

KANSAS DOT RESEARCH PROJECTS QUARTERLY PROGRESS REPORT

Lead Agency (University or Contractor): _____ Kansas DOT _____

INSTRUCTIONS:

Project Managers and/or research project investigators should complete a quarterly progress report for each calendar quarter during which the projects are active. Please provide a project schedule status of the research activities tied to each task that is defined in the proposal; a percentage completion of each task; a concise discussion (2 or 3 sentences) of the current status, including accomplishments and problems encountered, if any. List all tasks, even if no work was done during this period.

KDOT Project Number RE-0617-01	Transportation Pooled Fund Program - Report Period: <input checked="" type="checkbox"/> Quarter 5 (January 1 – March 31, 2014) <input type="checkbox"/> Quarter 6 (April 1 – June 30, 2014) <input type="checkbox"/> Quarter 7 (July 1 – September 30, 2014) <input type="checkbox"/> Quarter 8 (October 4 – December 31, 2014)	
Project Title: Real-Time Quality Control Monitoring and Characterization of Aggregate Materials in Highway Construction using Laser Induced Breakdown Spectroscopy		
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Project Investigator: Warren Chesner Phone: 516-431-4031 E-mail: wchesner@chesnerengineering.com		
Lead Agency Project ID: RE-0617-01	Other Project ID (i.e., contract #):	Project Start Date: TBD
Original Project End Date: TBD	Current Project End Date: TBD	Number of Extensions: 0

Project schedule status:

On schedule
 On revised schedule
 Ahead of schedule
 Behind schedule

Overall Project Statistics:

Total Project Budget	Total Cost to Date for Project	Total Percentage of Work Completed
\$975,000	\$196,362.	20.1%

Quarterly Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter
\$975,000	\$65,213	6.7%

Project Description:

The primary objectives of this research effort is to further calibrate laser-spectral models to develop the means to monitor aggregate materials from participating State agencies, and to demonstrate the use of the technology in actual field applications. The overall objective is to transition the technology from a lab-based application to a field based system. Testing of aggregates and the calibration models developed in the NCHRP 150 research effort were accomplished using a laboratory-based laser-optical system. The proposed pooled fund work plan is designed to transition the technology from the laboratory to the field through the calibration, deployment and demonstration of the technology at selected field demonstration site(s). As part of the NCHRP 168 project, a field prototype sampling and laser targeting system field prototype, referred to as the SLT system (Sampling and Laser Targeting System), is under development for use in the pooled funding effort. The SLT system is a bulk sampling and laser-targeting system that is designed to analyze a diverted portion of the bulk material by passing target aggregate material passed a laser that is strategically located to provide for continuous or semi-continuous monitoring of the bulk aggregate stream. Diversion of samples of the bulk material into the SLT system is designed to remove the aggregate from the bulk stream during material transport, such as conveying. This material diversion provides the means to minimize interferences that would be encountered in an in-line monitoring system, without diminishing the effectiveness of the laser monitoring system to obtain large quantities of data necessary to properly characterize the targeted material. It also provides the means to ensure safe operation of the laser by enclosing the entire system in a separate sealed housing disconnected from the main bulk material conveying system, thereby ensuring a contained and safe operation. The SLT can be deployed in a laboratory environment as well where buckets of samples are periodically introduced for analysis or in a continuous or semi-continuous field operation where materials are diverted from a conveying operation to the SLT for analysis.

Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):

During this quarter aggregate samples were received from all five participating States (Kansas, Ohio, New York, Oklahoma and Pennsylvania. Testing continued on South Bethlehem Quarry samples in New York State and Kansas samples were successfully calibrated for D-cracking. Optical laser alignment problems were encountered in February and the SLT was taken off line in March for troubleshooting. The problem was identified and the system is now undergoing modifications to resolve the problem. It is anticipated that the system will be back on line May 1.

Anticipated work next quarter:

Remedial hardware and software modifications will be made to the SLT, and testing will resume on State sample analyses.

Significant Results:

A portion of KSDOT samples were successfully calibrated for D-cracking. Optical laser train alignment problems were encountered forcing a system shutdown and modifications to reinforce the optical train supporting structure...

Circumstance affecting project or budget. (Please describe any challenges encountered or anticipated that might the completion of the project within the time, scope and fiscal constraints set forth in the agreement, along with recommended solutions to those problems).

None at this time, but schedule could be impacted in the future due to system modification Requirements.