CONDITION-BASED MAINTENANCE CONSORTIUM

CONDITION-BASED MAINTENANCE: MODELS & SOFTWARE

PRINCIPAL INVESTIGATOR:
Professor Andrew K.S. Jardine

REPORT

from the CBM Laboratory for
Consortium Meeting

Tuesday, June 6th, 2006
9:00 a.m. - 4:00 p.m.

Hilton Garden Inn
2774 South Sheridan Way
Oakville, Ontario

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Executive Summary for CBM Consortium Meeting, June 6, 2006

Introduction

The following report summarizes work undertaken between Consortium members and the CBM Laboratory since the December 2005 meeting on the project *Condition-Based Maintenance Optimization: Models and Software*.

CBM Lab Staff and Students

I am pleased to report that three new graduate students will be joining the lab in September: Tianqiao (Tanya) Tang, Kelly Kinahan, and Sharareh Taghipur. Tanya completed her MASc in the CBM Lab in 2003, and has been teaching at Beijing Jiaotong University. Graduate student Jean-Paul Haddad, who began his PhD program in September 2005, has left to pursue other interests. We expect Ali Zuashkiani and Darko Louit to complete their doctoral programs this year.

CBM Lab Activities

An overview of the activities in the CBM Lab for the period December 2005 – June 2006 is:

Doctoral student Diederik Lugtigheid continues his work at Komatsu in Tokyo, Japan on repairable systems and presented his 3rd year research seminar in May. Ph.D. student Ali Zuashkiani has submitted his doctoral thesis for his Departmental defence. Ph.D. student Darko Louit continues to work on the problem of spare parts provisioning and successfully presented his third year Ph.D. thesis seminar last December.

Doctoral candidate Tommie Lindquist from the Royal Institute of Technology (KHS), Sweden, completed a 6 month research visit at the lab in March. His work on diagnostic techniques for estimating the condition of electrical insulation of PILC cables at Dofasco is included in this report. We have since welcomed Dr. Rodrigo Pascual from the Department of Mechanical Engineering at the University of Chile, who will be with us for 5 months. His work with Darko Louit on "Optimal inspection intervals for redundant protective systems with imperfect inspections and periodic overhauls" is also included in this report. Most recently, we also welcomed Dr. Melinda Hodkiewicz from the School of Mechanical Engineering at the University of Western Australia – here with us for a 3-month research visit to work with Daming Lin and Murray Wiseman on the NSERC I2I project.

The Lab is currently involved in the following projects with our companies:

- Collaboration with ABB and OMDEC in the development of a demo test rig.
- Continued collaboration with MOD UK on their diesel engines dataset, and a new project commenced on helicopter gearboxes.
- Continued collaboration with Syncrude and their complex dataset on diesel engines with oil analyses.
- Installation of EXAKT presently being undertaken at Irving Pulp and Paper in collaboration with CSI.

Collaborations with Consortium Members

It is a pleasure to see the presentations about the CBM Laboratory's collaborations with Syncrude, MOD, Dofasco, Irving Pulp & Paper, and Teck Cominco.

The International Maintenance Excellence Conference, November 1-3, 2006

As part of the Physical Asset Management Initiative at the University of Toronto the University is organizing IMEC 2006. Steve Allen has again agreed to serve as a member of the Advisory Committee and will brief Consortium members on the current development of the conference plans.

Future

Because of the interest of Consortium members and that of doctoral student, Darko Louit, we are still developing a proposal to submit to NSERC for a Collaborative Research Grant, to enable us to place additional emphasis on the topic of spare parts provisioning- especially for expensive, long life, and highly reliable assets. To make that submission we will be seeking support from several Consortium members.

We have an excellent team of CBM Lab staff and students. All are excited about the future development of our research activities. As is always stressed, to continue such activities requires continuing close collaboration and contact with CBM members. We value what has been achieved and are confident that we can maintain the support of members through the excellent staff and students committed to the research program funded by members, OCE (MMO) and NSERC.