



## CONTAMINANT HYDROGEOLOGY

Contaminant hydrogeology has a pivotal role in environmental assessments and pollution control and therefore is a highly demanded subject. The objective of this course is to provide in-depth understanding of the principles of groundwater and contaminant migration in subsurface system, and taking this understanding to the practical level for environmental professionals of all levels, using real world examples and hands on problem solving.

The course adequately covers topics of physical and contaminant hydrogeology to ensure clarity of central concepts including:

- a. Occurrence, distribution and movement of groundwater
- b. Principles of groundwater flow and heterogeneities of subsurface systems
- c. Soil properties and groundwater flow behavior
- d. Determination of hydraulic properties – slug test and hydraulic conductivity
- e. Coexistence of aqueous and non-aqueous phase liquids
- f. Groundwater contamination – sources and types of contaminants
- g. Contaminant transport and migration of dissolved plume
- h. Contaminant partitioning in multi-phase media (air, liquid and solid)
- i. Use of contaminant hydrogeology in:
  - o Site-specific risk assessment – exclusion of inapplicable pathways
  - o Natural attenuation and bioremediation of contaminants
- j. Solving real world example problems related to above topics

**On completion of this course**, the participants will achieve clarity and confidence in understanding the behavior of different contaminants in soil and groundwater, assessing potential sources of contamination, and developing conceptual approach in defining requirements of investigation and remediation of impacted sites.

**FACULTY: Hafeez Chishti, PhD, P.Geol., EP.**

**Dr. Hafeez Chishti (BSc, MSc, PhD) is a *Professional Geologist/Geoscientist* registered in the provinces of Alberta, British Columbia and Saskatchewan and a *Certified Environmental Practitioner of Canada* with more than 25 years experience of teaching and consulting in areas of environmental geosciences. Dr Chishti is a Technical Advisor at Pinchin West – a company that provides environmental consulting to the world’s leading oil and gas firms on site assessment and the associated issues of risk assessment, remediation, risk management, and compliance monitoring.**

Dr Chishti has enjoyed a teaching and research position as an Associate Professor and has authored a book *Contaminated Site Investigation Methodology* along with several scientific research papers in credible international journals like Elsevier. Dr Chishti received his PhD from University of Leeds (UK), and post graduation education from Netherlands. Dr Chishti is also a visiting/guest lecturer at University of Calgary, Alberta.