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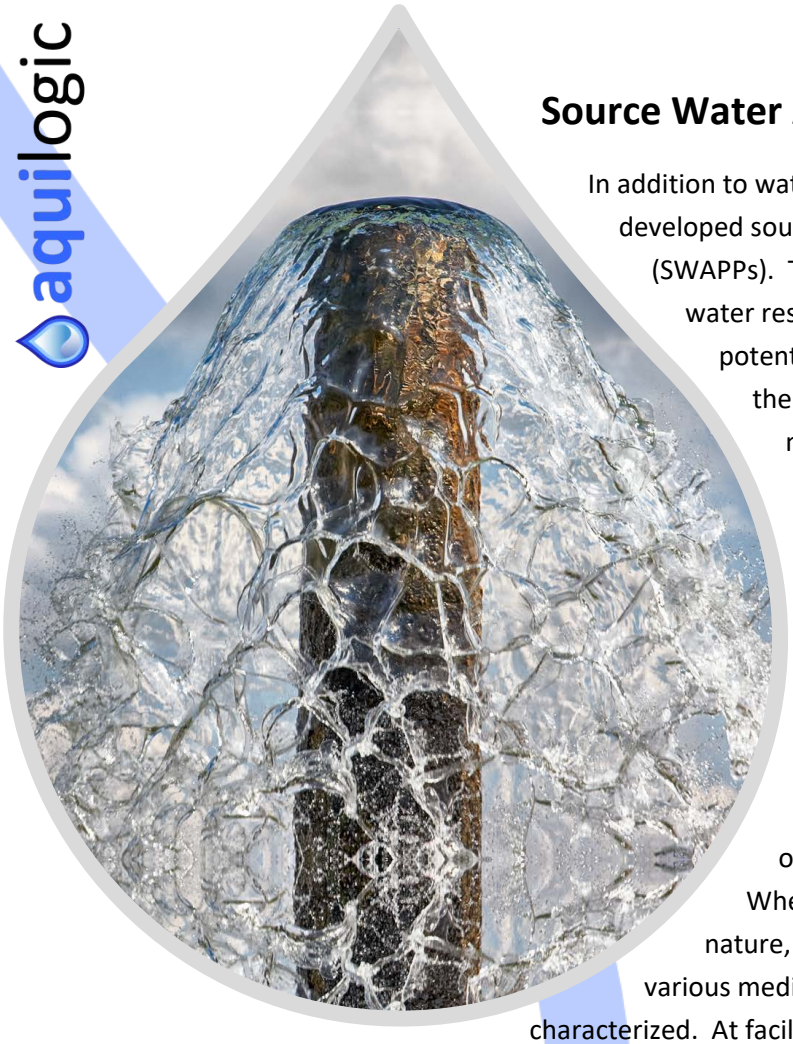

Source Water Assessment and Protection Plan

In addition to water resources assessments, **aquilogic** staff has developed source water assessment and protection plans (SWAPPs). These studies move beyond an assessment of water resources by considering the threat that actual, or potential future, releases of contaminants may pose to the water resources, management actions to minimize this threat, and mitigation to address a threat. The management and mitigation steps are taken to protect the quality of the water resources.

The initial step in a SWAPP is to establish the protection area around the water system's wells or intakes. This is followed by an identification of all facilities and activities within the protection area that have released, or could release, chemicals into the environment. Where data is available for a facility, the toxicity, nature, extent and magnitude of the contaminants in various media (e.g. soil, vapor, groundwater) are characterized. At facilities where no such data exists, contaminant conditions can be simulated, or field data collected, to evaluate the threat. The transport pathways from the release locations to the source water are evaluated through fate and transport analysis to determine the duration and concentration of the contaminant that may arrive at the receptor. Finally, management actions, to minimize and/or mitigate the threats, are proposed and undertaken as a part of the SWAPP.

Management steps could include pumping restrictions for existing wells, designated pumping locations for future development, protected areas with land-use restrictions (e.g. recharge areas), and discharge limitations for facilities within the resource catchment. Mitigation actions could include focused remediation of known contaminant plumes, monitoring of water quality at industrial or other potential release facilities, and the development of emergency response plans in the event a water resource or water supply is impacted by a release. A SWAPP may also define safe yield for a particular resource, or impairment in the yield due to known water quality impacts.