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MEMORANDUM

TO: Water Resources Commission

FROM: Justin Iverson, Groundwater Section Manager

SUBJECT: Agenda Item J, June 16, 2022
Water Resources Commission Meeting

Harney Basin Groundwater Study: Report Summary and Next Steps

I. Introduction

This informational report provides an update on the Oregon Water Resources Department's work in the Greater Harney Valley Area, including the publication of two reports describing the results of the cooperative groundwater basin study with the USGS and the Department's planned next steps. A separate agenda item (Item L) will provide an update on the Harney Basin place-based planning effort. This is an informational report.

II. Background

In 2015, initial groundwater level data analysis and aquifer recharge estimates indicated annual groundwater use and other discharge likely exceeded annual recharge in the Greater Harney Valley Area (Grondin, 2015). This data constituted substantial evidence in the record to justify closing the basin to further allocation (OAR 690-512-0020). However, members of the community requested, and the Department agreed, that additional information on how the aquifers were responding to development throughout the Harney Basin would best inform the potential need for further restrictions.

The Harney Basin Groundwater Study, conducted cooperatively by the Department and U.S. Geological Survey (USGS), began in 2016. The study was designed to inform further groundwater planning and management in the basin, supporting the ultimate goal of achieving reasonably stable groundwater levels consistent with ORS 537.525(7) by providing a comprehensive hydrologic study of the entire 5,240-square-mile Harney Basin.

Consistent with the Division 512 rules, at the beginning of the study, the Department and Harney County Court convened the Harney Groundwater Study Advisory Committee (HGSAC). The HGSAC consists of local residents, landowners, and business owners, as well as representatives from the Harney County Court, the U.S. Fish and Wildlife Service, the Burns Paiute Tribe, and The Nature Conservancy. From 2016 to 2019, the advisory committee met quarterly with the groundwater scientists to contribute local knowledge, comments, questions, suggestions, and assistance, and allowed access to property, wells, and springs for groundwater-level measurements and groundwater sample collection during the study.

III. Release of Groundwater Study Reports

The results of the study are published in two major reports, released this year. The reports both underwent a USGS scientific peer review process, which included review by technical experts independent of the study. The study reports are:

- "Hydrology Report": SIR 2021- 5103: Groundwater resources of the Harney Basin, southeastern Oregon (usgs.gov)

- "Water Budget Report": SIR 2021-5128: Hydrologic budget of the Harney Basin groundwater system, southeastern Oregon (usgs.gov)

The Department published several supporting open file reports and data releases, which are available from the Harney Basin Groundwater Study website.

IV. Study Findings

The study improved, expanded, and in many cases quantified the Department's understanding of the hydrogeology of the Harney Basin. However, the ultimate conclusion of the study confirmed the Department's 2015 understanding; groundwater in the Harney Basin has been over-appropriated.

Groundwater development has increased substantially in the Harney Basin since 2010, mainly for the purpose of irrigation. Development has not been evenly distributed across the basin, rather it is concentrated in areas where geologic conditions allow for relatively high-producing wells. Because recharge to the groundwater system is significantly less than groundwater use, development of groundwater has relied on pumping stored water that was recharged to the system more than 12,000 years ago, near the end of the last glacial period when the climate in the basin was cooler and wetter than today. Water recharged prior to 1953 is referred to as "pre-modern". On average, approximately three out of every four units of groundwater pumped in the Harney Basin is derived from pre-modern water.

Pumping stored groundwater in quantities much greater than water that is recharged to the system each year has resulted in some areas of the basin experiencing groundwater-level declines. Three areas of the Harney Basin have experienced groundwater-level declines exceeding 40 feet compared to pre-development conditions: near the Weaver Spring/Dog Mountain area, in the northeastern floodplains along U.S. 20, and near the community of Crane. Areas of more modest groundwater-level decline (about 10 feet) were identified in the Virginia Valley area and the Silver Creek floodplain north of Riley. Smaller localized areas of groundwater-level decline have also formed around individual wells or groups of wells throughout the Harney Basin lowlands (refer to Plate 3 of the Hydrology report).

V. Next Steps

Now that the study reports have been published, the Department is planning another round of community engagement events in the Basin to foster dialogue and understanding of the study's findings. The Department also plans to engage with the Harney Community-Based Water Planning Collaborative (Collaborative) to discuss the future of groundwater management in the basin. These events are envisioned to occur before the Department engages in efforts related to OAR 690-512-0020(12), which states "*Within 1 year after the Groundwater Study…has been published by the Department, the Department will convene a Rules Advisory Committee [RAC] to explore whether there is a need for updates or changes to these rules.*"

The Department wishes to adhere to the spirit of the Division 512 rule, and work with Collaborative and members of the Groundwater Study Advisory Committee (Committee), but not convene a RAC at this time, in order to explore updates or changes to Division 512 in a broader forum. These conversations are expected to explore the recommended actions in the Collaborative's groundwater plan alongside the expanded knowledge of the Harney Basin groundwater system as documented in the Study reports. While some of the recommended actions may require rulemaking to implement, other actions may not.

Following the conclusion of these discussions and before one year after publication of the groundwater study, a RAC or rules development group will be convened to provide input on any proposed Division 512 rule changes proposed as a result of discussions with the Collaborative and Committee. The RAC will help refine the proposed Division 512 rule changes before the proposed rule changes then go out for public comment. There may be more than one Division 512 rulemaking process in the next several years depending on the planned path forward.

VI. Conclusion

The results of the Harney Basin Groundwater Study were published in two primary reports in April 2022. Place-based planning continues, helping a diverse group of stakeholders understand the water situation in the basin and identify actions to meet the water needs of the community, the economy, and the environment. The Department is planning several public engagement events in the coming year ahead of revisiting the Division 512 rules to ensure they represent a responsible water management approach to address the current state of over-appropriation and resulting groundwater level declines in the Harney Basin.

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