

As shown in Table 1, the target level for benzene in irrigation wells must be set at 0.11 mg/L (110 parts per billion). Note that this number is valid even if up to nine other chemicals of concern (COCs) in the same groundwater zone are at or below their respective target levels.

Table 2 lists the modeling protocol input parameters used to derive the target levels. Note that all assumptions used to calculate the target levels in Table 1 are very conservative. The assumptions made, input parameters used, and the modeling results have all been reviewed and approved by the TCEQ toxicology staff through the Office of the Chief Engineer.

Table 2
Input Parameters Used to Calculate Groundwater Target Levels
for Domestic Irrigation Wells at Chapter 334 LPST Sites

Parameter	TRRP Value	Value Used to Calculate Domestic Irrigation Well Target Levels
Total porosity (θ_T), volumetric air content of vadose zone soil (θ_{as}), and volumetric water content of vadose zone soil (θ_{ws})	$\theta_T=0.37$, $\theta_{as}=0.16$, and $\theta_{ws}=0.21$	$\theta_T=0.5$, $\theta_{as}=0.1$, and $\theta_{ws}=0.4$ for topsoil after watering.
Fraction organic carbon (f_{oc})	0.008 for vadose zone soil	0.02 for topsoil
Thickness of affected soil (d_s)	305 cm	30.5 cm for topsoil
Irrigation frequency	n/a	82 events/yr (one 2-hour event every 3 days during the irrigation period March 10 – Nov. 10)
Exposure frequency for ingestion of water	350 days/yr for residential drinking water	82 events/yr for incidental ingestion of domestic irrigation water
Age-adjusted water ingestion rate (IRw.AgeAdj.res)	0.8 (L-yr/kg-day)	0.4 (L-yr/kg-day) for incidental ingestion of irrigation water
Child water ingestion rate (IRw.C.res)	0.64 (L/day)	0.32 (L/day) for incidental ingestion of irrigation water
Exposure frequency for dermal contact w/domestic irrigation water	n/a	60 events/yr (one 2-hour event every 3 days during the sufficiently warm months of the irrigation period May through October)
Event duration for dermal contact with irrigation water	n/a	Child dermal contact duration $t_{child} = 0.73$ hrs/event; Age-adjusted dermal contact duration $t_{ad} = 0.48$ hrs/event
Skin surface area	Child 6,600 cm ² Adult 18,000 cm ² (Table 5-1 in TRRP-24)	Child 6,600 cm ² Adult 18,000 cm ² (Table 5-1 in TRRP-24)
Exposure frequency for inhalation exposure	350 days/yr for residents	82 events/yr
Exposure duration for inhalation exposure	24 hrs/day	2 hrs/event