

# Idaho Incubation Fund Program

## Quarterly Progress Report Form

Report dated December 15, 2011 for 2<sup>nd</sup> Quarter: Oct-Dec 2011

**Proposal No.** IF12-001  
**Name:** Warren Barrash  
**Name of Institution:** Boise State University  
**Project Title:** Device for Subsurface Environmental Monitoring, Ready For Prototype

### Information to be reported in your progress report is as follows:

1. Provide a summary of project goals/milestones for the period just completed, accomplishments for the period just completed, and plans and goals for the coming quarter:

A. Goal: Modular Hydraulic Packer and Port System (MHPS) Prototype development.

A.1. Previously reported in quarter 1 that the MHPS was performing well in field research applications with some minor leaks. In quarter 2 we conducted post-summer evaluation and testing of prototypes with custom components from COAS and TechHelp, including: assembly and testing with student assistance at staging facility and in lab; recognition of minor leaks due to incomplete solvent welding; testing in wells at research wellfield (Boise Hydrogeophysical Research Site) including testing of two types of rubber-synthetic-blend packer sleeve types that are more contamination resistant than gum rubber.

A.2. Interaction with Solinst Inc. (primary target for sublicensee): including continued technical interaction on materials, sources, testing strategies.

A.3. Modifications; working closely with TechHelp at Boise State for design and prototype improvements, including: shape guide inside packers to maintain roundness when uninflated (significant); tube connectors for easy connecting and disconnecting of tubes and stoppers while keeping 12 connections (significant), and making a simple inexpensive tool to assist with depression of release mechanism; design and fabricating new collars with full-tube-diameter passageway and flush internal connections (significant); seals reset to address minor leaks; first-round prototypes ready for field testing (see A.1) and ready to send to potential licensee (significant)

B. Goal: Business development for MHPS and new consulting company (Barrash)

Cardiff & Kitanidis LLC [BC&K] ) formed in Idaho in project quarter 1 to market the MHPS and hydrologic and to provide hydrologic engineering services using the MHPS. Tasks identified in the project proposal are discussed below.

B.1. Completion of documents for US patent and filing by patent attorneys in association with BSU by October 2011: See 3. below for US patent filing by patent attorneys on the MHPS on September 14, 2011. Also, see 4. below for details of International Patent Cooperation Treaty (PCT) application filed by patent attorneys for the MHPS on November 16, 2011.

B.2. Development of license agreement with BSU to market the MHPS by January 2012: Meetings have been held with Mary Givens to develop a draft agreement between BSU and BC&K for a license to market and/or sublicense the MHPS. BC&K is working with tech transfer consultant Tom Harrison of The Harrison Group to help finalize this agreement.

B.3.A. Business plan development and continued market assessment throughout the project period: Consultation with Kevin Learned at the Idaho Small Business Development Center resulted in additional business start-up assistance concept for a near-term consulting project by BC&K using the MHPS and developing a track record for the advanced method developed by BC&K in on-going research.

B.3.B. To accomplish B.3.A. without having to prematurely capitalize and fully develop BC&K, we have started planning for service contracts (vs research grants) with Mary Givens (Tech Transfer), Lisa Jordan (Contract Administrator, OSP), and Lisa Nelsen (Grants Administrator, OSP) to use MHPS and other specialized research equipment with new method as university research and development applications and continue to train students while gaining practical experience with the method and equipment in real-world setting(s).

B.4. Business plan development and continued market assessment throughout the project period: MHPS marketing and BC&K consulting business were accepted as a project for development of a business plan by students at Boise State in Entrepreneurship Management course ENTREP 420 (New Venture Creation). Interaction with student team throughout the semester resulted in a business plan presented by the student team before a panel of external experts on December 9, 2011.

