ISIGHT RPV SERVICES

SAFETY. INTEGRITY. EXCELLENCE

TRANSMITTAL LETTER

Karlene Fine, Executive Director
North Dakota Industrial Commission
State Capitol – 14th Floor
600 East Boulevard Ave Dept 405
Bismarck, ND 58505-0840

Ms. Fine,

Attached, you will find an application to the Oil and Gas Research Council to conduct a project focused on UAS Aerial Observation to Support Oil & Gas Pipeline Post Construction Restoration Efforts in collaboration with the Unmanned Applications Institute, ONEOK and Barr Engineering.

This project will provide high fidelity/clarity images for use in developing signature images of potential problem areas in the creation of an image library for ONEOK's use in restoration activities, reducing costs and increasing pipeline construction environmental restoration. Initial flights will capitalize on ground-based surveys and manned flights as a baseline, with ongoing unmanned flights (to be conducted over a three-month period) to provide "change detection" of potential problem areas and establish a framework for post reclamation/restoration monitoring and planning.

We appreciate the opportunity to work with the Oil and Gas Research Council and our project partners in what we feel will make an impact in advancing this technology as a tool in the oil patch and throughout the state. Thank you and if you have any questions, please don't hesitate to call.

Sincerely,

Adam Lingwall

Adam Lingwall

4200 James Bay Drive • Grand Forks, North Dakota 58202

Oil and Gas Research Program

North Dakota

Industrial Commission

Application

Project Title:

UAS Aerial Observation to Support Oil & Gas Pipeline Post Construction Restoration Efforts

Applicant:

ISight RPV Services

Principal Investigator:

Douglas McDonald

Date of Application:

June 1, 2016

Amount of Request:

$19,700

Total Amount of Proposed Project:

$39,400

Duration of Project:

6/15/16 to 9/15/16

Point of Contact (POC):

Adam Lingwall

POC Telephone:

(763) 706-7945

POC E-Mail Address:

adam.lingwall@ISightrpv.com

POC Address:

4200 James Ray Drive
Grand Forks, ND 58202

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ABSTRACT

Objective:

ISight RPV Services and the Unmanned Applications Institute, in collaboration with ONEOK and Barr Engineering, will utilize small unmanned aerial systems (SUAS) to conduct aerial/visual reconnaissance and surveillance of oil and gas pipelines located in McKenzie County (Bear Creek Pipeline) during construction to identify potential areas of slumping, erosion, (unwanted) vegetation, moisture, top soil and vegetation that would potentially impact the restoration of oil and gas pipeline construction activities. This surveillance will provide ONEOK, and related oil and gas companies, a proactive opportunity to identify and remedy any issues that may impact transport and lead to appropriate and cost effective restoration efforts post construction.

Expected Results:

Identify potential problematic issues on pipeline construction and restoration to include:

- slumping
- erosion
- (unwanted) vegetation
- moisture
- top soil and vegetation remediation and restoration
- identification of wildlife habitat (including raptors)

The identification of these problems/issues can and will serve as a prescription for the timely, cost effective and successful restoration of oil and gas construction activities on the environment. This process will help in planning and documenting the restoration efforts during construction phase and provide on-site evaluation of ecosystems functions that need to be maintained or restored.

Duration:

June 15, 2016 to September 15, 2016 (three months)

Total Project Cost:

Total cost of project is $39,400.

Participants:

ISight RPV Services
Unmanned Applications Institute
One Oak (Sponsor)
Barr Engineering (Sponsor)

PROJECT DESCRIPTION

Objectives:

ISight RPV Services and the Unmanned Applications Institute – in collaboration with ONEOK, Barr Engineering and the Public Service Commission - will provide high fidelity/clarity images for use in developing signature images of potential problem areas in the creation of an image library for ONEOK's use in restoration activities (focused on the Bear Creek Pipeline, McKenzie County), reducing costs and increasing pipeline construction environmental restoration. Initial flights will capitalize on ground-based surveys and manned flights (conducted by ONEOK) as a baseline, with ongoing unmanned flights (to be conducted over a three-month period) to provide "change detection" of potential problem areas and establish a framework for post reclamation/restoration monitoring and planning. ISight and UAI will compile and translate data, in collaboration with project partners, and provide ONEOK with an informative report outlining findings and quantitative data.

Methodology:

ISight RPV Services will conduct aerial surveillance utilizing Altavian Nova 6500 and DJI Inspire aircraft and enhanced (4k) optical imaging, near infrared, thermal and NDVI imaging systems to develop an image library of the Bear Creek Pipeline construction site. ONEOK has completed a complete environmental assessment of the site using soil sensors, and fixed wing aircraft in the completion of digital surface mapping, wildlife habitat, topsoil and vegetation index and related water retention/flow and drainage that is used in conjunction with existing environmental data including soil surveys and engineering data and information.

ISight will conduct flights with appropriate sensors that will correspond to existing data conducted as part of the baseline data conducted by ONEOK. Data will be downloaded, stitched and analyzed reporting change detection and potential areas of wildlife habitat and drainage patterns for review by environmental scientists and engineers for continued restoration planning and development.

Anticipated Results:

Identify potential problematic issues on pipeline construction and restoration to include:

- slumping
- erosion
- (unwanted) vegetation
- moisture, water flow, drainage
- top soil and vegetation remediation and restoration
- identification of wildlife habitat (including raptors)

The identification of these problems/issues can and will serve as a prescription for the timely, cost effective and successful restoration of oil and gas construction activities on the

environment. This process will help in planning and documenting the restoration efforts during construction phase and provide on-site evaluation of ecosystems functions that need to be maintained or restored.

This data will be compiled and utilized in this post construction restoration efforts and a best practices document will be developed for future efforts focused on remediation and restoration efforts associated with oil and gas projects including pipeline construction and other oil field activities (ie roads, pads, rigs).

Facilities:

ISight and the Unmanned Applications Institute will utilize office space at 4200 James Ray Drive to complete stitching and ortho-mosaic data and analysis efforts. On-site facilities and activities will be headquartered on-site in trucks.

The facility that is the focus of this proof of concept project is the Bear Creek Pipeline facility in McKenzie County, ND.

Resources:

UAS (Altavian Nova 6500 fixed wing, DJI Inspire quadcopter)

Enhanced optical sensor, near infrared sensor, thermal sensor

333 exemption (FAA authorization to fly)

OEM trained and certified pilots/operators

Partners with vested interest in making this happen

Techniques to Be Used, Their Availability and Capability:

ISight will be using unmanned aerial systems (Nova 6500 and DJI Inspire) and sensors (enhanced optical, near IR, thermal) to conduct aerial imagery. These resources are available now and provide 4K imagery from 400 feet AGL. Thermal images have been used by other client and provide 100 percent coverage from existing land-based surveys.

Environmental and Economic Impacts while Project is Underway:

While there will be no negative environmental impacts while the project is underway, positive environmental impacts would include minimizing potential damage to the environment through the timely identification of changes to the environment and provide positive relief using state of the art imaging systems. This provides engineers and other remediation and environmental consultants an exhaustive overview of their project area allowing for more efficient and effective use of their time in planning and execution of the remediation project.

Economically, UAS is cheaper than manned flights, and is being used more and more by diverse industries within the state, creating jobs and revenue. This less expensive cost can provide engineers and environmental scientists with more resources, in a timely fashion, to develop their remediation plans more effectively for less cost.

Ultimate Technological and Economic Impacts:

This proof of concept project will prove the technological relevance of unmanned systems and related sensors as a valuable tool for the oil and gas industry (and other engineering entities that require timely, flawless images for planning purposes. This project will validate UAS as a viable alternative to expensive manned flights and a boon to environmental scientists and planners.

Lowered cost of using UAS vs. manned flight is a major economic impact, and supports the growing UAS industry within the state (creating jobs). The economic impact comes from higher return on investment through exhaustive planning (done more cost effectively) that will result in a higher quality end product.

Why the Project is Needed:

While this is proof of concept, the project (and the results that will be realized) will become an increasingly important tool for engineers and environmental scientists within the oil patch as they do planning, remediation, and restoration projects moving forward.

STANDARDS OF SUCCESS

Standards of Success should include: The measurable deliverables of the project that will determine whether it is a success; The method to be utilized in measuring success; The value to North Dakota; An explanation of what parts of the public and private sector will likely make use of the project's results, and when and in what way; The potential that commercial use will be made of the project's results; How the project will enhance the education, research, development and marketing of North Dakota's oil and natural gas resources; How it will preserve existing jobs and create new ones; How it will otherwise satisfy the purposes established in the mission of the Program; How it will be reporting on the success of the project.

