

MEMORANDUM

TO: Water Resources Commission

FROM: Barry Norris, Technical Services Division Administrator

SUBJECT: Agenda Item II, June 27, 2003
Water Resources Commission Work Session

Informational Report on Artificial Recharge and Aquifer Storage & Recovery Projects in Oregon

I. Issue Statement

Interest continues to grow in finding alternatives for meeting future water demands. These alternatives include conservation, storage projects, and facilitating movement of existing rights among users. Storage, both above-ground and below-ground, continues to be a key component in planning for future water supplies. This report describes the alternatives available for below-ground storage. This is an informational report only; no Commission action is required.

II. Discussion

In Oregon, there are two alternatives for applicants to store water below ground in natural aquifer systems. These projects are often referred as “non-structural” storage projects and include artificial recharge (AR) and aquifer storage and recovery (ASR). This staff report provides a brief description of these two approaches. The attached pamphlet published by the Department in August 2001 provides additional information on the benefits of AR/ASR projects; definitions; differences between the two approaches; rules and regulations; potentially suitable aquifers around the state; and brief summaries of projects in Oregon and other western states (Attachment 1).

Artificial Recharge (AR) Projects

AR has been authorized as a permitted use of water in Oregon for over four decades. The first development in Oregon for this purpose was the County Line Water Improvement District, still a fully functional and highly successful recharge project in the Umatilla Basin. Built in the mid-1970s, water is diverted from the Umatilla River and transported by canal to an area where it is allowed to charge the alluvial aquifer. The project owners can remove water from storage as needed to irrigate their crops. Over the years only a handful of other projects have been

developed. The Echo Meadows Project, which was highlighted at the February 2003 Commission meeting, is example of an AR project currently in the demonstration phase.

A considerable amount of information is required to be produced by an applicant before a permit is allowed for artificial ground water recharge. Applicants have expressed frustration at the amount of information needed to gain permit approval. In essence, the proposal must be well-engineered and clearly demonstrate the feasibility of the project in providing water for a beneficial use. Water must be available under the Water Resource Commission's water allocation policy, and the applicant may be required to obtain a water quality permit from the Oregon Department of Environmental Quality (DEQ). Additionally, the applicant must provide documentation that the source of water to be appropriated has an existing instream right or, if there is no instream water right, proof that Oregon Department of Fish and Wildlife (ODFW) is willing to grant a waiver to this requirement.

Aquifer Storage and Recovery (ASR) Projects

In the 1990s, municipalities supported legislation to provide a streamlined process for ground water storage projects. Aquifer storage and recovery allows water users to use existing water rights to store water in an aquifer. Prior to approval of an ASR project, the applicant must go through a testing phase to develop sufficient data demonstrating the feasibility of the project. This demonstration phase of the project is done under the authority of a limited license issued by the Department. If the project is found to be viable and to have no injurious effects, an ASR permit is issued for storage and recovery of the water. Permitting authority for ASR is the sole responsibility of the Department. A permit is not required from DEQ since water quality standards are established by administrative rule, and a waiver is not needed from ODFW. However, both agencies are asked to provide information they believe to be important to the proposed project.

The City of Salem was the first to apply for a limited license to begin testing the feasibility of an ASR project. Although still in the testing phase, the project appears to be quite feasible, and the city is likely to move ahead to the permitting phase in the near future. Several other water providers are currently in the testing phase and a number of others have plans to develop projects. Applicants, generally water providers, seem fairly comfortable with the demonstration and permitting process. This is likely because water providers have the resources to conduct detailed engineering and planning and are accustomed to working within the confines of state rules and statutes.

Differences Highlighted

There are several differences between AR and ASR projects. AR projects require a "new" permit to divert water and a secondary permit for use, and may require a DEQ water quality permit. ASR projects operate under the authority of existing permits as a "bulge in the system" for later diversion to the originally authorized use. Also, ASR requires well injection as the

means to store, while AR projects may use well injection or infiltration.

III. Summary

There are a variety of opportunities to meet Oregon's water supply needs, including ground water storage. Interest in artificial recharge and ground water storage through AR and ASR continues to increase. The Department is promoting AR and ASR through education, outreach, and technical assistance to further this interest.

IV. Recommendation

This is an informational report. No Commission action is required.

Attachment:
ASR/AR Informational Pamphlet

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