

PIONEERING

Willamette Water Quality
for Half a Century
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50 Years of "Firsts"

We've been there from the beginning, working with Willamette Valley communities every step of the way to find better answers to water quality challenges. For more than 50 years now CH2M HILL has pioneered the technologies that have advanced the practice of water quality stewardship—from engineering the first wastewater treatment plants on the Willamette River in the early 50s to a present-day "Natural Reclamation System"—the first to use poplar trees to treat and reuse wastewater.

The history of water quality engineering on the Willamette River is inextricably tied to the history of our firm. When CH2M HILL began in Corvallis in 1946, water quality stewardship in the Valley was primitive. In the years since then, the technology has moved from concrete, steel, and chemical solutions to "green" treatment approaches that are beautiful and earth friendly. And CH2M HILL has also grown—from a single office with a staff of four to a global project delivery company with more than 10,000 employees. As we scan the horizon for the next breakthrough, there is one certainty. We have been, are now, and will continue to be committed to water quality in the Willamette Valley.

After all, it is our home too.

This timeline of the long-term relationship between CH2M HILL and the Willamette County community was developed as a community relations poster by Melissa Gaylord and Ann Hovland of the Portland, Ore., office.

1940s & 50s

Pioneering Wastewater Treatment

AS THE DESIGNER OF MANY OF THE FIRST WASTEWATER treatment plants on the upper Willamette River, CH2M HILL was at the forefront of eliminating discharge of raw sewage into the river. This included treatment plants in Oakridge, Eugene, Springfield, Corvallis, Albany, Salem, and McMinnville. We also were designing some of the earliest water treatment plants such as the Taylor Water Treatment Plant, built in Corvallis in 1949, pictured below. This was the first large water treatment plant on the Willamette. Subsequent expansions included mixed-media filters, tube settlers, a high-rate parallel plate clarifier, and granular activated carbon filter adsorbers—all "firsts" for treating the Willamette River source.



Earth-Friendly Treatment of Wastewater With Overland Flow and Wetlands

2000s

WHEN THE CITY OF SALEM BEGAN TO PLAN FOR THE infrastructure demands of a growing population while complying with increasingly stringent environmental regulations, it turned to CH2M HILL. CH2M HILL is helping the city explore and pilot test promising new Natural Reclamation System technologies that treat wastewater through overland flow and wetlands, and reuse wastewater to irrigate agricultural crops and urban landscaping areas. These technologies represent tremendous future potential for improving water quality in the Willamette Valley and reusing water for beneficial purposes that will serve both rural and urban Oregon. This 5-year pilot program will be instrumental in framing this technology for application in the Willamette Valley in the 21st century.



Blazing a Trail for Small Communities

1960s

EARLY TREATMENT METHODS WERE COSTLY, OFTEN BEYOND THE means of small communities. CH2M HILL was able to cost-effectively adapt the technology of full aerobic wastewater treatment to the constraints of a smaller scale. This adaptation—first used in Dallas, Oregon—quickly spread across the country and around the world, providing small communities access to high-quality low-cost wastewater treatment.



The Valley's First Full-Scale Reuse of Biosolids and Wastewater to Grow Poplar Trees

1990s

RATHER THAN DISCHARGE TREATED WASTEWATER INTO the river, The City of Woodburn hired CH2M HILL to design a system that reuses wastewater and biosolids to grow poplar trees, simultaneously creating a cash crop, reducing discharges, and beautifying the landscape. This creative solution was precipitated by the need to meet the most stringent total maximum daily load (TMDL) requirements on the Willamette River system. By 2020, this reuse site is expected to cover 300 acres and treat 5 million gallons of wastewater—as well as biosolids and compost—each day. By using this innovative “green” approach, the City greatly minimizes the amount of effluent that would otherwise be discharged into the Pudding River, a tributary of the Willamette.



Innovative Solutions to Stringent New Regulations

1980s

BECAUSE THE TUALATIN IS A slow-moving river in an urban area, state agencies set stringent limitations on the amount of phosphorus that could be discharged into it. To meet this challenge for the Rock Creek Wastewater Treatment Plant (Washington County), CH2M HILL developed a master plan and innovative improvements that have since become industry standards. One key short-term improvement included the use of claricones (pictured), a treatment technology never before used for municipal wastewater treatment. Claricones allow tertiary unit processes—flocculation and clarification—to be combined as a single step in a single vessel, making more efficient use of equipment and chemicals, providing a cost-effective way to remove more phosphorus. This method helped remove more than 99% of the phosphorus in the wastewater to about 0.05 milligrams/liter.

