Technical Document.

Develop Screening Threshold for Shower Model Use

Appendix 2. Development of screening threshold.

The 2.5 µg/L screening threshold was developed using a Hazard Quotient approach. The hazard quotient of a worst-case scenario was calculated using the ATSDR's intermediate inhalation Minimum Risk Level of 2.15 µg/m³ and the Average Daily Exposure Concentration (ADEC) which was calculated by the ATSDR Shower Model software.††

First, we defined our worst-case scenario based on the limitations of the ATSDR Shower Model software.

The worst-case scenario as defined by the ATSDR shower model software is an 8-person household with one bathroom. Individuals in the household showered 4 in the morning in a row and 4 at night in a row. The person at greatest risk was the last person to shower.

Next, we determined the ADEC for a range of TCE concentrations.

Starting at very low concentrations of TCE, we ran the ATSDR Shower Model for concentrations of TCE increasing at 0.5 µg/L up to 3 µg/L. The ADEC calculated by the Shower Model for the individual at greatest risk.

Using the ADEC, we calculated the hazard quotient for each concentration of TCE.

Each ADEC was divided by the ATSDR intermediate inhalation minimum risk level to determine the hazard quotient. A hazard quotient of less than one was considered to be an acceptable risk, while a hazard quotient of greater than one was considered to be a health risk.

$$HQ = \frac{D}{RfD}$$

Where:

HQ = Hazard Quotient

D = Exposure Dose

RfD = Reference Dose (ATSDR's intermediate inhalation MRL)

A concentration of 3 µg/m³ TCE resulted in a hazard quotient of greater than one (1.12), while a concentration of 2.5 µg/m³ resulted in a hazard quotient of slightly less than one (0.93).

†† Acute and intermediate risk determinations are based on ATSDR's intermediate oral MRL set from health risks observed in individuals of childbearing age and the developing fetus.

Figure B1. ATSDR's schematic of a model house showing direct and indirect sources of exposure



Evaluating Risk from Other Water Uses

Appendix 3. Incidental Oral Exposure from Teeth Brushing

When brushing teeth, people may be exposed to TCE from accidentally swallowing the water. To evaluate potential risk from this exposure, we estimated exposure levels and compared these to ATSDR's intermediate oral minimum risk level (MRL).¹

First, we estimated how much water a person drinks each day while brushing their teeth.

$$\text{Water Consumption} = (\text{Ingestion rate}) \times (\text{duration})$$

$$\text{Water Consumption} = 0.009 \text{ L/d}$$

Where:

$$\text{Ingestion Rate} = 92 \text{ mL/hr}$$

Because water ingestion rates from teething brushing are not available, we used EPA's recommended values for water ingestion while swimming.⁷ As pregnant individuals are the most sensitive to the effects of TCE, we used the 95th upper percentile for adults to ensure appropriate protection.

$$\text{Duration} = 6 \text{ mins}$$

The American Dental Association recommends that people brush their teeth at least twice a day for two minute each.⁸ To ensure adequate protection of people that may brush more frequently, we selected an exposure duration of six minutes.

Next, we calculated the average daily exposure of TCE from teeth brushing at various TCE concentrations.

$$\text{Average Daily Exposure (mg/kg-d)} = \frac{\text{TCE Concentration (}\mu\text{g/L)} \times \text{Water Consumption (L/d)} \times (1 \text{ mg}/10^3 \mu\text{g})}{\text{Body Weight (kg)}}$$

Where:

Body weight = 73 kg for pregnant individuals

We used the 50th percentile body weight of pregnant women from the National Health and Nutrition Examination Survey (1999-2006).⁷

Finally, we evaluated risk using a hazard quotient approach at the various TCE concentrations.

To obtain the hazard quotient, we divided the average daily exposures by ATSDR's intermediate oral MRL (0.005 mg/kg-d).¹, ‡‡ A hazard quotient equal to or greater than 1.0 indicates a potential health risk.

Table B1

TCE in water (µg/L)	Average Daily Dose (mg/kg-d)	Hazard Quotient
0.5	6.3×10^{-8}	< 0.01
5	6.3×10^{-7}	< 0.01
10	1.3×10^{-6}	< 0.01
50	6.3×10^{-6}	0.01
500	6.3×10^{-5}	0.1

Teeth brushing with water having TCE concentrations up to 500 µg/L does not pose a health risk.

Appendix 4. Dermal Exposure Assessment

Studies have found that TCE can be readily absorbed by the skin and cause skin irritation, skin sensitization, and even systemic toxicity. To evaluate potential risk from dermal exposure, we used a hazard index approach. This approach allowed us to evaluate risk from exposures estimated by the SHOWER model (i.e., showering, bathing, handwashing) and exposures not included in the model (i.e., hand washing dishes).

