

**Remediation & Redevelopment Program**

**September 2021**

**Guidance: History of Changes<sup>(1)</sup> to Vapor Action Levels (VAL)<sup>(2)</sup>, Vapor Risk Screening Levels (VRSL) and Attenuation Factors (AF)<sup>(3)</sup> for Common Volatile Organic Compounds (VOC) in Wisconsin**

**Notes:**

1. This historical table supplements the *Wisconsin Vapor Quick Look-Up Table* (RR-0136) and is intended to be used in understanding previous site-specific decisions regarding vapor data. (Go to [dnr.wi.gov](http://dnr.wi.gov), search “RR-0136.”)
2. The VAL is either Residential or Non-residential (i.e., Small Commercial VAL = Large Commercial & Industrial VAL). “Residential setting” includes educational, child care and elder care settings per Wis. Admin. Code § NR 700.03(49g). “Non-residential setting” means other than residential per Wis. Admin. Code § NR 700.03(39m).
3. The AF is either Residential/Small Commercial or Large Commercial & Industrial (i.e., Residential AF = Small Commercial AF).

Tetrachloroethylene (PCE)													
Date	Residential				Small Commercial				Large Commercial & Industrial				Sub-slab AF for Res. & Sm. Comm. vs. Lg. Comm. & Ind.
	Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		
	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	
2010	4.1	0.6	--	--	21	3.1	--	--	21	3.1	--	--	AF not yet established
May 2010	4.1	0.6	<b>41</b>	<b>6</b>	21	3.0	<b>210</b>	<b>30</b>	21	3.0	<b>2,100</b>	<b>300</b>	AF = 0.1 / 0.01
May 2012	<b>42</b>	<b>6.2</b>	<b>420</b>	<b>62</b>	<b>180</b>	<b>27</b>	<b>1,800</b>	<b>270</b>	<b>180</b>	<b>27</b>	<b>18,000</b>	<b>2,700</b>	AF = 0.1 / 0.01
Jun 2015	42	6.2	<b>1,400</b>	<b>210</b>	180	27	<b>6,000</b>	<b>900</b>	180	27	18,000	2,700	AF = 0.03 / 0.01
May 2021	42	<b>6.1</b>	1,400	<b>200</b>	180	<b>26</b>	<b>5,800</b>	<b>840</b>	180	<b>26</b>	18,000	<b>2,600</b>	AF = 0.03 / 0.01

Trichloroethylene (TCE)													
Date	Residential				Small Commercial				Large Commercial & Industrial				Sub-slab AF for Res. & Sm. Comm. vs. Lg. Comm. & Ind.
	Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		
	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	
2010	12	2.2	--	--	61	11.4	--	--	61	11.4	--	--	AF not yet established
May 2010	12	2.2	<b>120</b>	<b>22</b>	61	11	<b>610</b>	<b>110</b>	61	11	<b>6,100</b>	<b>1,100</b>	AF = 0.1 / 0.01
Nov 2011	<b>2.1</b>	<b>0.39</b>	<b>21</b>	<b>3.9</b>	<b>8.8</b>	<b>1.6</b>	<b>88</b>	<b>16</b>	<b>8.8</b>	<b>1.6</b>	<b>880</b>	<b>160</b>	AF = 0.1 / 0.01
Jun 2015	2.1	0.39	<b>70</b>	<b>13</b>	8.8	1.6	<b>290</b>	<b>53</b>	8.8	1.6	880	160	AF = 0.03 / 0.01
May 2021	2.1	<b>0.38</b>	70	13	8.8	1.6	290	53	8.8	1.6	880	160	AF = 0.03 / 0.01

**Key:**

µg/m<sup>3</sup> = micrograms per cubic meter  
ppbV = parts per billion by volume

-- not established  
changes noted in **BOLD**

## Guidance: History of Changes<sup>(1)</sup> to Vapor Action Levels (VAL)<sup>(2)</sup>, Vapor Risk Screening Levels (VRSL) and Attenuation Factors (AF)<sup>(3)</sup> for Common Volatile Organic Compounds (VOC) in Wisconsin

Dichloroethylene, cis-1,2- (cis-1,2-DCE)													
Date	Residential				Small Commercial				Large Commercial & Industrial				Sub-slab AF for Res. & Sm. Comm. vs. Lg. Comm. & Ind.
	Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		
	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	
2010	370	93	--	--	15,270	3,860	--	--	15,270	3,860	--	--	AF not yet established
May 2010	--	--	--	--	--	--	--	--	--	--	--	--	AF = 0.1 / 0.01
Jun 2015	--	--	--	--	--	--	--	--	--	--	--	--	AF = 0.03 / 0.01

