

Contract Number: OASRTRS-14-H-UARK
Quarterly Report Progress Report Number: 2
Quarter Start and End Date: January 1, 2015 – March 31, 2015
PI Name: Richard A. Coffman
Program Manager Name: Caesar Singh

2. Table of Contents

Glossary of Terms	1
Executive Summary	2
Section I – Technical Status	3
Accomplishment by Milestone	3
Problems Encountered	4
Future Plans	4
Section II – Business Status	5
Advisory/Steering Committee Meeting	7
Conference Proceedings/Publications	8
Appendix for Quarter	9

3. Glossary of Terms

AEEG	Association of Environmental & Engineering Geologists
Co-PI	Co-Principal Investigator
GRA	Graduate Research Assistant
MTU	Michigan Technological University
PI	Principal Investigator
TAC	Technical Advisory Committee
TDiAL	Topographic Differential Absorption Lidar
UGRA	Under Graduate Research Assistant
USDOT	United States Department of Transportation
USGS	United States Geological Survey
UofA	University of Arkansas

4. Executive Summary

The Technical Status and Business Status of the OASRTRS-14-H-UARK Contract are presented herein. Specifically, the work completed during the second quarter of the federal fiscal year (January 1, 2015 through March 31, 2015) are presented and discussed. No deliverables were scheduled for completion during this quarter. The previous deliverables that were due within three months of the project start date were completed; these deliverables included: 1) development of TAC, 2) development and maintenance of a project website, and 3) quarterly reports. Several activities were also completed in association with the deliverables that are forthcoming and are due within nine and twelve months of the project start date. These activities included: 1) acquisition of required parts for the “ground based remote sensing device”, 2) preparation of the “implementation plan, fee structure, and utilization rate report”, and 3) preparation of the “users manual for the ground-based remote sensing device report”

A total of \$9,399.81 of USDOT funds were expensed during the quarter. A total of \$60,268.23 of cost-share (UofA) were expended during this quarter. For this quarter, the UofA did not receive an invoice from MTU, so any costs associated with the work performed by the personnel at the Michigan Technological University, during this quarter for this project, were not included.

Orders were placed for the equipment associated with the ground-based remote sensing device (Activity 3). Several of the pieces of equipment and other associated parts for the devices (Data Physics, PicoEnvirotec) were delivered and preliminary analyses are currently being performed using the equipment. The final pieces of equipment that are required to complete the ground-based remote sensing device (lasers from Newport) are expected to be delivered during the third quarter of the fiscal year (April 1, 2015 through June 30, 2015).

5. SECTION I — TECHNICAL STATUS

Accomplishments by Milestones

Activity 1: Formation of TAC

The TAC was developed (as reported to Caesar Singh and Vasanth Ganesan on November 24, 2014). In accordance with Deliverable 1 that was due within the first three months of the project, the committee met on December 12, 2014 in Denver, Colorado.

Activity 2: Development of Website, Implementation Plan, and Service Provider

A website was developed for the project (<https://wildfire-landslide-risk-dss.uark.edu>). In accordance with Deliverable 2 (and as reported to Caesar Singh and Vasanth Ganesan on November 24, 2014), the website was posted online within the first three months of the project. The official launch of the website was at the TAC Meeting on December 12, 2014. The development of the implementation plan and service provider are underway. The “Implementation Plan, Fee Structure, and Utilization Rate” report is due within 12 months of the project start date.

Activity 3: Development of a Ground-based Remote Sensing Device

The equipment required for the ground-based remote sensing device has been ordered. Upon arrival, the equipment will be assembled and the device will be tested. Several of the pieces of required equipment have already been received and laboratory testing, utilizing the equipment on soil samples, has begun. The “Users Manual for Ground-based Remote Sensing Devices” report is due within the first twelve months of the project. Likewise, the “Development of a Ground-based Sensing System for Collecting Data to Determine the Amount of Risk to Transportation Infrastructure Following Wildfires” report is due within the first 12 months of the project start date.