B.5. Business plan development and continued market assessment throughout the project period: Barrash and Cardiff continue to publish on the new method and use of the MHPS in the best peer-reviewed journals, and continue to make presentations at national and international professional conferences and symposia that highlight the MHPS and the new method for subsurface characterization that is the basis for BC&K consulting plans. In particular, Barrash presented at the Annual SERDP-ESTCP Symposium in Washington DC Nov 29-Dec 1 which attracts more than a thousand attendees from federal and state agencies, contractors, and academics

dealing with groundwater contamination and seeking new equipment and methods to reduce costs and risks for cleanup. Cardiff presented at the American Geophysical Union Annual Meeting in San Francisco (16,000 scientists and engineers attend from all over the world) during Dec 5-9. Participants from appropriate sectors expressed interest and some follow-up opportunities for collaborative research and possible service contract projects were identified and are being followed-up.

B.6. Business plan development and continued market assessment throughout the project period: Meeting October 6, 2011 all day with Maxim Vachon-Savary (Product Line Manager) from FISO Technologies, developer and manufacturer of small-diameter fiber-optic pressure transducers used with the MHPS for hydrologic testing. We discussed incremental modifications to prototype transducers we have been using, and we discussed development of new transducers to use with the MHPS for direct in-situ measurements of water quality parameters needed for groundwater monitoring and remediation.

B.7. Negotiation with and possible formalization of agreements with North American commercial partner(s) by July 2012. We contacted initial target company Solinst with the offer to send current-state prototypes (which we believe are close to commercial status) to them for review and testing as a prelude to sublicense negotiations. Solinst requested review of patent filing before receiving example prototypes and entering negotiations. After review, they said the MHPS different enough from their current lines. Next – two point strategy to develop an agreement with a licensee: (1) We are making initial inquiries with RocTest (also hydrologic and hydrologic engineering equipment manufacturer and distributor, parent company of FISO Technologies), and (2) we are discussing strategies for sublicensing with consultant Tom Harrison.

### C Plans for quarter 3:

Continued MHPS testing and improvements, including solicitation of comments and suggestions by potential sublicensees and working with TechHelp for design, specifications, materials, next-generation prototypes

Finalize license agreement between Boise State and BC&K; continue working with consultant

Continued efforts to identify and enter agreement(s) with sublicensee(s) for manufacture, marketing, and sales of MHPS; continue working with consultant

Continued efforts to refine business plan; continue working with Mary Givens and Kevin Learned

Continued efforts to develop applications at "real" sites for MHSP and subsurface characterization method using MHPS (with new proposals to research funding

agencies and with new service contracts by marketing to federal agencies with contaminated sites having high cost-and-risk liability and to site contractors at real sites)

Continued efforts to expand instrumentation applications with MHPS ( e.g., working with FISO [fiber optic transducer company] and perhaps others)

Continued presence in professional information outlets (e.g., peer-reviewed papers in the best/most-influential journals, etc)

2. Provide a summary of budget expenditures for the period just completed:

In the second quarter, \$7,012 in salaries, \$1,650 in fringe benefits, and \$4,425 in OE (\$98 in computer services, \$4,293 in design review and prototyping, and \$34 in supplies).

3. List patents, copyrights, plant variety protection certificates received or pending:

Patent application title: Modular Hydraulic Packer-and-Port System was filed on 09/14/2011 with the USPTO as Serial No. 13/232,876.

4. List invention disclosures, patent, copyright and PVP applications filed, technology licenses/options signed, start-up businesses created, and industry involvement:

(a) PCT Application Filed – No. PCT/US2011/061032 – Corresponding to US Application No: 13/232,846 – in the U.S. Patent and Trademark Office on November 16, 2011

Title: Modular Hydraulic Packer-and-Port System

(b) We (BC&K) are negotiating with Mary Givens, Director of Technology Transfer at Boise State, to acquire the exclusive patent and technology license agreement for the MHPS. To assist with this negotiation, BC&K has hired a technology transfer consultant (Tom Harrison of The Harrison Group).

5. Include funding burn rate:

The burn rate for the first two quarters amounts to 41% of available funds being expended. At the end of the first quarter, 14% of the total funds had been expended with an additional 27% being expended in the second quarter.

6. Any other pertinent information: