

CARL EINBERGER, LHG, CWRE Associate Hydrogeologist

Carl Einberger is a hydrogeologist and project manager responsible for water resource project planning, management, and technical support. His experience includes specialization in water rights issues, including water right transfers, obtaining new water rights, mitigation approaches, water banking, and use of Washington State's trust water right program. Carl is skilled in integrating hydrogeologic, hydrological, geophysical, and ecological field investigations. He is familiar with wellfield management projects, water supply and demand analysis, well design, and groundwater/surface water interaction studies (including in-stream flow augmentation). Carl's water resource projects have included direct contracts with Ecology; work under grant funding to other entities, including several counties; and other work for a range of clients including public utility districts, permit applicants, and attorneys.

EDUCATION

MS, Geology, University of Wisconsin, 1986
BS, Geological Engineering, Colorado
School of Mines, 1982

REGISTRATION

Licensed Hydrogeologist, WA
Certified Water Rights Examiner

Skagit River Basin Groundwater Management Support, Skagit County, WA

Carl has been project manager and technical lead for work under multiple contracts with Skagit County, its attorneys, and more recently Ecology to support evaluations of groundwater use and instream flow concerns. His initial work focused on hydrogeologic evaluations to support Skagit County in negotiations with Ecology on proposed instream flow rule amendments. He also completed a two-year groundwater metering study of exempt well use with a network of volunteers. His most recent work focused on assisting with permitting and technical review of exempt well mitigation proposals in Skagit subbasins.

City of Lacey, Wellhead Protection and Water Rights Evaluations, WA

Carl contributed to analyses of wellhead protection area (WHPA) updates, contamination susceptibility assessments, groundwater quality review, and an evaluation of the City's water rights portfolio for the City's 2011 Water System Plan update. Carl conducted peer review of the WHPA analyses that were conducted using the McAllister Groundwater Model, the best available tool for predicting groundwater flow conditions in the area. Recommendations for additional monitoring wells and other changes to the groundwater sampling and monitoring program were made, along with recommendations for reporting of any hazardous material spills inside WHPAs.

Water Rights Extent and Validity, Transfers, and Permitting, Multiple WA Locations

Carl is actively engaged in management of water rights processing projects under Ecology's Cost-Reimbursement Program. These projects have included processing of several transfers to trust (including extent and validity evaluations); changes to several municipal systems to consolidate or transfer water rights; modifications to a reservoir permit to address requested changes in the seasonal refill schedule in support of instream flows; new water right applications for irrigation and other uses; multiple applications requesting a change from irrigation use to municipal use; modifications to a small water system on Vashon Island that was out of compliance with Department of Health regulations; and an application in support of a hydroelectric project. This work has supported development of key relationships with water resources staff at Ecology, applicants, and other stakeholders. Carl has worked on cost-reimbursement projects for Ecology since the early 2000s.

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Water Supply Development for Vineyard Irrigation, Klickitat County, WA

Carl is assisting a private landowner with securing water rights for transfer to support a sizeable vineyard development. As part of this work, he completed an evaluation of hydraulic continuity between the target aquifer and the Columbia River. He has successfully obtained a preliminary permit for a test well from Ecology that allows the next phase of the project to move forward.

Port of Longview, Water Right Planning and Modifications, WA

Carl is assisting the Port of Longview with water right portfolio asset protection and planning. This work includes a review of existing water rights and consideration of potential changes in points of withdrawal and place of use to suit changes in Port activities, along with developing alternatives for obtaining new water rights. As part of this, an evaluation of water right goals and strategies is being prepared. Plans also call for Aspect to prepare Reports of Examination for water right changes following completion of the water right strategy development.

Little Spokane River Regional Water Bank, Spokane, WA

Carl is assisting Spokane County, and its partners in the watershed, Pend Oreille and Stevens Counties, with setting up a water bank in the Little Spokane watershed. The work was initiated with a feasibility study to determine whether a water bank will help meet existing and future water needs in the Little Spokane Basin. The comprehensive study evaluated bank formation and operation options, regulation and risk, and costs and benefits, all informed by a Policy Advisory Group (PAG). Carl's work included a significant component of interagency coordination, including presenting project updates to and soliciting feedback from the PAG, comprised of county commissioners and county agency representatives, Ecology, purveyors, the Kalispel Tribe, and others. Carl helped develop a water banking framework; coordinated an updated tri-county demand evaluation and water market evaluation; and conducted an evaluation of potential bank seeding options, including water right acquisition and a potential interbasin transfer. As part of this work, he coordinated screening-level extent and validity analyses on hundreds of water rights in the basin to identify bank-seeding options. He also managed a feasibility study of bank seeding with an interbasin water transfer from the Pend Oreille watershed. Aspect is currently engaged in setting up the bank management structure, helping the counties to acquire water rights for bank seeding, and evaluating groundwater/surface water interaction to support bank management.

Eastbank Wellfield Management, Chelan County PUD #1, Rocky Reach Dam, WA

Carl served as project manager for a multi-year wellfield management project at the Eastbank Hatchery. Carl worked closely with PUD personnel to develop data collection and management approaches for obtaining high quality monitoring well data focused on groundwater elevations and temperature. He coordinated with PUD staff and a subcontractor to make changes to monitoring locations and to the SCADA system to enhance aquifer monitoring. He also coordinated seismic refraction work to improve understanding of the aquifer and underlying bedrock contact. Additional work included review and interpretation of aquifer monitoring data and development of a conceptual groundwater model for the site. He supported development of a numerical modeling, using FEFLOW, focused on both groundwater flow and heat transport that led to recommendations for wellfield management approaches and ongoing aquifer monitoring. More recent work has focused on assessing and preserving assets in the PUD's extensive water rights portfolio.