Activity 4: Collection of Data/Creation of Databases

A conference call with the members of the TAC that was planned to occur during Quarter 2 did not occur. As mentioned in the previous quarterly report, the call was intended to aid in determination of the sites that will be tested during this project. Because the project team has decided to develop the probabilistic decision support system (Activity 5) based on the USGS intermountain and California models, the team has decided to delay the selection of sites until the probabilistic decision support system is operational.

All of the papers containing data that have been used to develop the USGS probabilistic model have been acquired and placed into a spreadsheet. These data will serve as the preliminary data for the database of remotely sensed properties. The actual “Database of Remotely Sensed Properties” will be demonstrated and reported with 18 and 21 months, from the project start date, respectively.

Activity 5: Development of a Probabilistic Model Decision Support System

The development of the probabilistic decision support system is ongoing. Based on early results, the modification of the current USGS models has provided promising results. “The Development of a Remote Sensing Based Decision Support System to Determine the Amount of Risk to Transportation Infrastructure Following Wildfires” demonstration and report are due within 19 to 24 months from the project start date, respectively.

Activity 6: Report on the Progress of the Project

This quarterly report is the second in a series of quarterly reports. No TAC meeting was held during this quarter. As more data become available, the results will be rapidly disseminated utilizing the website. Moreover, the results obtained from the modification of the current USGS models are being evaluated and at least one paper will be written based on the results. Likewise, the results from testing with the laboratory- based TDiAL prototype will also be summarized and a paper will be written on these results. “The Remote Sensing Assessment System for Evaluating Risk to Transportation Infrastructure Following Wildfires” report is due within 24 months from the project start date, respectively.

Problems Encountered

As mentioned in the previous quarterly report, the cost for the modifications to the Gamma Remote Sensing device were quoted in currency of the Swiss Franc. With the volatility of the Swiss Franc value, the cost of the device may fluctuate from the initial cost estimate.

Future Plans

Two deliverables are required to be submitted during the next quarter. These include 1) a quarterly report, and 2) a demonstration of the ground-based remote sensing device. Progress toward these two deliverables will be made during the next quarter.

6. SECTION II — BUSINESS STATUS

As shown in Table 1, the amount of time that was allocated for the project and the amount of time that was expended on the project are documented. The number of expended hours that are reported in Table 1 were associated with time spent in: weekly meetings (PI and the GRA); bi-weekly meetings (PI, the GRA, the Co-PI, and the Co-PI's GRA); maintaining the website; ordering equipment; collecting data with the new equipment; collecting data related to the probabilistic model; analyzing the probabilistic model; preparing the quarterly report.

Although a UGRA was selected to begin work on the project until January 1, 2015, the UGRA underwent training during this quarter. Therefore, the allocated hours were not expended to the project. It is anticipated that the allocated hours for the UGRA for Quarters 1 and 2 will be expended in Quarter 3.

Table 1. Hours allocated and expended.

Quarter 2	USDOT Allocated (Hours)	UofA Allocated (Hours)	USDOT Expended (Hours)	UofA Expended (Hours)
PI -Website		10		10
PI – Ground Based Device	24	46	24	46
PI – Data Collection		10		10
PI –Quarterly Report		8		8
GRA – Quarterly Report	20		20	
GRA - Website	10		10	
GRA – Ground Based Device	200		200	
GRA – Data Collection	30		30	
GRA – Data Reduction	40		40	
UGRA - Website	20		0	
UGRA - Ground Based Device	80		0	
UGRA – Data Collection	20		0	
Admin - Website	21.7		21.7	

Based on the number of hours expended, the level of effort that was expended by personnel from the University of Arkansas is 100 percent for the PI, 100 percent for the GRA, 0.0 percent for the UGRA, and 100 percent for the Admin.

