

Fundamentals for the Management of Hydrotechnical Hazards – Course Outline

February 2025

1 Fundamentals for the Management of Hydrotechnical Hazards

1.1 Course Description

Building upon the *Fundamentals for the Management of Geotechnical Hazards* course, this course introduces the management of hydrotechnical hazards as they relate to the operating and maintenance stages of the pipeline lifecycle. With a review of the main hydrotechnical hazard types and the potential impact on pipelines, the course builds upon a four-phased approach to geohazard management along with key considerations for each phase that are specific to hydrotechnical hazards. The fundamental concepts introduced in this course provide a strong foundation for building skills to address hydrotechnical events on an operating pipeline. This online course includes straightforward scenarios and self-assessments to clarify and reinforce key concepts for learners while providing individuals the flexibility to review and reinforce the material at their own pace.

1.2 Learning Objectives

By the end of the course, participants should be able to:

1. Identify the types of hydrotechnical hazards and the potential impacts on the integrity of pipelines.
2. Describe the activities involved in the four phases of hydrotechnical hazard management.
3. Apply knowledge by exploring a scenario involving a hydrotechnical hazard.

1.3 Who Should Take This Course

The course is best suited for:

- Early to mid-career practitioners with engineering/technical backgrounds or those responsible for or supporting geotechnical hazard management program activities.
- Individuals with a basic familiarity with the concepts behind pipeline operation and maintenance activities.
- Individuals with a basic knowledge in the areas of civil works, geotechnical, and/or environmental domains.

1.4 Course Structure and Delivery

The course is available online in a self-paced learning format. Main topic areas include:

- Introduction to Geohazards
- Importance of Hydrotechnical Hazard Management
- Mitigation
- Introduction to Hydrotechnical Hazards and the Potential Impact on Pipelines
- Pipeline Hydrotechnical Hazard Management
- Pipeline Hydrotechnical Scenarios
- Course Review