TABLE 3
TIER 1 GROUNDWATER RBSLs AND STANDARDS

This table applies to groundwater and consists of DEQ-7 Human Health Standards (HHSs; DEQ 2012), where available. For compounds without DEQ-7 HHSs, DEQ has developed RBSLs and included them in the table. For EPH compounds, a total extractable hydrocarbon (TEH) concentration of 1,000 µg/L is used to determine if additional analysis (fractionation) is needed. Surface water impacts require a minimum of a Tier 2 evaluation.

Chemical	Effect	Basis	Groundwater Standard or RBSL (µg/l)
For Gasoline and Light Hydrocarbons measured using the Massachusetts Method for Volatile Petroleum Hydrocarbons (VPH)			
C5-C8 Aliphatics [(b)]	n	rb	650
C9-C12 Aliphatics[(b)]	n	rb	1,400
C9-C10 Aromatics[(b)]	n	rb	1,100
MTBE	n	hhs	30
Benzene	c	hhs	5
Toluene	n	hhs	1,000
Ethylbenzene	n	hhs	700
Xylenes	n	hhs	10,000
Naphthalene	c	hhs	100
Lead Scavengers			
Ethylene dibromide (EDB)	c	hhs	0.017
1,2-Dichloroethane (DCA)	c	hhs	4
For Diesel and Heavy Hydrocarbons measured using the Massachusetts Method for Extractable Petroleum Hydrocarbons (EPH)			
EPH / TEH Screen fractionation required[(a)]			1,000
C9-C18 Aliphatics[(b)]	n	rb	1,400
C19-C36 Aliphatics	n	bu	1,000
C11-C22 Aromatics[(b)]	n	rb	1,100
Acenaphthene	n	hhs	70
Anthracene	n	hhs	2,100
Benz(a)anthracene	c	hhs	0.5
Benzo(a)pyrene	c	hhs	0.05*
Benzo(b)fluoranthene	c	hhs	0.5
Benzo(k)fluoranthene	c	hhs	5
Chrysene	c	hhs	50
Dibenzo(a,h)anthracene	c	hhs	0.05*
Fluoranthene	n	hhs	20
Fluorene	n	hhs	50
Indeno(1,2,3-cd)pyrene	c	hhs	0.5
Naphthalene	c	hhs	100
Pyrene	n	hhs	20
1-Methylnaphthalene	c	rsl	11
2-Methylnaphthalene	n	rsl	36

Notes: (a) = An exceedance of the 1,000 µg/l EPH/TEH screen value indicates only that fractionation is required. If none of the fractions exceed, then the EPH/TEH value does not need to be identified as a COPC exceeding RBSLs.

(b) = The fraction surrogate (for modeling purposes) uses a representative compound with a mid range Equivalent Carbon Number (Massachusetts DEP 2002 Table 4-14). This number doesn't take into account the higher molecular weight compounds that have higher solubilities than the fraction surrogate therefore underestimating the overall solubility of the fraction.

Effect is either: n = non-carcinogenic RBSLs and RSLs are based on a hazard quotient of 1, or
c = carcinogenic RBSLs and RSLs are based on a cancer risk $1X10^{-5}$.

Basis is: rb = risk-based screening level;
hhs = DEQ-7 Human Health Standard (DEQ, October 2012. Circular DEQ-7 Montana Numeric Water Quality Standards); or
rsl = tapwater risk-based screening level based upon TR of 1E-05 and THQ of 1.0 consistent with DEQ-7
bu = adversely affects beneficial uses (foul taste or odor).
* = The best achievable practical quantitation limit (0.1 µg/L) may be greater than the human health standard; therefore, if the compound is detected, additional evaluation may be necessary.

The RBSLs for soil and water are not designed to be protective of the vapor intrusion (VI) pathway. Please refer to the Vapor Intrusion to Indoor Air Section of the Montana Risk-Based Corrective Action Guidance for Petroleum Releases.