As shown in Table 2, the amount of funds that were allocated for the project and the amount of funds that were expended on the project are documented. Several of the funds that were allocated for equipment during Quarter 1 were not expended because the equipment has not yet been delivered. Likewise, Michigan Technological University has not yet invoiced the University of Arkansas, so these funds have not been expended. It is anticipated that these non-expended funds will be expended during upcoming Quarters.

Table 2. Funds allocated and expended for Year 1.

Quarter 2	USDOT Allocated Year 1 (\$)	UofA Allocated Year 1 (\$)	USDOT Expended (\$)	UofA Expended (\$)
Salaries	67,410.00	15,126.00	9,818.25	12,889.88
Fringes	2,470.00	3,872.00	363.28	3,146.25
Supplies	6,750.00	3,825.00	990.59	0.00
Travel	3,250.00	0.00	0.00	3,794.84
Other	0.00	75,000.00	0.00	0.00
Indirect	21,400.00	0.00	4,471.73	0.00
Tuition	0.00	8,148.00	0.00	4,115.87
Subcontract	54,788.00	0.00	0.00	0.00
Subcontract Indirect	21,174.44	0.00	0.00	0.00
Equipment	278,635.00	114,051.00	82,220.05	55,395.99

7. ADVISORY/STEERING COMMITTEE MEETING

No TAC meeting was held this quarter.

8. CONFERENCE PRESENTATIONS/PUBLICATIONS DETAILS BY PROJECT TEAM MEMBER IN UPCOMING QUARTER

Abstracts are being prepared for the AEEG Meeting that will be held on September 24, 2015. The authors and titles of the abstracts are included below.

Kern, A., Coffman, R., Oommen, T., Addison, P. (2015) "Predictive Modeling of Debris Flows Probability Following Wild Fire in the Intermountain Western United States." Association of Environmental & Engineering Geologists Annual Meeting.

Salazar, S., Garner, C., Coffman, R., Oommen, T. (2015) "Ultra-violet Near-infrared Reflectance Spectroscopy for Remote Measurement of Soil Potential." Association of Environmental & Engineering Geologists Annual Meeting.

9. APPENDIX FOR QUARTER

A copy of the receipts for equipment that was ordered/purchased during the quarter are included herein. These receipts are included for equipment from the following manufacturers: Data Physics and Pico Envirotec.

- The Data Physics devices were delivered on December 5, 2014 the charges were encumbered during January 2015.
- The PicoEnvirotec device was delivered on February 19, 2015.

Date	Invoice #
11/21/2014	14US4966

1741 Technology Drive
Suite 260
San Jose CA 95110
United States
(408) 437 0100

2592494

Bill To
Accounts Payable Division University of Arkansas 321 Administration Bldg Fayetteville AR 72701 United States

Ship To
Rick Coffman University of Arkansas 4190 Bell Engineering Center 800 W Dickson Street Fayetteville AR 72701 United States

Terms	PO #	Ship Via	Ship Date
Net 30	816769	UPS Ground ...	11/20/2014

Item	Back Ord.	QTY	Description	Unit Price	Amount	System #
DP240-4C2S	0	2	4 Channel Quattro / SignalCalc ACE Dynamic Signal Analyzer <hr/> Quattro DSPcentric Signal Processing Hardware, four 24 bit Inputs, two 24 bit Outputs, 40 kHz analysis bandwidth <hr/> Software to be provided through the Data Physics University Program <hr/> Data Physics University Program: <hr/> The Data Physics University Software Grant program is designed to provide access to SignalStar and SignalCalc software at no cost to Universities. The University is only required to purchase Data Physics Quattro or Abacus hardware. The software will be provided as an annual grant, licensed one year at a time. In exchange for the software grant, the University will agree to joint publications with Data Physics of Application Notes and/or Technical Papers based on the work at the University with relevance to the application of Data Physics products. As long as the hardware is still in use at the University the license will be renewed free of charge.	8,550.00	17,100.00	21975-6

