Section 6.4 – Processing solutions - How do you undo the solution you made?

1. Crystallization

Evaporation of the solvent leaves the solute behind in a solid (usually) form. This is how we ‘mine’ salt.

2. Distillation

When you boil off the water, the solute is either left behind (crystallization). You can use distillation to separate a solute that boils at a lower temperature than water. When you distil a solution, you can save both the solute and the solvent! Page 182 explains this in detail, including the use of cooling to condense the evaporate.

3. Filtering (including osmosis)

a) Using a substance that traps the solute (like activated charcoal) as in a fish tank filter.

b) Using a ‘semi=permeable membrane (a ‘skin’ with microscopic holes in it that only allow the solvent to pass through it because the molecules of the solute are too big to fit through the holes.

c) Using a substance that causes the solute to come out of solution and either float to the surface or sink to the bottom of the liquid. This is often used in mining and in water purification.