

VIMS-Industry Partnership Meeting
October 29, 2010
Notes

Present: Bill Bean, Fran Bradford, Russell Burke, Carrie Cantrell, Jay Diedzic, Doug Dwoyer, Carl Friedrichs, Jim Golden, Steve Kaattari, Sara Kampfe, Jen Kostyniuk, Rick Lally, Mike McBeth, Doug Meredith, Ron Monark, Tolar Nolley, Paul Panetta, Joe Rose, Mark Shmorhun, Leonard Sledge, Gregory Stringfield, Gene Tracy, Mike Unger, Lyle Varnell, Bill Wasilenko, Bob Williams, John Wells

Notes from our meetings and some presentations are posted at:

<http://www.wm.edu/offices/economicdevelopment/regionalprojects/chesapeakebay/vimsinduspartner/index.php>. The presentations from this meeting by Steve Kaattari (Immunosensors), Ron Monark (Entrepreneurship Center), Joe Rose (Coastal PreCast Systems) and Mark Shmorhun (Applied Process Technology International) have all been posted at that link.

1. **Introductions**

- a. We met for the first time in Room AB just to the right of the main entrance to Watermen's Hall, because attendance has been growing and we were overflowing the conference room. We had 27 at this meeting.
- b. Carrie Cantrell, Deputy Secretary of Commerce and Trade, represented Secretary Jim Cheng at this meeting, continuing a long connection between that office and our Partnership. Former Secretary Mike Schewell helped found the organization in 2003.

2. **VIMS Update - John Wells**

- a. John reported meeting with Deputy Secretary of Technology Karen Jackson.
- b. He felt there were many potential connections with her office and he suggested that we invite her to a future VIMS-Industry meeting.

3. **New Entrepreneurship Center in the Mason School of Business – Ron Monark**

- a. Mark provided an overview of the new Center's scope and initial plans, which reach beyond the formal curriculum to include angel meetings, an entrepreneur in residence, venture forum meetings, internships, field consultancies, connections to alumni and their employers, certificate programs, special training and a W&M entrepreneurship network.
- b. Mark highlighted a program on February 5 for veterans in transition from the military to help them start businesses. Deputy Secretary Carrie Cantrell noted that the program was right in line with Governor McDonnell's priorities and offered to assist.
- c. The Center should provide an excellent resource for VIMS-Industry partners.

4. **Immunosensors: New Applications, Technologies, and Future Collaborations – Steve Kaattari (VIMS Environmental and Aquatic Animal Health)**

- a. Steve reported on several efforts that have been made to use immunosensors in real-time detection. He mentioned earlier work on TNT detection with ONR. He summarized the NOAA CICEET project in 2007-2009 that used sensors for Polycyclic Aromatic Hydrocarbons (PAHs) at hot spots in the Elizabeth River developed from creosote and oil spills. In that project, Mike Unger and his team deployed sensors from boats that circled an active dredging site. Data from the sensors were relayed to the shore to permit real-time assessments of the PAH levels that could be used to stop dredging if levels rose too high.
- b. Steve summarized a recent project to assess the presence of PAHs in highway storm runoff near the Coleman Bridge. Students developed a series of samples to show changes over time.
- c. The European Space Agency is developing an ExoMars project that will deploy a Rover type vehicle on Mars. Probes will be used to identify material at the molecular level. Immunosensors, including VIMS PAH antibodies, will be deployed to look for indications of life.
- d. Steve reported collaboration with the ODU BioMicrofluids Lab in the area of Surface Plasmon Resonance (SPR), combining their circuit expertise with VIMS techniques for getting antibodies on chips. This could lead to deployment of sensors based on a flow of water (or plasma) over an SPR switching device to provide real-time analysis of the presence of targeted substances. Such devices could be valuable in environmental water sampling or in medical applications.

5. **Update on the Chesapeake Bay Algae Project (ChAP) – Gene Tracy (W&M Physics)**

- a. Gene provided a quick overview of the scope of the project and participating partners. The project seeks to turn pollution into fuel. Statoil has provided \$3 million for the research. The major goals are to:
 - i. Deliver design criteria to Statoil for the development of off-shore algae farms;
 - ii. Remediate environmental impacts; and
 - iii. Investigate other by-products
- b. Algal growth is very efficient compared to other energy sources. Growth in the water has the major advantage of freeing land for other uses, and gaining scale that cannot be achieved on land.
- c. The Department of Energy has provided \$625,000 for research from August 31, 2010 to July 14, 2011 to explore issues including the impact of pulsed flow on algal growth.
- d. Status of the Statoil project. The twelve-month goals are to:
 - i. Develop engineering-ready design criteria for scalable, in-water growing and harvesting;
 - ii. Develop conceptual designs of alternatives, and
 - iii. Integrate environmental remediation and by-product research

- e. The project organization includes a steering committee (Statoil, Blackrock, VIMS, W&M main campus) and three teams – cultivation, characterization and ecology; in-water design; and fuels and processing.
- f. Some highlights from the design team
 - i. They are using rapid prototyping cycles – 4 in the last year and two more by next May.
 - ii. Vertical growth in the water has numerous advantages and results so far have been very encouraging.
 - iii. The platforms being tested are getting larger and sturdier, permitting deep water structures.
 - iv. The teams are testing systems in a variety of salt and fresh water areas.
 - v. The Constellation, Crane Island coal-fired plant provides new opportunities.
 - vi. The projects are leveraging insights from local suppliers (welding, screens), university professors funded from other sources, student interns, and student volunteers.

6. Overview of Coastal PreCast Systems (CPS) www.cpsprecast.com – Joe Rose

- a. CPS has 150 employees and a plant on the Elizabeth River. They produce a variety of pre-cast concrete structures – housing, dock structures, bridge supports, and so forth.
- b. Marine pre-cast products include piles, deck slabs, and pre-cast caps for piers. They have done work on the APM terminal, several piers for the Norfolk Navy Base and the Northrup Grumman Pier 3.
- c. Marine restoration projects include breakwaters, ready-reef technology and recreational fishing structures. They have deployed a biogenic breakwater on their own Elizabeth River bank to stop erosion.
- d. Tolar Nolley, Oyster Company of Virginia (www.oysterva.com), described plans to use CPS Reeftek modules to help repopulate the Bay with native oysters. He thought there was an opportunity to work with VIMS in monitoring use and evaluating outcomes.

7. Introduction to Applied Process Introduction to Applied Process Technology International (owner and licensor of Delta-T technology), www.apt-int.com – Mark Shmorhun

- a. APTI is a subsidiary of the Dutch company Bateman Litwin. They purchased the technology assets of the Delta-T Corporation in February 2010.
- b. They are a local company with over 30 engineers and process designers. They are growing their international business. The U.S. has limited the use of corn capacity to support additional ethanol production, but foreign mandates will continue to drive applications of first generation technologies in those areas.
- c. Their technology is licensed to 40 ethanol facilities. They are very good at ethanol dehydration technology needed to get the last four percent of water out of the product.
- d. They worked with VIMS researchers in the early stages of algae feedstock evaluations.

- e. They would be happy to discuss future collaborations around algae or other stocks. They could be helpful in deploying production systems.

Next meeting – Friday, February 18, 10-noon. Room A/B, Watermen’s Hall, VIMS