The measurable deliverables (an image library of ongoing restoration efforts with accompanying "signatures" of obstacles and challenges) will be contrasted with existing baseline already conducted by ONEOK. These will be vetted and reviewed by ONEOK and Barr Engineering for validity, clarity and ease of use in interpreting and implementing.

The value to North Dakota is that this effort is part of a larger play by the state to be at the fore-front of unmanned systems and its applications. From an oil and gas perspective, the value is reduced costs and validation of ongoing restoration and remediation efforts, so it will be more effective the companies involved and easier to monitor from the state side.

Public sector entities can use the results of this project as a template for project and environmental monitoring for a myriad of engineering and environmental projects including roads, gas and oil projects and other construction efforts throughout the state.

Oil and gas companies will use this project and related data points in future monitoring and planning efforts. Engineering firms can use this technology and related data points from the project for use in other settings including pre and post construction efforts, environmental planning and remediation efforts.

Upon completion, virtually all public and private industry sectors can use this type of technology and methodology for use in ongoing projects with a case study that has been completed (assuming funding is provided to complete study).

Results of this project can be used in education, research and development and marketing of ND's oil and gas industry in several ways. Educationally, images and ongoing research can be used in case studies by academia spurring new approaches to accomplishing their own projects. From a marketing perspective, the oil and gas industry can highlight their efforts in being responsible stewards of the land and environmentally conscious through the use of new technology to develop and deliver high quality restoration efforts.

This will create new jobs (UAS centric) and bolster existing jobs such as engineers, surveyors, environmental scientists through the effective use of new technology in the completion of their existing jobs.

BACKGROUND/QUALIFICIATIONS

Please provide a summary of prior work related to the project conducted by the applicant and other participants as well as by other organizations. This should also include summary of the experience and qualifications pertinent to the project of the applicant, principal investigator, and other participants in the project.

Douglas McDonald – Principle Investigator, Unmanned Applications Institute has more than 25 years of applied research, planning and development experience focusing on strategic development, unmanned systems, socio-economics and demography. He is a sociologist and holds an undergraduate and graduate degree from the University of North Dakota. Doug's consulting experience includes assignments in unmanned systems, aerospace, value-added agriculture, information technology, and manufacturing.

He has co-authored many significant reports, including:

- "Aerospace: An Industry Sector Poised for Flight" for the Aerospace Power Group of the New Economy Initiative – North Dakota.
- "UAV Business Development Roadmap" for the Office of Economic Adjustment and the Grand Forks (ND) Region EDC.
- "Community Base Enhancement Initiatives: Next Generation Collaborative Development Strategies for the Grand Forks Region and the Grand Forks Air Force Base" for the GF Base Realignment Impact Committee.
- "Feasibility Analysis for a Sensor Test Range" for Grand Forks County, ND.
- "Follow-Feasibility Analysis for a Sensor Development, Test and Training Range" for Grand Forks County, ND.
- "Inventory of UAS-Related Assets for the State of Michigan" for Michigan Economic Development Corporation.

Doug currently serves as President of the Great Plains Chapter of Association of Unmanned Vehicle Systems International. The Great Plains Chapter of AUVSI works to enhance the effectiveness and overall application of unmanned technology through warehousing the best practices of safety; These efforts are realized through a collaboration between UAS airframe and sensor manufacturers, end users and government - that will help drive the development and use of future unmanned systems by including "Safety Best Practices" that begin with the design phase of a system and continue all the way to its operational employment.

McDonald has been appointed by Sen. John Hoeven, Sen. Heidi Heitkamp, Congressman Kevin Cramer, and Governor Jack Dalrymple to serve on the North Dakota Airspace Integration Team. The team provides ongoing leadership in the integration of unmanned aerial systems into the national airspace and the impact this will have on civilian manned flight in the state of North Dakota.

Nate Leben – UAS Flight Operations & Training, a University of North Dakota commercial aviation graduate, has been in the aviation industry for over 15 years with more than 9 years

specifically pertaining to UAS as an instructor and evaluator pilot for General Atomics. A strong advocate for safe and effective UAS operation in the NAS, he brings real-life experience operating in congested airspace amongst other unmanned and manned aircraft that he learned while flying in different areas throughout the United States and in theater - to include Iraq, Afghanistan, Africa and others. Since graduating from UND, Nate has gone on to finish his Master of Arts in Diplomacy with a focus in International Conflict Management. He also served honorably in the Air National Guard for over 10 years.

