



April 17, 2008

Dr. Paul Pilon

Engineering Adviser, Canadian Section, International Joint Commission

Dr. Mark Colosimo

Engineering Adviser, United States Section, International Joint Commission

Dear Drs. Pilon and Colosimo,

Thank you for forwarding the Independent Review Group's (IRG) assessment of the Study's "*Hydraulic and Sediment Modelling Strategy*", dated April 11, 2008. We are very pleased with the quick turn around, as this is very important to the Study. We are also pleased with the process and with the exchange we had with all the reviewers and feel this serves as a good model for future methodological reviews.

Overall, we are pleased that the IRG concluded that the proposed methodology: is appropriate for task; has clearly stated objectives; and uses appropriate models, measurements and calculations.

We asked the IRG for advice on issues they thought needed additional focus, which they provided. As such we are responding to the six points that were raised:

- 1) **Modelling strategy** - We concur with the IRG assessment, and we will employ the 2-D TELEMAC with coupled sediment transport routines to augment the MOBED results in our investigation of morphological changes to this critical channel.
- 2) **Time baseline** - We recognize that the preference would be to have a baseline that is prior to the 1962 dredging (i.e., 1954 cross sections); however, if we are not able to resolve the georeferencing issue for the 1954 data, we will explore approaches to extract as much pertinent information as possible from these data. As you suggest, we will be undertake hindcasting with the sediment models to estimate bed characteristics at the completion of the 1962 channel deepening.
- 3) **Survey data** - We agree with the need for ensuring standards, rigorous QA/QC protocols and assigning meta-data as a critical part of this scientific study and are pleased to see the IRG supports these efforts.
- 4) **Ice and weed-growth implications** - We, too, support the need to determine the relative significance of ice retardation, weed growth, hardening of the shoreline

Ted R. Yuzyk, Canadian Co-Director
234 Avenue West, 22nd Floor, Ottawa, Ontario K1P 6K6
Telephone: (613) 992-5727 Fax: (613) 993-5583 Email: yuzykt@ottawa.ijc.org

Eugene Z. Stakhiv, Ph.D., P.E., U.S. Co-Director
7701 Telegraph Road, Alexandria, Virginia 22315
Telephone: (703) 428-8077 Fax: (703) 428-6686 Email: Eugene.z.stakhiv@usace.army.mil

and maintenance dredging on the St. Clair River channel conveyance. We will be running HEC-RAS with an ice formation and decay module to determine ice impacts. As an initial step, we will be examining discharge measurement data at a monthly time-step to determine the significance, if any, of annual weed growth on channel conveyance. In addition, through our suite of hydraulic models we will assess the role that hardening and maintenance dredging may be having on conveyance.

- 5) **Uncertainty** - The Study recognizes the importance of addressing issues related to uncertainties not only in hydraulic/sediment modelling but also in each component of the scientific process. We agree with the IRG for the need to develop a framework for the systematic assessment of uncertainty for all the components. We are planning a workshop on uncertainties in May 2008. We will be inviting a limited number of experts and practitioners in this field to develop a more comprehensive strategy in handling uncertainties in data, interpretative techniques and modelling.
- 6) **Performance metrics** - The Study understands the importance of conveying scientific results to the public and plans to use state-of-the-art visualization tools to help reach our non-scientific audience. We will be using other scientific graphics and tables, along with the Hydraulic Performance Curves to present the scientific results to the scientific and technical community

In early June we will be having an internal workshop to finalize our “*Hydroclimatic Strategy*”. As per our discussions, we will be forwarding this strategy to the IRG no later than June 20, 2008. We look forward to another productive interchange with the IRG on June 26, 2008 at the ASCE Headquarters in Reston.

Sincerely,



Ted R. Yuzyk
Canadian Co-Director



Eugene Z. Stakhiv, Ph.D., P.E.
U.S. Co-Director