We first determined daily dermal exposure doses of TCE at various TCE concentrations.

Showering, bathing, and handwashing

The SHOWER model estimates dermal exposure from contact with water during a shower or bath and from contact with water during faucet use. The model calculates the administered dermal dose (ADD) based on skin uptake from showering or bathing and for 25 sink uses per day.⁶

For our analysis, we used the estimated exposures for pregnant individuals as they are the most sensitive to the effects of TCE (**Table B2**).

Hand washing dishes

We used EPA's Supplemental Guidance for Dermal Risk Assessment to estimate dermal exposure from washing dishes by hand (**Figure B2**).⁹

We first calculated the adsorbed dose per event (DA_{event}).

$$DA_{\text{event}} = 2FA \times K_p \times C_w \sqrt{\left(\frac{6\tau_{\text{event}} \times t_{\text{event}}}{\pi} \right)}$$

‡‡ ATSDR's intermediate oral MRL for TCE is 0.005 micrograms per liter (µg/m³). Due to limited data, ATSDR used their chronic oral MRL for TCE as the intermediate oral MRL. The chronic MRL is based on studies in research animals that found effects on thymus size, immune response, and heart development.

Where:

FA = Fraction Absorbed = 1

We assumed that 100% of the TCE present in the water is absorbed through the skin.

K_p = Dermal permeability coefficient = 0.012 cm/hr

We used the measured value from Exhibit B-3.⁹

τ_{event} = Lag time per event = 0.58 hr/event

We obtained this value from Exhibit B-3.

t_{event} = time per event = 0.33 hr/event

We estimated that a person spends an average of 20 minutes washing dishes each time.

Then, we calculated the dermally absorbed dose per event (DAD).

$$\text{DAD} = \frac{\text{DA}_{\text{event}} \times \text{SA} \times \text{EV}}{\text{BW}}$$

Where:

EV = Event Frequency

We used an event frequency of 3 – accounts for a person washing dishes after breakfast, lunch, and dinner each day.

SA = Surface Area = 1185 cm²

We used the 95th percentile of hand surface area for adult males and females.⁹

BW = Body Weight = 73 kg

We used the 50th percentile body weight of pregnant women from the National Health and Nutrition Examination Survey (1999-2006).⁷

Because it is assumed that 100% of VOCs are absorbed through the GI tract, we used the dermally absorbed dose (DAD) as the administered dermal dose (ADD) in our risk analysis.¹⁰

Next, we calculated hazard quotients for each exposure group at the various TCE concentrations.

To obtain the hazard quotients, we divided the administered dermal dose (ADD) by ATDSR's intermediate oral MRL. We used the oral MRL because a dermal health threshold for TCE does not exist.

Finally, we evaluated risk using a hazard index approach at the various TCE concentrations.

To obtain the hazard index, we summed the hazard quotients for each of the exposure groups. A hazard index equal to or greater than 1.0 indicates a potential health risk.