RECD IDEC 14/11/2014
BUSINESS AFFAIRS

Date	Invoice #
11/21/2014	14US4966

1741 Technology Drive
Suite 260
San Jose CA 95110
United States
(408) 437 0100

Item	Back Ord.	QTY	Description	Unit Price	Amount	System #
			<p>Based on the hardware system purchased, the software offered under this program will consist of three separate bundles:</p> <p>a) The "SignalCalc ACE University Bundle" consisting of all DP240 software-only options.</p> <p>b) The "SignalCalc Mobilyzer University Bundle" consisting of all DP730 software only options.</p> <p>c) The "SignalStar Vector University Bundle" consisting of all DP760 software only options.</p> <p>To qualify for this program, the University must complete the one page "DP University Program Annual Software License Registration Form".</p>			
DP240-00		0	2	0.00	0.00	
<p>These commodities, technology or software are subject to the US Export Administration Regulations. Export, re-export or diversion contrary to U.S. law prohibited.</p>				<p>Subtotal Shipping Cost (UPS Ground Collect) Total</p>		<p>17,100.00 0.00 \$17,100.00</p>



UNIVERSITY OF
ARKANSAS

The University of Arkansas is not exempt from sales /use tax except for those items specifically exempted by State law.

The laws of the State of Arkansas shall govern this Purchase Order..

Purchase Order		
Purchase Order Date	PO/Reference No.	Revision No.
Oct 24, 2014	816064	0
Contact Information		
Contact	Sandra Hancock	
Email	shancock@uark.edu	
Phone	+1 (479) 575-6021	

BUCVEG

26/7/56

Order acceptance instructions:

Complete list of terms can be seen at:

<http://procurement.uark.edu/terms.pdf> Mark all packages and freight documents with purchase order number. Invoice must show purchase order number. The University of Arkansas is not exempt from sales/use tax except for those items specifically exempted by State law. Any change(s) to purchase order must be approved by Procurement prior to shipment. If Federal Funding, including Federal Transit Administration (FTA) funds are used in any procurement by the University of Arkansas, certain contract clauses in UA terms and conditions now apply based on the nature and dollar value of the procurement.

Supplier Information		Delivery Information	
Supplier Name	Pico Envirotec Inc.	Delivery Address	University of Arkansas
Address	222 Snidercroft Rd Concord, Ontario, L4K 2K1 CA	Attn:	Richard Coffman
F.O.B./Freight	Destination	Room:	4190
Supplier Payment Terms	0, Net 30	Bell Engineering Center	800 W DICKSON STREET
		Fayetteville, AR 72701	United States
		Shipping Information	
		Delivery Date	Oct 19, 2014
		Expedite	No
		Ship Via	Best Carrier-Best Way

Notes to Supplier

Attachments for supplier

Final-Pico Sole S... (160k)

Line No.	Product Description	Catalog No.	Size / Packaging	Unit Price	Quantity	Ext. Price
1 of 1	Portable Gamma Ray Spectrometer System controlled by Android based device, integrated GPS navigation and positioning system	PGIS-2-128	1/EA	33,900.00 USD	1 EA	33,900.00 USD

ADDITIONAL INFO

Catalog No.

PGIS-2-128

Unit Price 33,900.00

Taxable	Yes
Capital Expense	No
Commodity Code	41100000 Laboratory and scientific equipment

Invoices must be submitted to the Billing Address indicated below to assure timely payment.

Subtotal	33,900.00
Tax1	3,305.25
Shipping	0.00
Handling	0.00
Total	37,205.25-USD

Billing Information

To avoid payment delays,
invoice must include the
PO referenced above

Contract *no value*
Quote number

Billing Address

University of Arkansas
University of Arkansas
Accounts Payable
321 Administration Bldg
Fayetteville, AR 72701
United States

Wire \$ 27,120
USD
Jones
2/19/15

JE wire fee

cn 0132-12501-23-0000

cat: Equipment

acct# 80574300

Wire Transfer Details Form

In order to process a wire transfer:

For procurement: A check with order requisition must be entered into the BASIS Accounting system.