Nate currently holds a Commercial Pilot – Glider; Airplane SEL & Sea; ME Land; Instrument Airplane and a Flight Instructor - Airplane Single Engine; Instrument Airplane rating and has held various clearances working for a diverse group of customers, both military and non-military.

Adam Lingwall – UAS Flight Operations & Training is a University of Minnesota Aerospace Engineering graduate with nine years of product development experience. Having worked in a range of industries, he's established a broad expertise in data analysis, product development methodologies, and project management principles. Specifically, he's worked on the development of jet engine exhaust nozzles, industrial gas turbine engines, and high horsepower agricultural tractors.

Adam also served for three years in the Minnesota Air National Guard as an avionics and control specialist, where he learned the theory and operation of military aircraft avionics systems. In addition to his undergraduate education and professional experience, Adam has also completed a Master of Business Administration degree at the University of San Diego with a dual emphasis in finance and international business.

Adam Overvold - Chief Pilot, UAS Flight Operations & Training, coming from Fargo, ND first acquired his passion for flying on a young eagles flight in Boy Scouts. Adam attended the University of North Dakota, where he graduated with a degree in Aviation Management, and Unmanned Aircraft Systems in the Spring of 2015. Adam worked for Altavian, as an Operator in the Midwest for the growing season of 2015 where he accumulated 112 hrs on the NOVA 6500 in just a few short months. Adam left Altavian in January of 2016 to work for ISight as the Chief Pilot.

ONEOK, Inc. owns one of the nation's premier natural gas liquids (NGL) systems, connecting NGL supply in the Mid-Continent, Permian and Rocky Mountain regions with key market centers and is a leader in the gathering, processing, storage and transportation of natural gas in the U.S.

Barr Engineering provides engineering and environmental consulting services to clients across the Midwest, throughout the Americas, and around the world. Barr's 700 engineers, scientists, and technical specialists help clients develop, manage, process, and restore natural resources. Headquartered in Minneapolis, Barr has offices in Bismarck, North Dakota. Barr's project teams serve the power, mining, and fuels industries, natural-resource-management organizations.

MANAGEMENT

*A description of **how** the applicant will manage and oversee the project to ensure it is being carried out on schedule and in a manner that best ensures its objectives will be met, **and a description of the evaluation points to be used** during the course of the project.*

The project manager/principal investigator (Douglas McDonald) will be working in liaison with ONEOK and Barr Engineering to meet the objectives laid out in this request. ISight will set schedule for flights (outlined in timetable) and work to accommodate ongoing needs set forth by sponsors/partners. This schedule is contingent on weather (too windy or wet no flights) but will generally be met within a 48 time frame as scheduled.

Data stitching and ortho-mosaic completion is 48 hours maximum turn from time data is downloaded.

Interpretation is 48 hour max, based on compilation of data and images.

Timeliness is key to completing the project on time and on budget so all efforts will be made to adhere to schedule.

Interim reports will be filed and delivered to the Council on a monthly basis to ensure timeliness, level of completion related to deliverables and time schedule.

Evaluation Points

- Does ongoing efforts (imaging and related data) correspond to baseline data?
- Are all coordinates used in flight/imaging process correspond to ground truth validated data?
- Does data provide timely information to sponsors/partners?
- Can methodology be replicated in other similar projects?
- Are costs in line and on budget as outlined in grant request?
- Are interim reports on time (as scheduled, per timetable outlined in grant request)?
- Are aircraft flying in accordance with FAA rules and regulations?

TIMETABLE

Please provide a project schedule setting forth the starting and completion dates, dates for completing major project activities, and proposed dates upon which the interim reports will be submitted.

Start Date (ideally June 15)

1. 1st flight (day long) to cover up to 20 miles of pipeline construction activities (due to line of sight restrictions mandated by FAA). **June 15**.
2. Download data for stitching/orthmosaic - 48 hour turn around.
3. Interpret data, send preliminary data and analysis to sponsors/partners for review, input and signoff.
4. 2nd flight, two weeks later (**July 1**). Day long to cover 20 miles of construction activities.
5. Download data for stitching/ orthmosaic - 48 hour turn around.
6. Interpret data, send preliminary data and analysis to sponsors/partners for review, input and signoff.
7. Compile first month of flights and data, prepare and deliver interim report to Council by **July 14th.**

