

**PROJECT ANNEX #13**

Between the:

**GEOLOGICAL SURVEY OF CANADA** of the Earth Sciences Sector, Department of Natural Resources, Canada, represented by the Groundwater Program (hereinafter referred to as the "ESS"),

and the:

**U.S. GEOLOGICAL SURVEY** of the Department of the Interior, United States of America (hereinafter referred to as the "USGS"),

concerning:

**THE STUDY OF THE HYDRAULIC PROPERTIES OF THE SEDIMENTARY ROCKS OF THE ANNAPOLIS VALLEY AND CHÂTEAUGUAY AQUIFER SYSTEMS, CANADA - PHASE#2**

(hereinafter referred to as the "Project")

**Authority:** This is an Implementing Arrangement (hereinafter referred to as "Annex") to the Memorandum of Cooperation signed on the 9th day of April, 1999, and the Letter of Exchange signed February 13<sup>th</sup> and March 10<sup>th</sup>, 2004, between the ESS and the USGS, hereinafter jointly referred to as the "Participants". This Annex is approved in accordance with Article VI of the Memorandum of Cooperation.

**Correspondents:** USGS: Dr. Roger H. Morin, PO Box 25046, MS 403, Denver, CO 80225, phone: (303) 236-5915, fax: (303) 236-5968, e-mail: [rhmorin@usgs.gov](mailto:rhmorin@usgs.gov).

ESS: Dr. Alfonso Rivera, Geological Survey of Canada, 490 rue de la Couronne, Québec, Qc, G1K 9A9, phone: (418) 654-2688, fax: (418) 654 2615, e-mail: [arivera@nrcan.gc.ca](mailto:arivera@nrcan.gc.ca).

**Responsible Senior Managers:** USGS: P. Patrick Leahy, Associate Director for Geology, phone: (703) 648-6600; ESS: Alfonso Rivera, Chief Hydrogeologist and Groundwater Program Manager, phone (418) 654-2688.

**Scope:** This Annex is intended to enhance the understanding of regional hydrogeology in the Annapolis and Châteauguay regions and expand upon the collaboration between the Participants carried out under the "Assessment of Regional Aquifers: Towards a National Inventory" project of the ESS. Past years' participation of Roger H. Morin to the characterization of various fractured rocks in Québec and in the Maritimes (Eastern Canada) has been extremely useful. Dr. Morin would again conduct geophysical logging within numerous selected boreholes in different hydrogeologic formations where information is lacking. His work will allow for the evaluation of hydraulic properties, and provide information on stratigraphy and water bearing fracture features, complementary to pumping tests and drilling. This data represents the only information available on stratigraphy and potential yield when no other data are available. By systematically combining all data acquired into a broad interpretative scheme, a conceptual understanding of the groundwater system at the macroscale can be developed, bringing valuable insight into aquifer hydrodynamics at the regional scale.

**Work Plan:**

The USGS will provide the expertise of Dr. Roger H. Morin and one technician for the service of geophysical logging for a period of one week in each of the regions between the beginning of June and the end of July of 2005, and advice in log analysis and interpretation techniques. ESS will provide complementary information on the geology and the stratigraphy of sedimentary rocks in order to identify

and characterize the aquifer formations. The USGS will provide a report including field results from geophysical logging and their interpretation, in both digital and hard format.

ESS will be responsible for ensuring that any permits and/or authorizations required for the entry of the geophysical logging equipment to Canada are processed.

**Funding Arrangements:** ESS will provide funding for living accommodations and for travel expenses incurred by Dr. Morin and one technician up to a maximum of US\$5000. According to the Treasury Board of Canada Secretariat policy, USGS shall submit on Canadian federal government claims forms (including all original invoices), to the attention of Dr. Alfonso Rivera for the verification of expenditures. USGS's final invoice shall be marked "Final" and submitted to ESS not later than October 31<sup>st</sup> 2005. Payment should reference the billing number included on the USGS invoice and are accepted in accordance with legislative authority 22 United States Code 2656(d)/43 United States Code 31 (b).

**Intellectual Property:** As per the "Agreement on the Allocation of Intellectual Property Rights, Interests and Royalties for Intellectual Property Created or Furnished under Certain Scientific and Technological Cooperative Research Activities" between the Government of Canada and the Government of the United States of February 4, 1997, Participants to this Annex shall retain existing intellectual property that they bring to the Project. Intellectual property arising as a result of this Project shall be jointly owned by the ESS and the USGS.

**Duration and Termination:** Notwithstanding the date of execution of the Agreement, this Annex shall be effective as of the 1<sup>st</sup> day of June 2005 and shall terminate upon the earlier of: (a) March 31, 2006, this being the completion date of the Project, unless extended by the mutual written agreement of the Participants; or (b) one month (30 days) subsequent to the receipt of written Notice of Intent to Terminate from one Participant to the other Participant.

Each Participant shall immediately upon termination, return the other Participant's papers, materials or other property held for the purpose of carrying out the Project. In the event of termination of this Annex, any expenses and costs incurred by the USGS in support of the Project (including costs for non-cancelable commitments outstanding as of the date of termination) shall be paid for by ESS.

Accepted on behalf of USGS:

Accepted on behalf of ESS:

\_\_\_\_\_  
Robert M. Hirsch  
Associate Director for Water  
United States Geological Survey  
Department of the Interior

\_\_\_\_\_  
Alfonso Rivera  
Program Manager  
Groundwater Program  
Earth Sciences Sector  
Natural Resources of Canada

4/21/05  
\_\_\_\_\_  
Date

25 AVR. 2005  
\_\_\_\_\_  
Date

# Development and Administration of Business and Cooperation Agreements

Version	2.4 - DB	APPROVED BY:	Page: 1 OF 2
REV. DATE:	June 2,2004		

## Standard Operating Procedure: SOP # 1

### Annex B ESS Agreement Review Transmittal Slip

Agreement Title:	The study of the hydraulic properties of the sedimentary rocks of the Annapolis Valley and Châteauguay aquifer systems, Canada – Phase#2			
ESS Project Title:	J03 - Assessment of Regional Aquifers: Towards a National Inventory: Steve Grasby			
Responsible	Purpose	Date Received	Signature	Date Signed
Originator	I confirm that this Agreement has the approval, in principle, of the appropriate Manager ( <i>Name</i> ) and that the commitment to deliverables in the Agreement will help achieve the outputs and outcomes of Project ( <i>Project Number</i> ).			
ESS Office	The Agreement has 1. Objectives that contribute to the outputs and outcomes of the approved ESS Project named above 2. Accountability for primary deliverables clearly recorded in SPS under the project named above	March 7, 2005	R.D. Kurtz	March 10, 2005
International Division	The Agreement respects ESS 1. Intellectual Property guidelines 2. Business Practices 3. Signing Authority restrictions			
SFAO	The Agreement respects 1. Treasury Board Policies and Guidelines 2. Standard financial management practices			
NRCan Legal	The Agreement respects 1. NRCan and Government of Canada legal requirements			