For travel: Departments must create a TRPO against a valid TA in the BASIS Accounting System.

Please note: A \$15 fee applies for domestic wire transfer and a \$35 wire transfer fee will apply for international wire transfers. In the event that foreign currency is requested, the transfer is subject to the current exchange rate at our bank.

Important: The vendor name on the PO/TRPO must match the account holder's name and address.

The following information is also required to complete the transfer.

Requisition/PO Number or TA Number PO: 816064

Name of Bank Receiving Transfer:

The TD Canada Trust

Bank's Address:

York Region Commercial Banking Centre,

220 Commerce Valley Drive East, Markham, Ontario, Canada, L3T 0A8

Name of Account Holder for deposit of funds:

Pico Envirotech Inc.

Account Holder's Address: 222 Snidercroft Road, Concord, ON L4K 2K1

Routing Information: (ABA/Routing number, Swift Code, IBAN number etc.):

Swift Code: TDOMCATTOR

Account Number for deposit of funds:

Account #: 1085-7306997

Amount and Type of Currency (ex. US Dollars, Euro, etc.): USD \$27,120

Information to be listed in memo field (reference#, invoice# etc.):

Invoice #600630



Pico Envirotec Inc.
 222 Snidercroft Road
 Concord, ON
 L4K 2K1

816064

Invoice

Date	Invoice #
10/23/2014	600630

Invoice To
University of Arkansas Department of Civil Engineering 4190 Bell Engineering Centre Fayetteville, AR 72701, USA Attn. Prof Richard A. Coffman, PhD, PE

Ship To
University of Arkansas Department of Civil Engineering 4190 Bell Engineering Centre Fayetteville, AR 72701 USA

P.O. No.	Terms	Project
Quote LK141008-1...		

Description	Qty	Rate	Amount
PGIS - 2 - 128: Portable Gamma Ray Spectrometer System 20% of USD 33,900.00 that is USD 6,780.00 is required as down payment. THE TD CANADA TRUST YORK REGION COMMERCIAL BANKING CENTRE 220 COMMERCE VALLEY DRIVE EAST MARKHAM, ONTARIO, CANADA, L3T 0A8 SWIFT CODE: TDOMCATTOR ACCOUNT NAME: PICO ENVIROTEC INC. BRANCH: 10852 INSTITUTION: 004 ACCOUNT# 1085-7306997		33,900.00	33,900.00

Total	USD 33,900.00
Payments/Credits	USD 0.00
Balance Due	USD 33,900.00

— 6780 deposit
\$ 27,120.00

Karen M. Jones

From: Sandra Lynn Hancock
Sent: Tuesday, February 17, 2015 10:57 AM
To: Karen M. Jones
Subject: final payment
Attachments: Invoice for University of Arkansas.PDF

Richard Coffman has authorized final payment for the attached invoice. The invoice is the full amount but 20% (as indicated on the invoice) has already been paid. The PO number is 816064. Let me know if you need anything else from me to get this paid.

Thank you.

BOK FINANCIAL SERVICES
INTERNATIONAL BANKING CENTER
ONE WILLIAMS CENTER, 15TH FLOOR
TULSA, OK 74172

INTERNATIONAL WIRE TRANSFER DEBIT

Sender

Name: UNIVERSITY OF ARKANSAS
DEL TO LOCKBOX FOR
CUSTOMER PICKUP

Reference: 150219140622H600

Beneficiary: Pico Envirotec Inc.
222 Snidercroft Rd
Concord, Ontario, L4K 2K1
Canada

Beneficiary Bank: TORONTO-DOMINION BANK, THE
Beneficiary Account : 1085-7306997
Originator to Beneficiary:

University of Arkansas Fayetteville Bell Eng Ctr, Attn: Richard Coffman Portable Gamma Ray
Spectrum System, Invoice # 600630

THE FOLLOWING REPRESENTS YOUR DEBIT UNDER
OUR REFERENCE NO: 150219140622H600 ON 2015-02-19.

