

C. CHARLES PAYTON C.V.

Professional Engineering Geologist

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EDUCATION

University of Utah Geotechnical & Mining Engineering 1970-1973

University of Oregon M.S. Geology 1961

University of Oregon B.S. Geology & Geography 1958

Portland State University Studies - Civil Engineering 1953

REGISTRATIONS

Registered Geologist and Certified Engineering Geologist State of California

Registered Professional Geologist State of Oregon

Certified Engineering Geologist State of Oregon

Licensed Professional Geologist State of Utah

PROFESSIONAL EXPERIENCE

Mr. Payton is currently an independent professional engineering geologist, licensed in the State of Utah, No. 5248599-2550, with over 58 years of experience in the fields of geoengineering, engineering geology including geological hazards and mining geology. His experience includes a wide variety of civil, environmental, and mining projects, which have required detailed geologic mapping, soil and rock drilling and sampling, and field and laboratory testing of soil, rock, and concrete. He also has experience in rock mechanics research, geophysical investigations, resident engineering management, and project and construction management.

He has worked with many developers, civil engineering and geotechnical engineering firms on geologic hazards studies. He has served on the Board of Consultants for the Sand Hollow Project, a large water storage project, for the Washington County Utah Water Conservancy District. He has also served on two value-engineering teams for the Central Utah Water District. The Guidelines for Evaluating Surface-Fault-Rupture Hazards for New Buildings in Utah published by the Utah Geological Survey was reviewed by Mr. Payton. He was also an adjunct professor, for three years, at the Utah Valley University, teaching introduction to physical geology classes.

Currently, Mr. Payton is available as an independent engineering, environmental, mining, and groundwater geologist consultant. He has provided engineering geology support, as needed, for several companies, including **Intermountain Geotechnical & GeoEnvironmental Engineering Services (IGES), Inc., Johanson Engineering, Terra Engineering Consulting, LLC, and Wilding Engineering, Inc.** since 2010.

Previously Mr. Payton was employed on an as needed basis by **Applied Geotechnical Engineering Consultants (AGEC), Inc.** from 2005 until 2009. AGEC is a locally owned geotechnical engineering and materials testing firm located in Sandy, Utah. His work included the evaluation of geologic hazards as they related to the development of commercial and residential properties throughout Utah. Studies have included surface fault rupture investigations on several sites. He assessed a gypsum deposit south of St. George, Utah which required the logging of four core drill holes and drawing cross-sections to aid in determining the volume of high grade gypsum within the deposit and how much could be mined and processed. He has also worked on the siting of water tanks, which included the assessment of geologic hazards such as active faults, debris flows, and landslides.

In the year of 2000, Mr. Payton joined **AMEC Earth & Environmental, Inc.** This firm is an international geotechnical engineering, environmental and materials testing firm with an office located in Salt Lake City, Utah. He served as a Senior Engineering Geologist. He was primarily involved in the geologic evaluation of various sites being planned for development. Studies included surface fault rupture investigations at several building sites, seismic analyses, and other geologic hazard studies including shallow groundwater, liquefaction debris flows, landslides, avalanches, rock falls, flooding erosion, and subsidence. Most of these studies were accomplished along the Wasatch Front including a fault hazard study of the Draper Temple site for the Church of Jesus Christ of Latter-Day Saints. In addition, Mr. Payton was the project manager for slope stability studies for the TransAlta Centralia Mining LLC, at a large coal strip mine in the northwestern portion of Washington State. The studies included analyses of a reactivated landslide and the groundwater conditions and how they are related to the mine operations, including planning the location of mine haul roads and the placement of waste rock and soil, and reclamation of mined areas. Four monitor wells with electrical transducers were installed to monitor groundwater conditions.

Prior to joining AMEC, Mr. Payton owned and operated his own company, **American Geological Services, LLC. (AGS)**, from 1995 until August 2000. He provided geological engineering, groundwater, mining, and environmental geologic services. AGS worked on several different projects for Kennecott Utah Copper Corp., Bingham Canyon, Utah from 1995 to 1999. Projects included a cut-

off structure to bedrock in the Bingham Creek channel, design of large production wells to determine aquifer parameters in the alluvial fan near the mouth of Bingham Canyon and the bedrock aquifer in Dry Fork Canyon. For three years AGS was involved in the design and construction of a 12 ft. x 12 ft. by 3,350 ft. long mine acid water collection tunnel. Mr. Payton served as Principal Engineering Geologist and Construction Coordinator. The work included tunnel support design, installation and monitoring of instrumentation during tunnel excavation, detailed tunnel geological mapping and construction supervision. He also directed the development of groundwater through the strategic placement of production wells.

Mr. Payton has also provided engineering geology support to several civil engineering firms and developers. Most of this work involved the assessment of geologic hazards and groundwater on and adjacent to sites being planned for commercial and residential development throughout the State of Utah.

Dames & Moore, Inc. Salt Lake City, Utah and Anchorage, Alaska (1990-1995) - Associate Engineering Geologist and Business Development Manager.

Mr. Payton served as Project Manager for the environmental restoration of PCB and lead contaminated soil in the right-of-way of Badger Road near North Pole, Alaska for the Alaska Department of Transportation & Public Facilities. The work included the preparation of a removal action work plan and a health and safety plan. A field chemical laboratory with a gas chromatograph was set up for field screening for PCBs. PCBs are organic chemicals known as chlorinated hydrocarbons which were manufactured from 1929 until banned in 1979. Soil samples were obtained and shipped to fixed laboratories for confirmation testing for lead and PCB concentrations. Excavated areas were cleared for highway construction once the contaminated soil was removed and the remaining soil met EPA standards. A report was prepared which described the field activities and provided all test results for EPA review.