Month 2

1. 3rd flight (day long) to cover up to 20 miles of pipeline construction activities (due to line of sight restrictions mandated by FAA). **July 15**.
2. Download data for stitching/orthmosaic - 48 hour turn around.
3. Interpret data, send preliminary data and analysis to sponsors/partners for review, input and signoff.
4. 4nd flight, two weeks later (**August 1**). Day long to cover 20 miles of construction activities.
5. Download data for stitching/ orthmosaic - 48 hour turn around.
6. Interpret data, send preliminary data and analysis to sponsors/partners for review, input and signoff.
7. Compile second month of flights and data, prepare and deliver interim report to Council by **August 14.**

Month 3

1. 5rd flight (day long) to cover up to 20 miles of pipeline construction activities (due to line of sight restrictions mandated by FAA). **August 15**.
2. Download data for stitching/orthmosaic - 48 hour turn around.
3. Interpret data, send preliminary data and analysis to sponsors/partners for review, input and signoff.
4. 6nd flight, two weeks later (**September 1**). Day long to cover 20 miles of construction activities.
5. Download data for stitching/ orthmosaic - 48 hour turn around.
6. Interpret data, send preliminary data and analysis to sponsors/partners for review, input and signoff.
7. Compile third month of flights and data, prepare and deliver interim report to Council by **September 15.**

BUDGET

Please use the table below to provide an ***itemized list*** *of the project's capital costs; direct operating costs, including salaries; and indirect costs; and an explanation of which of these costs will be supported by the grant and in what amount. The budget should identify all other committed and prospective funding sources and the amount of funding from each source, differentiating between cash, indirect costs, and in-kind services. Justification must be provided for operating costs not directly associated to the costs of the project. Higher priority will be given to those projects that have matching private industry investment equal to at least 50% or more of total cost. (Note ineligible activities or uses are listed under OGRP 2.02)* ***Please feel free to add columns and rows as needed.***

Project Associated Expense	NDIC's Share	Applicant's Share (Cash)	Applicant's Share (In-Kind)	Other Project Sponsor's Share
Aircraft use costs	$2,400		$1,200	
Operator costs	$4,800		$4,800	
Image stitching	$3,000		$3,000	
Analyst costs	$4,000		$4,000	
Engineering costs	$1,500			$5,000
Travel/per diem	$4,000		$1,700	
TOTAL	**$19,700**		**$14,700**	**$5,000**

Please use the space below to justify project associated expenses, and discuss if less funding is available that that requested, whether the project's objectives will be unattainable or delayed.

Aircraft Use – There are six flights scheduled. Costs associated with these are roughly $600/day. These costs are calculated including insurance, standard lease costs, battery and wear and tear of vehicles.

Operator Costs – FAA mandates that both an operator and visual observer are used in UAS flights/operations. Standard costs for operator time is $100/hour. 6 flights x 8 hrs/flight x 2 operators = $9,600

Image Stitching/Ortho Mosaic costs – Based on size of capture area and number of images, we calculate total time to stitch images to be roughly 10 hours per day, at $100 per hour times six flight days. 60 hours x $100 = $6,000.

Analyst Costs – Analyst costs are calculated at a standard rate of $100/hour. We anticipate roughly 13.3 hours of analyst time per (6) flights = 80 hours.

Engineering Costs – Are calculated at roughly $6,500. Barr Engineering is participating offering $4,000 of in kind and $1,000 cash leaving a balance of $1,500.

Travel/Per Diem – Travel costs are calculated at roughly $950/flight day. This includes all travel, meals and mileage for two (operator and visual observer).

CONFIDENTIAL INFORMATION

Any information in the application that is entitled to confidentiality and which the applicant wants to be kept confidential should, if possible, be placed in an appendix to allow for administrative ease in protecting the information from public disclosure while allowing public access to the rest of the application. Such information must be clearly labeled as confidential and the applicant must explain why the information is entitled to confidentiality as described in North Dakota Century Code 54-17.6. Oil and gas well data that is a result of financial support of the Council shall be governed by North Dakota Century Code 38-08-04(6). ***If there is no confidential information please note that below.***

There will be no confidential information related to this project, its activities or related data.

PATENTS/RIGHTS TO TECHNICAL DATA

Any patents or rights that the applicant wishes to reserve must be identified in the application. ***If this does not apply to your proposal, please note that below.***

No patents or rights to technical data will be reserved.

STATUS OF ONGOING PROJECTS (IF ANY)

If the applicant is a recipient of previous funding from the Commission, a statement must be provided regarding the current status of the project.

ISight and the Unmanned Applications Institute have no previous or ongoing projects funded by the Commission.

