**Division of Drinking Water (DDW) General Requirements**

**For**

**Aquifer Storage and Recovery (ASR) Project Involving Public Drinking Water Sources**

Water System Name (Water System #); Source Water (WS00X); Injection Well (WS00X)

1. The source water (Source Name, identified as WS00x in the DDW inventory database) must be either groundwater (i.e., not being under the influence of surface water or UDI), or treated water meeting the surface water treatment requirements.
2. Contact Rachael Cassady of DDW at (801)536-4467 or rcassady@utah.gov to review the existing new source chemistry data for both the source water (Source Name, WS00x) and receiving well (Well Name, WS00X) for completeness and MCL compliance.
3. If available, provide to DDW the past total coliform and/or E. coli history of the source water (Source Name) sampled before chlorination was added.
4. If past total coliform and/or E. coli history of the source water (Source Name) is not available, take the Source Name source sample before chlorination for both total coliform and E. coli analyses in order to determine whether the biological contaminant is a concern.
	1. DDW will require a minimum of 4 source samples (taken during the warm seasons), at least one week apart, for the ASR project. (The number of required source samples may be determined on a case-by-case basis.)
	2. If the total coliform or E. coli source samples show a persistent pattern of being positive:
		1. DDW will require continuous chlorination in the distribution system, and maintain a detectable disinfectant residual and no more than 0.5 ppm at the point of injection.
		2. The Division may require the microscopic particulate analysis (MPA) test of Source Name to confirm that there is no UDI risk before granting an approval for the full-scale ASR implementation.
5. Clarify whether the ASR project is pilot test or full-scale. Clarify whether a dedicated transmission line will be used to deliver the source water to the injection well, or the source water is delivered through the distribution system before reaching the injection well. Clarify whether the source water is disinfected before injection; and if yes, identify the disinfectant and the location where the disinfectant is added to the water.
6. If chlorinated water, delivered through the distribution system piping, is used for injection in the ASR project, before initiating the ASR project, the water system must take the disinfection by-products (DBPs) sample (i.e. HAA5s and THMs) at or near the point of injection.
	1. Provide or describe the location of this DBP sampling point to DDW.
	2. Provide the DBP results for this sampling site to DDW to verify that the DBP levels are below the drinking water maximum contaminant levels (MCLs).
7. The water system must have an up-to-date and on-going cross connection control program before implementing the ASR project.  Before initiating the ASR project, the water system must conduct an inspection to identify and minimize cross connection hazards within its distribution system.
8. If the source water is delivered through the distribution system piping before being used for injection, the water system must evaluate whether the ASR project will significantly alter the flow and velocity conditions in the distribution system. If significant change of the flow and velocity conditions is anticipated in the distribution system, the water system must take precautionary actions, such as effective flushing, to prevent the contaminants from being injected to the well.
9. Compile an ASR project proposal describing the source water and its water quality (including the dissolved oxygen level), how the source water will be delivered to the injection site during the ASR project, configuration of the injection well, method of injection, the proposed injection period, estimated quantity of injected water, the minimum disinfectant residual that will be maintained prior to injection, etc.
10. Submit the following information to DDW for review and approval prior to commencing the ASR project:
	* “Project Notification Form” (attached; available in DDW’s website), and
	* Detailed information addressing the issues outlined in Items 1 through 9

Please contact Ying-Ying Macauley at (801)536-4188 or ymacauley@utah.gov for the plan review questions.