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**DELTAPORT THIRD BERTH PROJECT**  
**Adaptive Management Strategy**  
**2008 Annual Report**  
**Response from the Scientific Advisory Committee**

In September 2009, Vancouver Fraser Port Authority (VFPA) and its consultant Hemmera Envirochem Inc. (Hemmera) released the 2008 Annual Report, which compiled and interpreted results of the second year's work on the Adaptive Management Strategy (AMS), addressing the potential environmental impacts of the construction of Deltaport 3 (DP3). Herewith a response from the Scientific Advisory Committee (SAC) to this report. I have taken the liberty of including some additional material that you may find superfluous, but which may help others with whom you may decide to share this letter.

**BACKGROUND****What is the Adaptive Management Strategy?**

The AMS takes a science-based systematic approach to monitoring and managing potential impacts on the 'intercauseway ecosystem' (that between the container port and BC Ferry jetties) that may arise as a consequence of the construction of DP3. The AMS was initiated as a result of the Environmental Assessment of DP3 carried out by Environment Canada. An Environmental Assessment is a federally-mandated process required of all such major projects. The AMS has the specific goals of assessing the potential for significant negative impacts on the ecosystem that may occur as a result of DP3 construction. Of particular interest are marine eutrophic events and dendritic channelization leading to erosion. The strategy for the AMS is a public document and is available at [http://www.portmetrovanancouver.com/projects/ongoing\\_projects/deltaport\\_third\\_berth/environment.aspx](http://www.portmetrovanancouver.com/projects/ongoing_projects/deltaport_third_berth/environment.aspx)

The core activity is an eight year (2007-2014) monitoring program to provide data on the environmental situation in and around the intercauseway area. Data are collected regularly on geomorphological factors, on surface water and sediment quality, the distribution and community structure of eelgrass beds, benthic organisms, and the birds in the area. The AMS compares these data to environmental thresholds based on regulatory screening levels, baseline surveys (from 2003/04), and/or cited background levels established in accordance with Environment Canada. The data are summarized in quarterly reports, and in an annual report, which also provides some interpretation.

**What is the Scientific Advisory Committee?**

The SAC was established in response to the Environmental Assessment process, as

a means to provide independent scientific and technical advice to Port Metro Vancouver, and upon request to Environment Canada, in relation to the implementation of the AMS. The SAC is composed of three scientists, one appointed by Environment Canada (Dr. Teri Sutherland, Research Scientist, Fisheries and Oceans Canada (FOC)), one appointed by Port Metro Vancouver (Mr. Rowland Atkins, M.Sc., P.Geo. Senior Geomorphologist, Golder & Associates), and a third selected jointly by Environment Canada and Port Metro Vancouver to chair the committee (Dr. Ron Ydenberg, Professor of Biological Sciences, SFU). All three of us have extensive experience on these mudflats. It is important to note that we do not represent either our employers or the agencies that appointed us. We were appointed as members of an independent technical committee set up by Port Metro Vancouver to review the AMS reports, and to help steer the 'adaptive' part of the management process.

The SAC was appointed and began work in spring 2007, just after the AMS was established and the monitoring program was initiated. The SAC has provided a response to the 2007 Annual Report in a letter dated January 21, 2009. In addition, the committee toured the DP3 site following a meeting with the Hemmera consultants on February 3, 2009, to familiarize the committee with the first-hand progress of the construction and monitoring process. The SAC's work related to the 2008 AMS program included meetings to review drafts of the 2008 quarterly reports (June 26, 2008, January 8, 2009 and February 3, 2009), conference calls to discuss the field program (October 17, 2008 and May 8, 2009), a meeting to review the draft 2008 Annual Report (June 17, 2009), and a conference call to review the revisions to the draft Annual Report (August 31, 2009). The final 2008 Annual Report was released on September 30, 2009.

#### **RESPONSE TO THE ANNUAL REPORT**

Inevitably, some will charge that this Annual Report is untrustworthy because it was written by the same consultant who collected the data (and who incidentally also wrote the AMS work plan). Though the committee does not share it, the SAC understands the reasons for this skepticism. It is part of the reason that an independent advisory committee was established in the first place. The Annual Report is a public document (available at the web site given above) and the committee encourages anyone with concerns to take some time to peruse it. The SAC would be happy to answer questions or assist with the technical details. The committee has inspected closely all the procedures used in the monitoring program, and have recommended alterations to the current methodologies and study design to create a balanced program. In addition, SAC has requested extra work on scores of details associated with data collection and presentation for a variety of environmental parameters. Hemmera is to be commended for their responsiveness to and co-operation with most of these requests.

