

Education

M.S., Geological Engineering
University of Idaho, 1986

B.S., Geological Engineering
University of Idaho, 1983

Professional Certification

Professional Engineer
Idaho No. 6266, 1990
Nevada No. 22016, 2012

Professional Geologist
Idaho No. 646, 1989
Oregon No. G1311, 1992

Certified Water Right Examiner
Idaho No. 129

Areas of Expertise

- Groundwater development studies
- Water rights
- Design, installation, and testing of high-capacity wells for irrigation, municipal, and industrial water supply

Experience Summary

Mr. Scanlan has over 30 years of professional experience in water supply consulting as an engineer and hydrogeologist. He has particular expertise in water rights, well and pumping system design, public drinking water systems, irrigation, and other water resource matters. Mr. Scanlan also has experience in geothermal resource development, mining-related environmental studies, dewatering, soils investigations, geologic mapping, and wastewater land application projects. He has served as Chairman of the Idaho Board of Registration for Professional Geologists. Mr. Scanlan is a Certified Water Right Examiner in Idaho.

SPF Water Engineering, LLC—2004 to present

Mr. Scanlan is a Principal Engineer and Hydrogeologist with SPF Water Engineering, LLC. SPF Water Engineering, LLC, was formed from Scanlan Engineering in March 2004 to provide a wider range of water resource engineering services.

Scanlan Engineering—1994 to 2004

Mr. Scanlan formed Scanlan Engineering in 1994 to provide engineering and hydrogeologic consulting to public and private clients. Scanlan Engineering provided water resource consulting services to more than 300 clients, primarily in southwest Idaho. Mr. Scanlan also served as a subconsultant on water supply projects for numerous engineering firms in Idaho.

Montgomery Watson—1986 to 1993

Prior to forming Scanlan Engineering in 1994, Mr. Scanlan worked as a supervising hydrogeologist for Montgomery Watson (MWH) in Boise, Idaho. He managed and conducted ground-water development projects and hydrogeologic investigation throughout the western United States.

U.S. Geological Survey—1984 to 1986

Mr. Scanlan was employed by the U.S. Geological Survey as a field assistant in the geologic division prior to joining Montgomery Watson in 1986. Responsibilities included geologic mapping, landslide hazard evaluation, and mineral potential studies. Mr. Scanlan worked on the Challis and Hailey 2° Quadrangle CUSMAP programs.

Relevant Water Supply Project Experience

- **Industrial Water Supply Wells.** Design, construction monitoring, and testing of four 1,000- to 1,200-foot, high-capacity, industrial water supply wells and pump systems for Micron Technology in Boise, Idaho. Construction of supply wells for Sorrento Lactalis in Nampa, Idaho, CTI Foods in Wilder, Idaho, Champion Homes in Weiser, Idaho, Tamarack Energy in Tamarack, Idaho, and CS Beef Packers in Nampa, Idaho.
- **Public Drinking Water Wells.** Design and testing for approximately 200 public drinking water supply wells. Clients include United Water Idaho, North Lake Recreational Sewer & Water District, the cities of Nampa, Boise, Meridian, Eagle, Middleton, Homedale, Greenleaf, Garden City, and Marsing, and numerous subdivisions, industries, churches, camps, and commercial facilities.
- **Fish Hatchery Water Supply.** Design, construction, testing, and equipping of two hatchery supply wells at the Sawtooth National Fish Hatchery. The work also included preparation of water right permit and transfer applications, and completion of a water right beneficial use field examination that resulted in licensing of an additional water right for the facility. Design, construction, and testing of three hatchery water supply and one domestic water supply wells at the Idaho Dept. of Fish and Game Springfield Hatchery. The work also included equipping of seven wells, aquifer testing, and water right permitting. Groundwater supply investigation, well rehabilitation, and pump design at the Kooskia National Fish Hatchery. Design, construction and testing of two hatchery water supply wells at the Idaho Power Company Upper Pahsimeroi Fish Hatchery near May, Idaho. Groundwater supply and water right investigation to support water supply improvements for the Lahontan National Fish Hatchery near Gardnerville, Nevada. Test well and production well construction for the Mason Valley Fish Hatchery near Yerington, Nevada.
- **Heating and Cooling Well Systems.** Design, construction monitoring, and testing of production and injection well systems for heating and cooling purposes at Idaho Water Center (Boise), Whitney Elementary School (Boise), and the Oregon National Guard Ontario Readiness Center.
- **Aquifer Storage and Recovery (ASR).** Lead consultant to Micron Technology for the Boise River water supply and aquifer recharge project, including water rights, a nominal 25,000-gpm Boise River pump station, 3 miles of 24-inch and 30-inch pipeline, an ultra-filtration membrane water treatment system, and a nominal 4-MGD injection well. Mr. Scanlan has provided design and permitting for ASR at Capitol Water Corporation Well No. 6.
- **Park Irrigation.** Mr. Scanlan has been responsible for design and construction of more than 30 new well and surface water pumping systems at municipal parks in Boise, Idaho. He provides annual evaluations of nearly 100 well and surface-water pump systems for the Boise Park Department.
- **Pressurized Irrigation.** Efficiency and operation evaluation of the City of Nampa pressurized irrigation system, which includes 92 pump stations and wells. Trouble-shooting and water-right evaluation for Harris Ranch Subdivision, Mallard Landing Subdivision, and Surprise Valley Subdivision. Usage monitoring at Surprise Valley Subdivision. Design and construction of pump stations and wells, including CenterCal and Meridian CrossRoads shopping centers, Boise LDS Temple, and numerous private subdivision systems.
- **Municipal Drinking Water Well Pumps.** Design, permitting, and construction inspection of well pump systems and well houses for Capitol Water Corporation in Boise, Idaho.
- **Aquarium Water Supply.** Design, construction, and testing of salt water production wells for large-scale aquarium projects in Guam and Taiwan.
- **Ski-Area Water Supply.** Evaluation of ground water potential for snowmaking or potable supplies at Sun Valley, Brundage, and Bogus Basin ski areas. Design and testing of the water supply well for the snowmaking system at Sun Valley. Exploration drilling at Brundage Mountain.

