

# British Columbia Ground Water Association



## Two Day Training Course

March 7<sup>th</sup> and 8<sup>th</sup>, 2011

8:00 am – 5:00 pm both days

Sheraton Guildford, Surrey BC

15269 – 104 Avenue, Surrey, BC V3R 1N5

Rooms are available at a special rate of \$95.00 per night,  
contact 1-888-627-8063, ask for the BC Ground Water rate to make your reservation.

Cost: \$275.00 per person for members of BCGWA

Cost: \$325.00 per person for non-members

Includes 2 day training, lunch, all course materials

## **Determining Problems and Solutions Impacting Well Systems**

### **Featured Speakers:**

**Thom Hanna, Dr. John Schnieders, Michael Schneiders and Remi Allard**

The Seminar goal is to provide background for understanding the well environment, the changes that occur with the well, to determine an operational age, and use this information to establish the schedule and means of treatment or rehabilitation that is needed.

If you are a drilling contractor, pump service or installation technician, groundwater professional involved in the design, specification, and maintenance of water-well installations, or an owner/operator of such systems who is responsible for new well construction projects or the maintenance of existing wells, this is a training course that you should attend.

## Registration Form – Training Course March 7<sup>th</sup> & 8<sup>th</sup>, 2011

The B.C. Ground Water Association is providing a Well TRAINING COURSE, which is being held at the Sheraton Guildford Hotel from March 7<sup>th</sup>–8<sup>th</sup>, 2011. Course room rates are available for \$95.00 per night.

Company: \_\_\_\_\_ Ph: \_\_\_\_\_ Fax: \_\_\_\_\_

Address: \_\_\_\_\_

Name(s) of Attendees : \_\_\_\_\_

\_\_\_\_\_ Email: \_\_\_\_\_

### Course Registration –

2-Day Training, includes lunch and coffee breaks.

\_\_\_\_\_ BCGWA members @ \$ 275.00 + HST \$ 33.00 = \$ 308.00 \_\_\_\_\_ Total payable

\_\_\_\_\_ Non- members @ \$ 325.00 + HST \$ 39.00 = \$ 364.00 \_\_\_\_\_ Total payable

Please make cheques payable to B. C. Ground Water Association or pay by:

Visa, M/C, or American Express # \_\_\_\_\_ Exp. Date: \_\_\_\_\_

Signature of card holder (not valid without signature) \_\_\_\_\_

Registration and payment can also be made online through our secure website at [www.bcgwa.org](http://www.bcgwa.org).

Contact 1-888-627-8063 to make your over night reservation, ask for the BC Ground Water rate to receive the course rate of \$95.00. The “cut-off date” for accepting reservations into this room block is Friday, February 4, 2011.

If you have any questions, please contact Joan Perry at the office.



***PRESENTS***

**Operational Age of the Well:**

**Determining Problems and Solutions Impacting Well Systems**

**A Two day Seminar for Water-Well Professionals**

**March 7-8, 2011**

Goal: *provide background for understanding the well environment, the changes that occur with the well, to determine an operational age, and use this information to establish the schedule and means of treatment or rehabilitation that is needed*

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FEATURED SPEAKERS:

**Dr. John H. Schnieders,**

Principal Chemist & Microbiologist, Water Systems Engineering,  
National Groundwater Association's 2002 McElhiney Lecturer  
Author of *Chemical Cleaning & Disinfection of Water Wells*.

**Mr. Thomas Hanna, RPG,**

District Manager/Hydrogeologist, Johnson Screens  
Author of several papers on aquifer hydraulics, well design  
and water-well development including chapters in the 3<sup>rd</sup> Edition of  
*Groundwater and Wells*

**Mr. Michael J. Schnieders, PH-GW,**

President /Hydrogeologist, Water Systems Engineering Inc.,  
Author of several papers on well microbiology and chemistry, and proper planning for well  
maintenance

**Remi Allard**

Sustainable Subsurface Solutions, Inc.  
Consulting hydrogeologist  
Expert in well hydraulics and well design

## Course Outline

7:30 – 8:00 Registration

**8:00 – 8:15 Welcome and Introduction**

Who and Why  
Housekeeping

8:15 – 8:45 What is the Operational Age of the Well? John  
Intro to concept and importance  
Roadmap of the seminar

8:45 – 10:00 Chemistry of Well Systems Mike  
“Water quality” with regards to water chemistry  
Parameters and their impact

**10:00 – 10:20 BREAK**

10:20 - 12:00 Microbiology of Well Systems Mike  
Myths of bacteria  
Characteristics of bacteria  
Types of bacteria and problems  
Bacterial testing and significance

**12:00 – 1:00 LUNCH**

1:00 – 1:30 Corrosion of Well Systems Thom  
Define Corrosion & Corrosion Environments  
Types of Corrosion

1:30 – 3:00 Well Design and Operation Thom  
Corrosion & Material Selection  
Slot Size and Sieve Analyses  
Development

**3:00 – 3:30 BREAK**

3:30 – 4:00 Pumping Tests Remi  
Specific Capacity  
Aquifer Parameters

4:00 – 4:30 Physical Blockage Thom  
Sand Pumping  
Sediment Migration

4:30 – 5:00 Video Inspection Remi  
Identifying blockage  
Identifying corrosion or structural damage

**End of Day 1 – Questions / Happy Hour**

## Day 2

8:00 – 8:10 Introduction

8:10 – 8:30 Wire to Water Efficiency Calculation Thom

8:30 – 10:00 Determination of Operational Age of the Well Overview & Summary John

### 10:00 – 10:15 BREAK

10:15 – 11:00 Chemical Selection and Application for Well Cleaning  
Chemicals and Methods Employed  
Key Components to Cleaning  
Field parameters to monitor during cleaning Mike

11:00 – 11:30 *Class Problem: Field Analysis – water chemistry and biology*

### 11:30 – 1:00 LUNCH

1:00 – 2:00 Anatomy of a Well Cleaning Thom  
Equipment  
Chemical Prescription and Handling of Chemicals  
Neutralization and disposal

2:00 – 2:30 Physical Rehabilitation of a Well Thom  
Structural Modification

### 2:30 – 3:00 BREAK

3:00 – 4:00 Coliforms – Control and Disinfection Mike  
Disinfection Protocol  
Chlorine Neutralization

4:00 Open Forum – Q & A