Stated very broadly, the 2008 Annual Report identifies no emerging adverse

environmental trends. The SAC by and large is in agreement with this assessment. The SAC is mindful that the report contains a massive amount of detail covering only two complete seasonal cycles, and the committee hastens to add that there are a few issues that will get close scrutiny in the next years of the AMS. Therefore, there are also a number of important caveats. We summarize all of this here briefly with the following five points. Full details are available in the Annual Report.

1 The pattern of erosion and sediment deposition in the intercauseway area appeared normal for the year. The drainage channels which formed in the C-shaped alcove of the DP3 site during construction were reviewed onsite by the SAC in February, 2009, and documented in the 2007 Annual Report. These channels appear to have stabilized and are being closely monitored at a higher resolution. The quarterly monitoring data from 2008 supports this assessment of the channels. Continued measurement of the crest protection structure through 2008 has indicated that the issues raised by the SAC in 2007 regarding the stability of the structure appear to be related to the measurement methods used and not related to erosion of the structure. These two areas will continue to be watched closely by the SAC through 2009. The expanded AMS program for 2008 has measured these attributes and provided more information.

2 The vast majority of the surface water and sediment quality measures in 2008 were well within guideline levels, but those who bother to work systematically through the data will find instances sprinkled throughout in which some measurements either exceed the guideline, or are higher by more than 20% (the agreed upon 'trigger' level) than the previous level. The SAC has reviewed and considered these instances in detail. In general, the pattern of these exceedances leads us to suspect that DP3 construction is not the cause. Persistently high values (e.g. boron) may be explained in the regional context. Copper and zinc values remain high, as they did in 2007, at one sample station, but we remain confident that these metals are related to a land-based drainage ditch that feeds into the intercauseway system. Other measures show a pattern of episodic fluctuations, either spatially or temporally, and none appear persistent.

3 The program has added to the already extensive, historical information on the eelgrass bed and the avian community around the mudflat. Both appear healthy through 2008. By comparison, the broader scientific community knows far less about the benthic community on the mudflat. The SAC requested enhancements to the benthic community sampling program for 2008 and these were adopted by the VFPA and their consultants. The SAC anticipates being able to say more regarding potential changes to the benthic community once a third year of data has been collected.

4 The most important caveat to these preliminary results is that this is the second year of the AMS monitoring program: the SAC is aware that continued

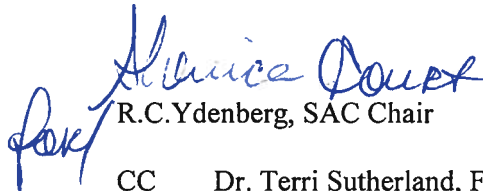
monitoring into 2009 and beyond might tell a different story. Some of the fluctuations the committee has observed appear simply to be seasonal in nature. We shall be able to say more as more data are collected.

5 'Adaptive Management' refers to the procedure of adjusting management as information comes in so that more can be learned. For this reason the SAC recommended and considered a number of changes in both 2007 and 2008 which are reflected in the differences between the 2007 and 2008 Annual Reports. The committee anticipates reducing effort in some areas of study in 2010 (contingent on 2009's results), in order to be able to increase effort in other areas. The SAC feels that the changes incorporated into the program have been a prudent reallocation that will obtain more information for the resources available.

Those involved with providing scientific services in the service of public policy know that for science to play a responsible role, it is necessary to win the trust of all sides around an issue. Therefore, it is essential to pose questions as fairly as possible, to frame answers as accurately as possible, to maintain a neutral stance with respect to the outcomes that various stakeholders may prefer, and especially to avoid public statements before there are adequate supporting data. In our view, there are not as yet enough data to support definitive statements. We therefore stress the caveats issued with the above statements, and remind you that we are engaged in a learning process.

Any member of the SAC would of course be pleased to answer your questions.

Sincerely

  
R.C. Ydenberg, SAC Chair

CC Dr. Terri Sutherland, FOC  
Mr. Rowland Atkins, Golder Associates