- **Infiltration Galleries.** Evaluation and testing of infiltration galleries and Ranney Collectors at Sequim, Washington (horizontal gallery, Dungeness River), Irrigon, Oregon (four Ranney Collectors, Columbia River), Boise, Idaho (three Ranney Collectors, Boise River), and Modesto, California (Tuolumne River, horizontal gallery).
- **Mining Water Supply.** Design of the domestic supply, mine-pit dewatering, and industrial supply wells for the Beartrack mining project at Leesburg, Idaho.
- **Agricultural Water Supply.** Water master planning for the 3600-acre City of Boise Twenty Mile South Farm, that included reconfiguration of water rights, development of additional irrigated lands, design of two large-capacity irrigation wells, design of a 500-hp and 400-hp variable speed deep well turbine pump systems, and efficiency evaluations of 12 irrigation wells. Piping, pump, and well evaluations for pressurized irrigation systems serving farms in Idaho, Oregon, and California. Pump design for dozens of irrigation systems throughout southern Idaho.
- **Groundwater Exploration.** Construction and testing of ten water-supply exploration wells for SunCor in northern Ada County, Idaho. Multi-level water quality exploration wells for the cities of Meridian and Nampa. Blaine County airport water supply study exploration well. Crater Lake National Park water supply exploration well.
- **Energy Water Supply.** Water supply studies for proposed nuclear power plants for Mid-American Nuclear Energy and Alternate Energy Holdings, including conceptual water supply design, water rights, consulting, and baseline environmental studies.
- **Regional Water Supply.** Surface water and groundwater studies for the proposed Elmore-Ada Water Project in southwest, Idaho. Groundwater supply studies for the NAWS project in North Dakota. Water supply studies for Elmore County, including conceptual design and water-right permitting for pumping systems and pipelines extending to Mountain Home, Idaho, from the Snake River and from the South Fork Boise River.

Water Rights

- **Applications.** Preparation of hundreds of water right applications (transfers, amendments, permits, claims) for public and private clients in Idaho.
- **Beneficial Use Examinations.** Preparation of beneficial use examinations required for licensing of more than 100 water right permits. Work includes measurement of diversion rate, determination of place of use boundaries, documentations of diversion facilities, and recommendations for diversion rates, volumes, uses, and seasons based on state licensing criteria.
- **Hydrogeologic Studies.** Evaluation of surface water and ground water interactions, well interference, irrigation development, and consumptive water use related to water right transfers in the Boise Valley, Wood River Valley, Mud Lake, Magic Valley, Big Lost River, and Little Lost River areas of Idaho.
- **Springs.** Evaluation and measurement of flow from springs involved in water right disputes along the Snake River near Twin Falls and Hagerman, Idaho. Development of mitigation alternatives for spring-flow declines near Buhl, Idaho.
- **Irrigation Rate Studies.** Investigations related to Snake River Basin Adjudication claims, including calculation of irrigation requirements and seepage losses, measurement of irrigation diversion rates, and determination of historically irrigated areas.
- **Master Plans.** Water-right master plans for municipal and private clients, including cities of Nampa and Middleton.
- **Expert Witness.** Expert witness testimony regarding water use, well interference, and the interaction of surface water and ground water in administrative hearings and district court trials.