WE HAVE DEBITED YOUR ACCOUNT NO: 4867003246
ACCOUNT TYPE: DDA

WIRE TRANSFER AMOUNTS 27,120.00

[encrypt]

The company reserves the right to amend statements made herein in the event of a mistake.
Unless expressly stated herein to the contrary, only agreements in writing signed by an
authorized officer of the Company may be enforced against it.

Invoice ID: UAM ORGBILL 0000000929

Invoice Date: 02/13/2015

Print Date: 02/13/2015

If the Amount Due Now is not paid by the stated Due Date, a penalty charge will be assessed, and a hold placed on your records and campus services. Partial payments will be applied to the previous balance and mandatory fees first.

Amount Due Now: 627.51

Credit Card No.:

Expiration Date:

Signature:

*UPHY # 2617349
Harvey
02/19/2015*

Monticello
University of Arkansas at Monticello
PO Box 3597
Monticello, AR 71656

Detach and Return with Payment

Valerie Harvey
UAF Forestry
School of Forestry
Monticello, AR 71656

Statement of Account for:
300006715 UAF Forestry

Prior Invoice Amt: 427.88

ITEMS Item Number	Item Description Name on Contract	Term/Session Contract ID	Post Date Contract Number	Due Date	Item Amount
000000000000350	Motor Pool	Spring 15	02/11/2015	03/10/2015	408.22 ✓
000000000000352	Check Payment	Spring 15	01/27/2015		-427.88
000000000000353	P Card Clearing Account	Spring 15	02/11/2015	03/10/2015	138.93 ✓
000000000000354	P Card Clearing Account	Spring 15	02/11/2015	03/10/2015	25.25 ✓
000000000000354	P Card Clearing Account	Spring 15	02/11/2015	03/10/2015	12.09 ✓
000000000000355	Warehouse	Spring 15	02/11/2015	03/10/2015	35.82 ✓
000000000000356	Library Copier	Spring 15	02/11/2015	03/10/2015	2.30 ✓
000000000000357	Postage Meter	Spring 15	02/11/2015	03/10/2015	4.90 ✓
Sub Total					199.63

TERM SUMMARY

Item Term	Item Type	Item Amount
Fall 10	Charge	6,695.19
Fall 10	Payment	-5,648.63
Fall 11	Charge	5,532.65
Fall 11	Payment	-5,414.54
Fall 12	Charge	6,007.14
Fall 12	Payment	-11,861.62
Fall 13	Charge	5,524.67
Fall 13	Payment	-5,524.67
Fall 13	Payment	3,662.77
Sum I 14	Charge	-1,998.09
Sum I 14	Payment	8,486.96
Fall 2014	Charge	-8,486.96
Fall 2014	Payment	6,074.33
Spring 11	Charge	-3,921.92
Spring 11	Payment	6,019.67
Spring 12	Charge	-2,786.16
Spring 12	Payment	4,410.79
Spring 13	Charge	-4,584.86
Spring 13	Payment	4,894.88
Spring 14	Charge	

Invoice ID: UAM ORGBILL 000000929

Invoice Date: 02/13/2015

Print Date: 02/13/2015

Spring 14	Payment	-4,287.65
Spring 15	Charge	1,055.39
Spring 15	Payment	-427.88
Sum II 14	Charge	750.71
Sum II 14	Payment	-3,022.62
Summer 11	Charge	3,391.74
Summer 11	Payment	-4,135.31
Summer 12	Charge	4,037.74
Summer 12	Payment	-2,893.18
Summer 13	Charge	2,760.78
Summer 13	Payment	-1,683.81

Grand Total:

627.51