ISIGHT RPV SERVICES

SAFETY. INTEGRITY. EXCELLENCE

Tax Liability Statement

Karlene Fine, Executive Director
North Dakota Industrial Commission
State Capitol – 14th Floor
600 East Boulevard Ave Dept 405
Bismarck, ND 58505-0840

Ms. Fine,

With this letter, I Adam Lingwall, do state that ISight RPV Services, registered within the State of North Dakota has no past or current tax liabilities or encumbrances.

Any questions regarding our tax status can be directed to Adam Lingwall.

Sincerely,
Adam Lingwall

resourceful. naturally.
engineering and environmental consultants

BARR

June 1, 2016

Karlene Fine, Executive Director
North Dakota Industrial Commission
State Capitol – 14th Floor
600 East Boulevard Ave Dept 405
Bismarck, ND 58505-0840

Re: Letter of Support

Ms. Fine,

On behalf of Barr Engineering Company, I am offering Barr's support in the efforts put forth by iSight RPV Services (iSight) and the Unmanned Applications Institute (UAI) to conduct a "proof of concept" project utilizing unmanned aerial systems (UAS) for the North Dakota oil and gas industry. Specifically the project involves post-construction monitoring of restoration associated with installation of a new natural gas liquids pipeline. UAS and associated sensing technologies have the potential to safely provide time-critical data to identify potential areas of environmental sensitivity that may need remediation or additional corrective actions following pipeline construction. We are therefore hopeful, that efforts like this can lead to even more safe, efficient and effective means for data collection that may benefit not only the oil and gas industry but, other natural resource industries such as mining and agriculture to name a few.

Applying UAS data collection technology for commercial use is in its early stages. It is therefore expected that there will be opportunities to learn from successful endeavors and those that may fail along the way. In either case, Barr is prepared to objectively evaluate the performance of the technology in this specific case based on comparison of standard data collection methods with those proposed to be done by iSight and UAI using UAS technology. In doing so, Barr proposes a scope to be agreed to by all parties that clearly identifies expectations, intended outcomes and roles and responsibilities prior to initiating work.

Assuming a consensus can be developed around a clearly defined scope, we are prepared to support this effort through the provision of in-kind services at our standard rates of $5,000 and $1,000 in direct cash funding to underwrite the costs associated with processing and analyzing the data. It is our expectation that all other activities (e.g., UAS operations, data gathering, etc.) be done by others.

As noted, Barr supports this innovative effort and the potential benefit it has towards helping the continued growth and evolution of the oil and gas industry in North Dakota.

Sincerely,

Jason Westbrock
Vice President

ONEOK
ROCKIES MIDSTREAM

A SUBSIDIARY OF ONEOK PARTNERS

July 22, 2016

Karlene Fine
Executive Director
North Dakota Industrial Commission
State Capital – 14th Floor
600 East Boulevard Ave Department 405
Bismarck, ND 58505-0840

Dear Ms. Fine,

ONEOK Rockies Midstream (ONEOK) understands that ISight RPV Services and the Unmanned Applications Institute have applied for grant funding to conduct *UAS Aerial Observation to Support Oil & Gas Pipeline Post Construction Restoration Efforts*. Throughout 2015 and 2016, ONEOK has been researching and experimenting with the use of unmanned aerial vehicles (UAVs) for a variety of services within the midstream sector.

ONEOK owns one of the nation's premier natural gas liquids (NGL) systems, connecting NGL supply in the Mid-Continent, Permian and Rocky Mountain regions with key market centers and is a leader in the gathering, processing, storage and transportation of natural gas in the United States. We are extremely optimistic about the potential uses of UAVs within the industry and believe they will be a valuable tool to increase the safety, reliability, and environmental compliance of our systems. We fully support additional public and private research on the applicability of this technology and continue to seek opportunities to support the safe and effective deployment of UAVs throughout our industry.

UAVs continue to prove substantial benefits within the agricultural sector. These benefits translate directly to similar challenges that oil and gas companies face with regard to construction restoration and environmental compliance. ONEOK encourages and supports additional research and case studies which will help demonstrate and refine UAV deployment within midstream development and operation.

If you have any questions or would like to further discuss our interest in the subject matter, please do not hesitate to contact me at (406) 433-8745 or todd.kelvington@oneok.com.

Respectfully submitted,

Todd E. Kelvington, CEP
Supervior, Environmental Compliance
ONEOK Rockies Midstream

ONEOK Rockies Midstream
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