

## Definitions of different types of water

Potable water sources – such as our drinking water – are drawn from deeper water wells in a different aquifer than the groundwater in the Superfund site in Ringwood. Groundwater – not to be confused with potable drinking water used by residents – is water that is found beneath the ground surface, often between saturated soil and solid rock.

• **Groundwater:** EPA defines groundwater as water that occurs below land. It occurs in 2 zones:

1. The unsaturated zone located above the top of the actual water table, which is migrating down vertically to the water table; and
2. The saturated zone where the groundwater accumulates and flows laterally as well as vertically to deeper depths until it ultimately hits an impermeable zone where it can no longer penetrate. Groundwater can occur in soil and in rock. However, in rock, it only occurs in fractures within the rock. Groundwater samples are collected from monitoring wells that are designed per specific agency specifications and prior to sampling, each monitoring well is purged by pumping to remove stagnant water in the well to ensure that, when a sample is collected, it is of groundwater actually flowing into the well from the aquifer and thus representative of groundwater quality in the aquifer, not just stagnant water sitting in the monitoring well.

• **Surface Water:** EPA defines surface water as water that occurs above the ground surface, including streams, rivers, lakes and ponds. It is sampled using specific methods but is essentially a "grab sample" from the surface water body with no "purging" involved.

• **Mine Water:** "Mine water" is water that occurs and has accumulated within a subsurface mine structure. It is distinguished from groundwater because, even though it occurs under the ground surface, it can originate from overland flow of surface water or precipitation coming in from above and/or from groundwater from the bedrock in which the mine structure is located. However, unlike a groundwater sample collected from a monitoring well, the mine structure samples are not collected after a proper purging to remove stagnant water in the manner that a monitoring well is purged. This is because the mine structures and the volume of water they contain is too significant to pump completely out before a sample is taken. Samples of water from mine structures such as the PMP Air Shaft and the CMP Shaft are therefore "grab samples" of water sitting in these structures, and not of water flowing into them from the adjacent aquifer. This skews the data in terms of our ability to directly compare data from monitoring wells to data from the Mine Structures because we don't know how long the stagnant water has been "sitting" in them or really what the data actually represent (the aquifer, the deeper mine, the Shaft itself, or all 3). For the past 2+ years, data from monitoring wells have therefore been summarized separately from the Mine Structure data generated from sampling the PMP and CMP Shafts and it has been evaluated keeping in mind the aforementioned concerns.