Mr. Payton served as a Field Manager for the groundwater development in Hooper Bay, Alaska for an Alaska agency called Village Safe Water. Hooper Bay is a small town located next to the Bering Sea on the west coast of Alaska. This project included the use of geophysical exploration and drilling of 7 boreholes to investigate the groundwater available beneath 200 to 300 feet of permafrost for a water supply for Hooper Bay. The wells were drilled, logged, developed and pump tested. Downhole geophysical surveys were made to aid in selecting the depth of well screens. Water samples were obtained and tested during the 24 and 72-hour pump tests. A report was prepared which presented all field activities, well logs, geophysical data, and test results.

He also served as the Project Engineering Geologist during the design and construction of a solid waste landfill located in the western portion of Salt Lake County, Utah. Work included exploration of test pits and trenching to determine soil conditions and to classify construction materials.

Groundwater and surface water conditions were also evaluated with the installation of numerous groundwater-monitoring wells.

Was a Project Manager for dam safety analyses and preparation of emergency action plans for two earth-fill dams in Bingham Canyon, Utah for Kennecott Utah Copper Corporation. Analyses included flood hydrology studies, installation of piezometers, embankment stability studies, the preparation of flood inundation maps, and preparing drill hole logs. Geological reconnaissance mapping was accomplished in the reservoir areas to determine the location of any active faults. A dam safety report, an emergency action plan, and a standard operating procedures manual were prepared for each dam.

Also served as Project Manager and Project Engineering Geologist on several dam safety analyses, including Ivins Bench Dam and Gunlock Dam in southern Utah, and the Red Butte Dam near Salt Lake City.

Was involved in the geologic investigations during the site selection and planning of hydroelectric dam projects in the country of Belize in Central America and on the island of Guam in the western Pacific Ocean.

Project Engineering Geologist for the surface and subsurface investigations and preliminary design of the Utah Winter Sports Park facilities near Park City, Utah. The facilities included the 120K, 90K and 65K ski jumps, the bobsled and luge track, access roads, and support facilities.

International Engineering Company (IECO) and MK Environmental Services, both companies located in San Francisco, California and owned by Morrison Knudsen Engineering and Construction located in Boise, Idaho (1974-1990)

Project RI/FS Engineer directing geotechnical investigations for the Weldon Spring Chemical Plant Superfund site near St. Louis, Missouri. Provided geotechnical and geological support during the demobilization of plant facilities and design of containment facilities. Waste materials on the site included general solid waste, industrial and dangerous waste, and some low-level radioactive waste.

Project Engineering Geologist for the investigation, design, and construction of a roller-compacted concrete (RCC) dike dam, which had failed on the Quail Creek reservoir near St. George, Utah.

Project Engineering Geologist for the planning of a 400-foot high RCC dam, 10-miles of a power tunnel, powerhouse and an earth-fill dam in northeastern California.

Project Engineering Geologist for the preliminary design of facilities for an open-pit coal mine in northeastern Colombia, South America. Facilities included a diversion dam, mine dewatering, 90 miles of railroad, port facilities, town site, solid waste sites, and coal handling facilities.

Served as Project Engineering Geologist on several hydroelectric dam design and construction projects in western Oregon, in northeastern California, in southern California near San Diego, in the country of Nicaragua in Central America, and on the island of Java, Indonesia. Also on proposed and operating mining projects in British Columbia (coal), western Colorado (oil shale), Chile (copper), Peru (copper), and central Utah (coal).

Project Manager for a preliminary study of geologic hazards within the east bench area of Provo, Utah. Geologic hazards identified included active fault traces, landslides, debris flow areas, areas of shallow groundwater, and rock fall areas.

Kennecott Minerals Company, Salt Lake City, Utah (1966-1974)

Served as an engineering geologist and mining geologist for rock mechanics research for mine rock slope design, waste dump slope design, and for tailings dam design for open-pit copper mines in eastern Nevada, Arizona, Utah, and New Mexico.

Resident Engineering Geologist during the construction of a mine town site near Alice Arm, British Columbia, Canada. Construction included the earthwork and foundation for a recreation center, homes, and camp facilities for the personnel working at an open-pit molybdenum mine.

Project Engineer for in-situ rock mechanic studies for the design of an underground copper mine being planned within western Montana.

U.S. Army Corps of Engineers, Portland, Oregon District (1961-1966)

Staff Engineering Geologist performing geotechnical investigations and geologic studies for six large multi-purpose water supply and hydroelectric dams in western Oregon. This included the dam site abutment slopes, diversion tunnels, reservoir areas, and foundation design.

Project Engineering Geologist during the construction of four hydroelectric dams in western Oregon. This included the detailed geologic mapping of dam foundations, abutments and reservoir areas.

U.S. Army Corps of Engineers, Anchorage, Alaska District (summer 1958)

Following my graduation from the University of Oregon I was a Staff Engineer for geotechnical inspection and design during the construction of runways, taxiways, and anti-aircraft facilities on and near the Eielson Air Force Base located south of Fairbanks, Alaska.

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