OREGON
WATER RESOURCES DEPARTMENT

Memorandum

TO:	HiTech Minerals
FROM:	Phillip Marcy
CC:	Application File LL-1941
DATE:	September 8, 2025
SUBJECT:	Addendum to Groundwater Review of Application LL-1941

Introduction: Jeremy Collyard and Sandra Carson of HiTech Minerals requested an addendum to the groundwater technical review for Limited License LL-1941 dated 10/14/2022 to further describe the department's current understanding of the groundwater conceptual model in the vicinity of the proposed well.

The application for LL-1941 was for production of groundwater for mining and construction purposes requesting 75 GPM from a depth greater than 420 feet below land surface. At this depth, the applicant's exploration borehole data indicated that water-bearing lithologies exist below horizons of bedrock, OWRD does not have access to this data to confirm or deny the existence or depth interval of water-bearing horizons cited in the application materials, as there are few wells in Oregon within the McDermitt Caldera and fewer that have been positively located, limiting the data available to construct a conceptual model for the groundwater flow system in the area.

In the absence of wells in the area, the general geologic evolution of caldera structures informs the current hydrogeologic conceptual model, including the expectation of water bearing zones in bedrock at depth and an overlying succession of intracaldera ash tuffs and tuffaceous sediments. These tuff deposits are expected to have relatively low hydraulic conductivity, further reduced by post-emplacement processes of devitrification and secondary mineralization. The rate of groundwater movement within these horizons overlying the productive water-bearing zone is anticipated to be extremely low, and short-term effects of pumping from the deep water bearing zone to surface water is expected to be small. However, if pumping were to persist for many years or decades, removal of groundwater at depth may lead to a gradual reduction of head pressure in the overlying lithologies and subsequent surface water capture long after pumping stops.

Water level trends in the area are assumed to be in equilibrium with climate variability considering the limited development of groundwater in the area of proposed development. The measured wells featured in the hydrograph contained in the review are miles distant and outside of the caldera structure, providing only baseline data intended to assess any groundwater fluctuations due to climatic variation over decadal timescales.

Conditions of water use under the limited license include measurement and reporting of static water levels and submission of borehole cuttings samples from the proposed production well to aid in the assessment of the local hydrogeologic framework. In addition, HiTech has agreed to share exploratory borehole data in the area upgradient of the proposed production well, which will expand the available lithologic and water table data. The department will continue to update the groundwater conceptual model given the development of new subsurface information and the updated conceptual model will be considered in any future application for groundwater use.