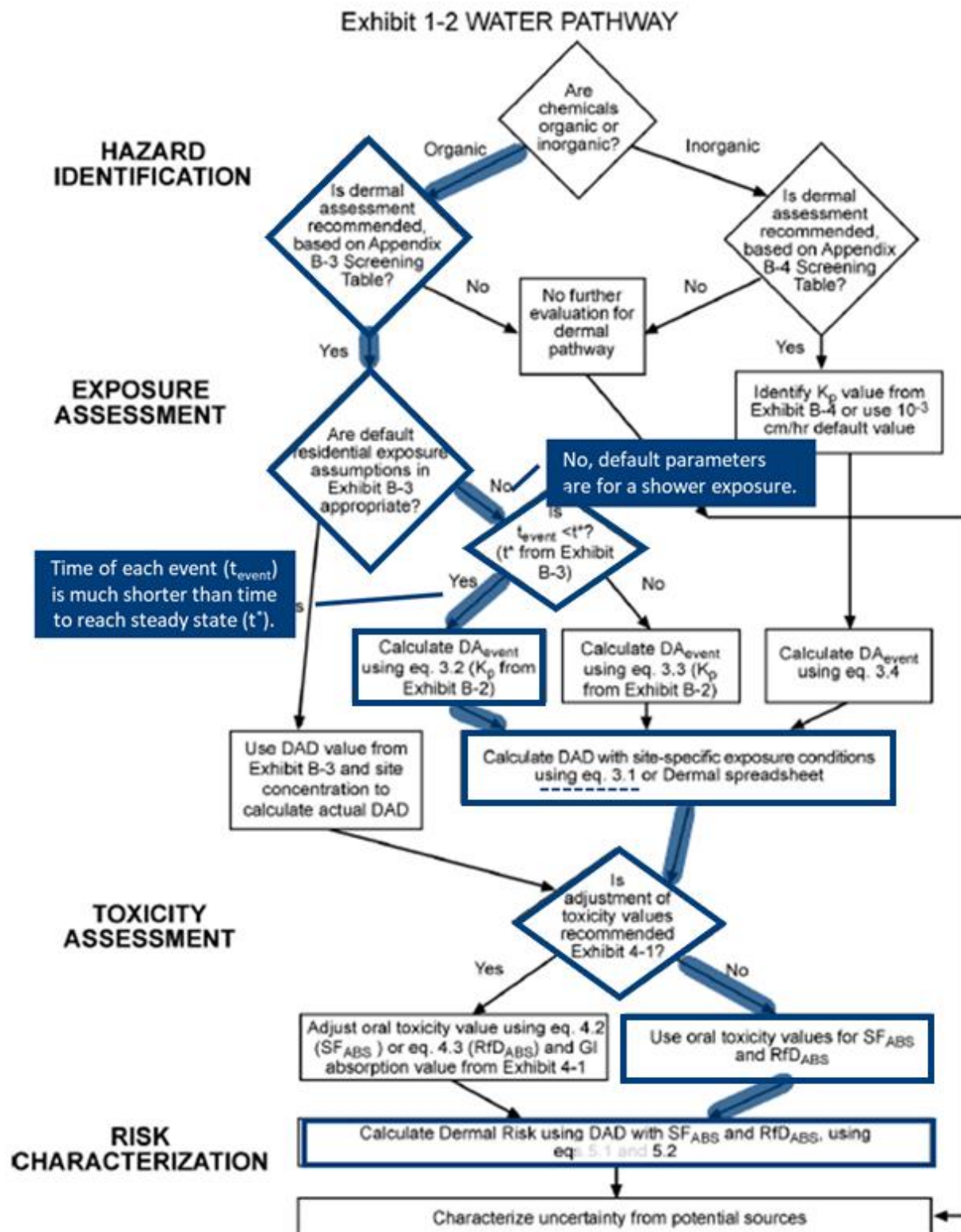
Table B2		Showering, Bathing, Handwashing		Washing Dishes		Hazard Index
TCE Concentration (µg/L)	ADD* (mg/kg-d)	Hazard Quotient	DA _{event} (mg/cm ² - event)	ADD (mg/kg-d)	Hazard Quotient	
0.5	9.7 x 10 ⁻⁷	> 0.001	8.9 x 10 ⁻⁹	4.3E-07	< 0.001	< 0.001
5	9.7 x 10 ⁻⁶	0.002	8.9 x 10 ⁻⁸	4.3E-06	0.001	0.003
10	1.9 x 10 ⁻⁵	0.004	1.8 x 10 ⁻⁷	8.7E-06	0.002	0.005
50	9.7 x 10 ⁻⁵	0.02	8.9 x 10 ⁻⁷	4.3E-05	0.01	0.03

500	9.7×10^{-4}	0.2	8.9×10^{-6}	4.3E-04	0.09	0.3
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* ADD values were from Table 2 in ATSDR's SHOWER Model Reports.

Our analysis shows that dermal exposure with TCE concentrations up to 500 ug/L will not pose a health risk.

Figure B2. Pathway used to evaluate dermal exposure from TCE in water – adapted from EPA's Supplemental Guidance for Dermal Risk Assessment⁹



ADVISORY LETTERS

Letter Template A. Drinking Water Health Advisory

Date
Name
Address
City, WI Zip Code

Subject: Drinking Water Health Advisory for Address, City, WI Zip Code

Dear NAME,

We were recently notified of well test results from your private well (Well ID) located at Address, City, WI. **Trichloroethylene (TCE) was detected in your water above our drinking advisory level.** TCE was found in your well at XX micrograms per liter (µg/L) – our drinking advisory level is 0.5 µg/L.

We recommend that you take the following actions to reduce your TCE exposure:

- Use a different source of water for drinking and making baby formula and foods that take up a lot of water (such as rice, oatmeal, and jello). This can include bottled water, water from a well without issues, or water from a public water system.
 - You can still use your water for showering and bathing, brushing teeth, washing dishes, and other household chores.
- Find a long-term source of known safe water. Options include drilling a new well and installing a certified treatment device.
 - The Department of Natural Resource's Well Compensation Grant may be able to help cover the cost of a new well. Visit dnr.wisconsin.gov/aid/WellCompensation.html to find out if you are eligible.
 - Our *Treatment Devices for Private Well Contaminants* fact sheet has general information on treatment devices including those certified for TCE:
www.dhs.wisconsin.gov/publications/p03494.pdf