- **Water Accounting.** Evaluation of irrigation diversions, natural flow, return flow, and storage accounting on the Payette River system for the Payette Water Users Association.
- **Reserved Water Rights.** Evaluation of Federal and Tribal in-stream flow and spring claims in the Snake and Salmon River Basins.
- **Mitigation Plans.** Preparation of mitigation plans to allow ground water diversions for irrigation and industrial use in moratorium areas or ground water management areas in the Boise River basin and Eastern Snake River Plain.

Mining-Related Hydrogeology

- **Malheur County, Oregon.** Groundwater exploration and characterization studies for the proposed Grassy Mountain Mining project in Malheur County, Oregon. Geochemical characterization of waste materials at the proposed Kerby Mining project near Farewell Bend, Oregon. This project involved waste evaluation for to determine the potential for acid production and heavy metal mobilization. Mr. Scanlan also conducted baseline surface and groundwater quality evaluations for permitting.
- **Gibbonsville, Idaho.** Investigations related to water rights, stream alteration, and dewatering for Lemhi Gold Trust near Gibbonsville, Idaho.
- **Alder, Montana.** Groundwater flow characterization for the Garnet USA project near Alder, Montana.
- **Stibnite, Idaho.** Groundwater characterization and monitoring for various mining projects near Stibnite, Idaho since the late 1980s. Mr. Scanlan is currently serving as a groundwater consultant to Midas Gold for their Golden Meadows project.
- **DeLamar, Idaho.** A two-phase study of acid mine drainage from a 15 million ton waste dump at the DeLamar silver mine in southern Idaho. The first phase of the project was a hydrologic investigation of the waste dump, which characterized the modes of acid production and transport, within and outside of the dump. The second phase consisted of an evaluation of mitigation measures, and included the conceptual level design of a composite low-permeability cover.
- **Lead, South Dakota.** Groundwater characterization studies and permit preparation for three mine waste and spent ore disposal facilities at the Annie Creek Mine, near Lead, South Dakota. Two of these disposal facilities were located on mill tailings with high arsenic concentrations, and have required investigation of arsenic, nitrate, and cyanide attenuation mechanisms in saturated and unsaturated materials.
- **Sunbeam, Idaho.** Geochemical evaluation of waste materials as part of a supplemental EIS for the Grouse Creek mining project in central Idaho. This project also included groundwater characterization.
- **Leesburg, Idaho.** Water quality and streamflow monitoring program for the Beartrack Mine EIS. Design of the domestic supply, mine-pit dewatering, and industrial supply wells for the Beartrack mining project.
- **Eureka, Nevada.** Water supply investigations for Homestake Mining Company at Eureka, Nevada.
- **Lovelock, Nevada.** Water supply investigations for the Coeur Rochester Mine near Lovelock Nevada.
- **Dry Valley, Idaho.** Pit dewatering investigations for the Dry Valley phosphate mine in southeastern Idaho.

Environmental

- **RCRA.** Investigation and monitoring of pentachlorophenol migration in soils and groundwater at Pressure Treated Timber Company in Boise, Idaho. Site closure for the Vale Oregon Irrigation District.
- **Petroleum Contamination.** Investigation/remediation of soil and groundwater contamination resulting from petroleum (gasoline, diesel, heating oil, hydraulic oil, and jet fuel) at more than 30 locations in Idaho, Oregon, Washington, and Wisconsin. Remedial designs have included soil land farming, venting systems, and free and dissolved product extraction systems. Groundwater treatment technologies utilized have included air stripping, carbon adsorption, and enhanced biodegradation.
- **Effluent Re-Use.** Wastewater and biosolids re-use permitting, soil monitoring, ground water monitoring, and permit annual reports for potato processors, cheese plants, and municipal wastewater.
- **Cyanide.** Research pertaining to cyanide migration and attenuation processes in soils and groundwater with particular emphasis on natural degradation mechanisms.
- **Metals.** Investigation of shallow groundwater contamination from mine tailings in Butte, Montana for ARCO, including the drilling of approximately thirty monitor wells and Hydropunch borings, aquifer testing, and water quality sampling.

Professional Affiliations

Idaho Ground Water Association