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## Curriculum Vitae of Michael C. Higgins, P.E.

### Lead Engineer

### EDUCATION

- B.S. in Geological Engineering, New Mexico Institute of Mining and Technology, 1982
- M.S. in Geotechnical/Civil Engineering (pending completion of thesis, University of Colorado)

### REGISTRATIONS

- Registered Professional Engineer - State of Colorado No. 32108
- Registered Professional Engineer - State of Utah No. 5824110-2202 (inactive)
- Registered Professional Engineer - State of Wyoming No. 16076
- Registered Professional Engineer - State of New Mexico No. 17028 (inactive)
- Registered Professional Engineer - State of Arizona No. 42405 (inactive)
- Registered Professional Engineer - State of Montana No. 16903 (inactive)
- Registered Professional Engineer – State of South Dakota No. 13745
- Registered Professional Engineer – State of Idaho No. 18167
- Registered Professional Engineer – State of Oklahoma No. 30358
- Certified Fire and Explosion Investigator – Reg. No. 10809-5034

### ADDITIONAL QUALIFICATIONS

- 38 years experience in Civil/Geotechnical/Geological/Geophysical related positions
- 48 years experience in the construction industry
- 25 years experience in failure analysis in the areas of civil, geotechnical, structural, mechanical, and electrical engineering
- 40 hours Health and Safety Training
- 24 hours Radiation Management Training

## **EMPLOYMENT SYNOPSIS**

### **Higgins & Associates, Inc., Littleton, Colorado**

***2000 to Present***

#### ***Lead Engineer***

Professional Engineer specializing in the field of engineering forensics in the areas of civil, geotechnical, mechanical, electrical, and structural engineering systems and designs. Investigations include origin and cause determination of fire and gas explosion losses. Forensic analyses include structural damage to buildings due to either improper construction, construction-related accidents and failures, or code-deficient design. Specific areas of general construction evaluation include masonry, concrete, asphalt, stucco, EIFS, framing, roofing, windows, floor and wall finishes, insulation, and waterproofing. Specific areas of civil engineering evaluation include soil and rock analysis for design and construction of single-family, multi-family, commercial, and industrial facilities; slope stability analysis, design and construction of earth retention systems, water storage and tailing facility design, groundwater analysis, pavement design, grading and drainage design, soil movement analysis, and storm water system design.

Specific areas of mechanical systems design, construction and failure analysis include plumbing, heating, cooling, and ventilation systems, fire suppression system design and construction, fire sprinkler head failures, pipeline design, construction and corrosion analysis, natural and propane gas storage and transmission systems, carbon monoxide poisoning, and evaluation of personal injuries and work-related accidents.

### **Merlo Consulting Engineers, LLC, Englewood, Colorado**

***1995 to 2000***

#### ***Senior Engineer***

Forensic engineering in the areas of civil, structural, mechanical, and electrical engineering investigations. Performed forensic analyses involving structural damage due to improper construction, construction-related accidents, structural failures, and code-deficient design. Also conducted cause-and-origin investigations of fire and explosion losses at residential, commercial, and industrial facilities. Provided expert testimony for both depositions and trials.

**Joseph A. Cesare and Associates, Englewood, Colorado****1987 to 1995*****Geotechnical Engineer***

Geotechnical engineering including civil engineering and environmental engineering applications.

**Geotechnical/Geological Engineering Applications and Design Experience**

Numerous projects involving surface and subsurface investigations for design and construction of residential and commercial structures; foundation designs; earth and rock fill dam designs; tailing facility and leach pit design; solid waste landfill design; water transmission pipeline subsurface investigations; geotechnical instrumentation design and installation; pressure grouting; settlement analyses; liquefaction analyses; slope stability analyses; geologic mapping; mud jacking; failure analyses; emergency preparedness plans; soil cement design; pile foundation dynamic analysis; filter designs; trench shoring designs; extensive field and laboratory testing; project specifications and contract document preparation.

**Specific Projects:**

Lead Embankment Inspector for the Aurora Dam Project, Aurora, Colorado; design modification to the Upper Beaver Brook Dam 3A, Clear Creek County, Colorado; design of the Chesapeake Mill Tailings Facility, Victor, Colorado; closure of Templeton Gap Landfill, Colorado Springs, Colorado; preliminary field investigation for the Hanlon Landfill Site, Elbert County, Colorado; geotechnical investigation for the Aurora Pipeline, Aurora, Colorado; mud jacking of Cherry Creek High School, Aurora, Colorado; foundation investigations of industrial facilities for Texaco Los Angeles Plant and Texaco Sulfur Recovery Plant, Wellington, California; grouting of the Aurora Rampart Reservoir, Douglas County, Colorado.

**Environmental Engineering**

Phase I environmental audits; remedial designs and remedial action plans; design of leachate recovery systems; slurry trench design; monitor well and recovery system designs; groundwater and soil sampling; stabilization/solidification of radioactive waste.

**Specific Projects:**

Site remediation of the Texaco Tank Farm, Cypress, California; monitoring during remediation at the Unocal Denver Toluene Site, Denver, Colorado; recovery trench design, Golden West Refinery, Santa Fe Springs, California; Leachate collection system, Sundstrand Industries, Westminster, Colorado; monitor and recovery well design and installation, Unipro Paints, Denver, Colorado; stabilization/solidification of radioactive waste, Shattuck Chemical Company.

