



**Speaker Bio:** Kimberlie Staheli, Ph.D., P.E. is a civil engineering consultant who specializes in design, construction management, and risk management exclusively on trenchless projects. Kimberlie is the founder and President of Staheli Trenchless Consultants, Inc. located in Seattle, WA, USA where they focus on HDD, Microtunneling, Pipe Ramming, Pilot Tube Guided Boring, Auger Boring, Pipe Bursting, Open Shield Pipe Jacking, EPB technology, Pipeline Rehabilitation, and hybrid trenchless techniques. Kim received her Undergraduate Degree in Mechanical Engineering, her Master's Degree in Civil Engineering, and her Doctorate Degree in Geotechnical Engineering from Georgia Institute of Technology. Kim is the Immediate Past Chair of the North

American Society for Trenchless Technology where she served on the Board of Directors for 7 years and a Board Member of the International Society for Trenchless Technology.

### **Abstract**

Horizontal Directional Drilling (HDD) has proven invaluable to the pipeline industry far beyond line installations. Countless kilometres of pipelines have been installed with HDD on “specialty projects” for applications such as river crossings, highway crossings, ocean outfalls, and large diameter oil and gas supply pipelines. Unlike line installation projects, the specialty projects require an intense engineering effort that typically involves a thorough risk assessment.

This presentation will focus on procedures used to evaluate risk on specialty projects, providing a systematic process to determine how the project risk impacts the cost of installing the pipe. A process will be shown on estimating risk cost through risk identification, probability of occurrence, and possible mitigation measures to be employed should the risk come to fruition. Risk-sharing strategies will also be presented that can be employed in the contract documents to allow the pipeline owner to decide whether they want to pay for a specific risk in the tender or if they would prefer to “take the risk” and pay a contract change should the risk occur during construction.

The risk evaluation, costing, and assessment process will be demonstrated using case history examples, illustrating how risk assessment was used by both pipeline owners and contractors on specialty projects.