Dichloroethylene, trans-1,2- (trans-1,2-DCE)													
Date	Residential				Small Commercial				Large Commercial & Industrial				Sub-slab AF for Res. & Sm. Comm. vs. Lg. Comm. & Ind.
	Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		
	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	
2010	63	15.9	--	--	260	65.7	--	--	260	65.7	--	--	AF not yet established
May 2010	63	<b>15.9</b>	<b>630</b>	<b>159</b>	260	<b>65.6</b>	<b>2,600</b>	<b>656</b>	260	<b>65.6</b>	<b>26,000</b>	<b>6,560</b>	AF = 0.1 / 0.01
May 2014	--	--	--	--	--	--	--	--	--	--	--	--	AF = 0.1 / 0.01
Jun 2015	--	--	--	--	--	--	--	--	--	--	--	--	AF = 0.03 / 0.01
Nov 2020	<b>42</b>	<b>10</b>	<b>1,400</b>	<b>350</b>	<b>180</b>	<b>45</b>	<b>5,800</b>	<b>1,400</b>	<b>180</b>	<b>45</b>	<b>18,000</b>	<b>4,500</b>	AF = 0.03 / 0.01

Vinyl Chloride (VC)													
Date	Residential				Small Commercial				Large Commercial & Industrial				Sub-slab AF for Res. & Sm. Comm. vs. Lg. Comm. & Ind.
	Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		
	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	
2010	1.6	0.6	--	--	28	11	--	--	28	11	--	--	AF not yet established
May 2010	1.6	0.62	<b>16</b>	<b>6.2</b>	28	11	<b>280</b>	<b>110</b>	28	11	<b>2,800</b>	<b>1,100</b>	AF = 0.1 / 0.01
May 2014	<b>1.7</b>	<b>0.65</b>	<b>17</b>	<b>6.5</b>	28	11	280	110	28	11	2,800	1,100	AF = 0.1 / 0.01
Jun 2015	1.7	0.65	<b>57</b>	<b>22</b>	28	11	<b>930</b>	<b>370</b>	28	11	2,800	1,100	AF = 0.03 / 0.01
May 2021	1.7	0.65	<b>56</b>	22	28	11	930	<b>360</b>	28	11	2,800	1,100	AF = 0.03 / 0.01

**Key:**

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Benzene													
Date	Residential				Small Commercial				Large Commercial/Industrial				Sub-slab AF for Res. & Sm. Comm. vs. Lg. Comm. & Ind.
	Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		
	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	
2010	3.1	1.0	--	--	16	5	--	--	16	5	--	--	AF not yet established
May 2010	3.1	<b>0.95</b>	<b>31</b>	<b>9.5</b>	16.0	<b>4.9</b>	<b>160</b>	<b>49</b>	16.0	<b>4.9</b>	<b>1,600</b>	<b>490</b>	AF = <b>0.1 / 0.01</b>
May 2014	<b>3.6</b>	<b>1.1</b>	<b>36</b>	<b>11</b>	16.0	4.9	160	49	16.0	4.9	1,600	490	AF = 0.1 / 0.01
Jun 2015	3.6	1.1	<b>120</b>	<b>37</b>	<b>16</b>	4.9	<b>530</b>	<b>160</b>	<b>16</b>	4.9	1,600	490	AF = <b>0.03 / 0.01</b>
Jun 2015	3.6	1.1	120	37	16	4.9	<b>520</b>	160	16	4.9	1,600	490	AF = 0.03 / 0.01

Naphthalene													
Date	Residential				Small Commercial				Large Commercial/Industrial				Sub-slab AF for Res. & Sm. Comm. vs. Lg. Comm. & Ind.
	Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		Indoor Air VAL		Sub-slab VRSL		
	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV	
May 2010	<b>0.72</b>	<b>0.14</b>	<b>7.2</b>	<b>1.4</b>	<b>3.6</b>	<b>0.68</b>	<b>36</b>	<b>6.8</b>	<b>3.6</b>	<b>0.68</b>	<b>360</b>	<b>68</b>	AF = <b>0.1 / 0.01</b>
May 2014	<b>0.83</b>	<b>0.16</b>	<b>8.3</b>	<b>1.6</b>	3.6	0.68	36	6.8	3.6	0.68	360	68	AF = 0.1 / 0.01
Jun 2015	0.83	0.16	<b>28</b>	<b>5.3</b>	3.6	0.68	<b>120</b>	<b>23</b>	3.6	0.68	360	68	AF = <b>0.03 / 0.01</b>

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µg/m<sup>3</sup> = micrograms per cubic meter  
 ppbV = parts per billion by volume

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