Trichloroethylene (TCE) is a human-made chemical that is used in dry cleaning and certain industrial processes. It can get into drinking water from spills and improper disposal. Exposure to high levels of TCE can affect the kidneys, liver, lung, and immune system and may cause heart defects in unborn babies. Our TCE page has more information on sources, exposure, and health effects:
www.dhs.wisconsin.gov/chemical/trichloroethylene.htm

For questions, contact us at:

Health effects:	your info
Groundwater quality:	Regional private well specialist
[Remediation efforts:]	[RR site lead]
Treatment devices:	DSPSSBPlbgTech@Wi.gov or 608-266-2112

Sincerely,

Signature

Letter Template B. Limited Use Advisory

Date

Name

Address

City, WI Zip Code

Subject: Limited Use Health Advisory for Address, City, WI Zip Code

Dear NAME,

We were recently notified of well test results from your private well (Well ID) located at Address, City, WI Zip Code. **Trichloroethylene (TCE) was detected in your water above our limited use advisory level.** TCE was found in your well at XX micrograms per liter (µg/L) – the limited use advisory level for TCE is 2.5 µg/L.

We recommend that you take the following actions to reduce your TCE exposure:

- Use a different source of water for drinking, making baby formula and foods that take up a lot of water (such as rice, oatmeal, and jello), showering and bathing, running the dishwashing, and using the washing machine.
 - You can still use your water to brush teeth, wash hands, and wash dishes by hand.
- Find a long-term source of known safe water. Options include drilling a new well and installing a certified treatment device.
 - The Department of Natural Resource's Well Compensation Grant may be able to help cover the cost of a new well. Visit dnr.wisconsin.gov/aid/WellCompensation.html to find out if you are eligible.
 - Our *Treatment Devices for Private Well Contaminants* fact sheet has general information on treatment devices including those certified for TCE: www.dhs.wisconsin.gov/publications/p03494.pdf

Trichloroethylene (TCE) is a human-made chemical that is used in dry cleaning and certain industrial processes. It can get into drinking water from spills and improper disposal. Exposure to high levels of TCE can affect the kidneys, liver, lung, and immune system and may cause heart defects in unborn babies. Our TCE page has more information on sources, exposure, and health effects: www.dhs.wisconsin.gov/chemical/trichloroethylene.htm

For questions, contact us at:

Health effects:	your info
Groundwater quality:	Regional private well specialist
[Remediation efforts:]	[RR site lead]
Treatment devices:	DSPSSBPlbgTech@Wi.gov or 608-266-2112

Sincerely,

Signature

Letter Template C. Restricted Use Advisory

Date
Name
Address
City, WI Zip Code

Subject: Limited Use Health Advisory for Address, City, WI Zip Code

Dear NAME,

We were recently notified of well test results from your private well (Well ID) located at Address, City, WI Zip Code. **Trichloroethylene (TCE) was detected in your water above our restricted use advisory level.** TCE was found in your well at XX micrograms per liter (µg/L) – our restricted use advisory level is 50 µg/L.

We recommend that you take the following actions to reduce your TCE exposure:

- Use a different source of water for drinking, making baby formula and foods that take up a lot of water (such as rice, oatmeal, and jello), showering and bathing, running the dishwashing, and using the washing machine.
 - You can still use your water to brush teeth, wash hands, and wash dishes by hand.
- Find a long-term source of known safe water. Options include drilling a new well and installing a certified treatment device.
 - The Department of Natural Resource's Well Compensation Grant may be able to help cover the cost of a new well. Visit dnr.wisconsin.gov/aid/WellCompensation.html to find out if you are eligible.
 - Our *Treatment Devices for Private Well Contaminants* fact sheet has general information on treatment devices including those certified for TCE:
www.dhs.wisconsin.gov/publications/p03494.pdf

Trichloroethylene (TCE) is a human-made chemical that is used in dry cleaning and certain industrial processes. It can get into drinking water from spills and improper disposal. Exposure to high levels of TCE can affect the kidneys, liver, lung, and immune system and may cause heart defects in unborn babies. Our TCE page has more information on sources, exposure, and health effects:
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For questions, contact us at:

Health effects:	your info
Groundwater quality:	Regional private well specialist
[Remediation efforts:]	[RR site lead]
Treatment devices:	DSPSSBPlbgTech@Wi.gov or 608-266-2112

Sincerely,

Signature

References

- (1) ATSDR. Toxicological Profile for Trichloroethylene. 2019.
- (2) EPA. Toxicological Review of Trichloroethylene. IRIS, Ed.; 2011.
- (3) DHS. Trichloroethylene - Cycle 3 Scientific Support Document. 1990.
- (4) DHS. Recommended Public Health Groundwater Quality Standards - Trichloroethylene. 2019; pp 217-226.
- (5) DHS. General Guidance for Flush-only Advisories related to Trichloroethylene (TCE) Contamination of Drinking Water. 2014.
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