

Instructional Design for Fleming College: Well Construction Certification Course

Fleming Training Services, of Sir Sanford Fleming College, offers a wide variety of custom training programs in business, computers, health, law and justice, languages, management, environment and technology. The college was hired by the Ontario Government to deliver a certification training program for new water-well technicians. All water-well technicians must now become certified by the Ontario Ministry of the Environment (MOE) before they can begin constructing water wells.

Fleming College asked Prospero to design one comprehensive course that would offer 10 days of instructor-led training in the technology of water well construction and compliance with the Ministry's regulations.

Our Approach

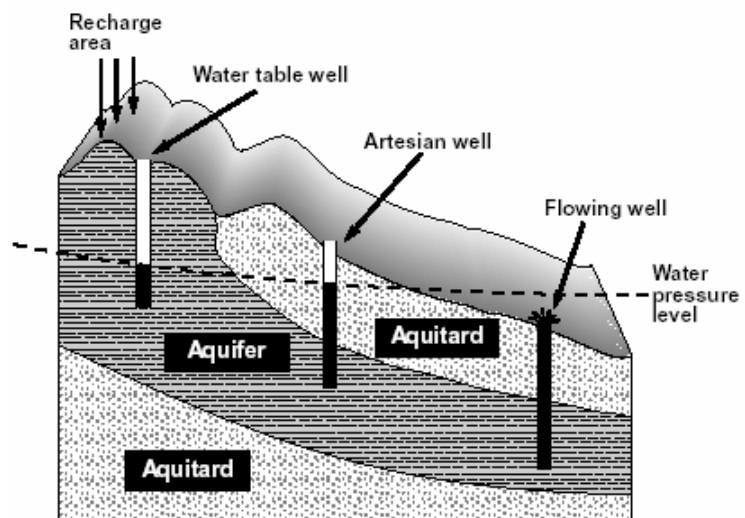
We began by reviewing all work to date, including an existing needs analysis, and conducting learner, context and task analyses in consultation with Fleming representatives and industry SME's.

We then drafted the performance and learning objectives, ensuring that all curriculum and learning objectives are observable, appropriate for learners, and valid by linking them to the task analysis.

To increase the probability of on-the-job success, we also created criterion test items for each curriculum performance objective to verify that the learner is able to perform as required.

The next step was to produce design documents for all 10 days of training, including the specific objectives, instructional events in chronological sequence, means of evaluation, required media and resources and time specifications. Anticipating a second phase involving a blended learning solution (now in development), Prospero provided Fleming with recommendations on the types of multimedia that could enhance and support learning, and when specifically they could be incorporated into the course.

We organized our course into 17 modules. Topics include: Stewards of the Environment (Regulation 903), Geology, Pumps, Well Siting, Drilling Systems, Well Construction (The Borehole, Installation, Annular Space & Sealing), Test Pumping the Well, Disinfection Using Chlorine, Well Records, Global Positioning Systems, Safety, Hydrogeology, Well Abandonment, Flowing Wells, and Pumps (Advanced).



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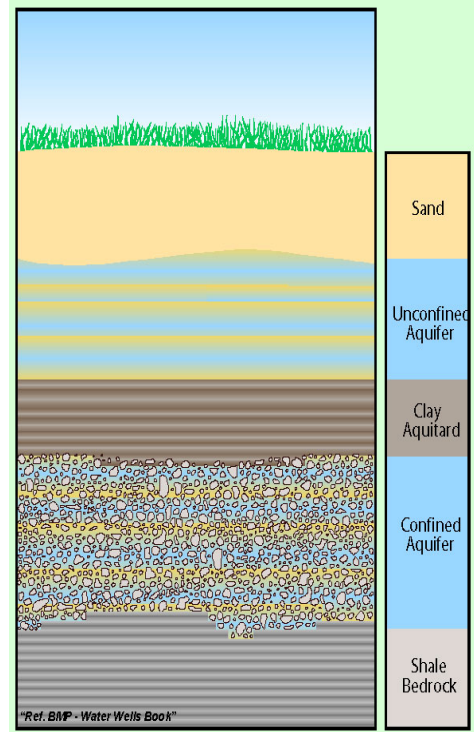
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To support the program, Prospero delivered a participant’s manual, a leader’s guide (with a companion PowerPoint presentation), and a Train the Trainer manual to orient new facilitators.

Throughout the course, we introduce various activities, exercises and knowledge checks to ensure that the training is learner-centered, interactive, and engaging. In the module on Geology, for example, learners:

- Relate stories about the rock formations they've encountered in their drilling activities.
- Handle samples igneous, metamorphic and sedimentary rocks
- Describe 3 kinds of rocks or sediment native to their home region and how some of those rocks may impact on well “siting” and construction.
- Perform a self-test on geological terms and how they relate to well construction
- Recount experiences of encountering formations they couldn't drill through, or boreholes that collapsed.
- In a demonstration of hardness, scratch samples and guess what the rock type is
- Complete an Action Planner whereby learners lists some activities they plan to do to improve the way they address geology-related issues and well construction
- Take a knowledge check that consists of multiple choice, true and false, and matching questions.



A review phase by Fleming and Ministry experts ensured that the materials were technically accurate and consistent with the required legislation. The end result is a top quality course that is successful in transferring the necessary knowledge and skills to Fleming College’s learners. Indeed, it enables them to become certified by the MOE and exemplary performers in their field.

Phase 2

Prospero is currently involved in a second phase of development. This is a blended solution aimed at water-well technicians who are already licensed by the Ministry but who, in light of new legislation, need to be retrained in compliance issues. We are helping Fleming College develop up to 6 one-day workshops for this audience, as well as a series of interactive, multimedia CDROMS with animation. The CDs will be made available to users both as an alternative to the classroom and as a tool for post class support.