

March 29, 2018

Ms. Karlene Fine
North Dakota Industrial Commission
ATTN: Oil and Gas Research Program
State Capitol – 14th Floor
600 East Boulevard Avenue, Department 405
Bismarck, ND 58505-0840

Subject: Proposal Entitled “intelligent Pipeline Integrity Program (iPIPE)”

Dear Ms. Fine:

On behalf of Statoil Pipelines LLC, Hess Corporation, and Oasis Midstream Partners, we are pleased to submit an original and one copy of the subject proposal. Also enclosed is the \$100 application fee.

This transmittal letter represents a binding commitment by the founding members of the iPIPE consortium – Statoil Pipelines LLC, Hess Corporation, Oasis Midstream Partners, Goodnight Midstream, and ONEOK -- to complete the project described in this proposal. If you have any questions, please contact Jay Almlie by telephone at (701) 777-5260, by fax at (701) 777-5181, or by e-mail at jalmlie@undeerc.org.

Sincerely,



Linda Pitman
Statoil Williston Basin Regional Manager

Oil and Gas Research Program

North Dakota

Industrial Commission

Application

Project Title: intelligent Pipeline Integrity Program (iPIPE)

Applicants: Hess Corporation, Statoil ASA, and Oasis Midstream Partners

Principal Investigators:

Brent Lohnes, Linda Pitman, and Tone Macia

Date of Application: March 29, 2018

Amount of Request: \$1,600,000

Total Amount of Proposed Project: \$3,714,000

Duration of Project: 44 months

Point of Contact (POC): Jay C. Almlie, Energy & Environmental Research Center

POC Telephone: (701) 777-5260

POC E-Mail Address: jalmlie@undeerc.org

POC Address:

15 North 23rd Street, Stop 9018

Grand Forks, ND 58202-9018

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ABSTRACT

Objective: A core group of pipeline operators proposes an R&D program focused on advancement of emerging technology to prevent and detect pipeline leaks. The proposed work will lead to development and application of new tools that will assist industry's ongoing efforts to continuously improve pipeline integrity, thus reducing leaks and spills. The proposed work responds directly to Governor Burgum's challenge to industry to apply cutting-edge technology to eliminate pipeline leaks.

Expected Results: Multiple field demonstrations of emerging technologies on working pipelines will simultaneously assist technology providers in refining designs, pave a path toward full commercialization in the North Dakota market, prepare pipeline operators for adoption of the new tools, and effectively decrease the number and volume of spills experienced in North Dakota. With demonstrated success, additional consortium members (pipeline operators) will join the effort, thus enabling field testing of more technologies and further proliferating new technology among all pipeline operators.

Duration: The duration of the proposed project is 44 months (May 2018 to December 2021). A long-term program is needed to ensure sufficient momentum required to mature multiple technologies.

Total Project Cost: The total cost of the proposed work is \$3,714,000. The amount requested from the NDIC Oil and Gas Research Program is \$1,600,000. At a minimum, cash cofunding in the amount of \$1,614,000 from pipeline operators will be provided. It is anticipated that additional consortium members will join the effort in 2019, thus increasing this amount. Therefore, the program requests contingent additional \$1,000,000 matching increments from NDIC in 2019 and 2020 as additional cash commitments are secured from additional industry program members. At no time will NDIC cost share exceed 50% of the program value. In-kind cost share from a combination of absorbed pipeline operator costs and technology provider costs will also be documented and is anticipated to exceed \$500,000.

Participants: Initially, program participants will include Hess Corporation, Statoil Pipelines LLC, Oasis Midstream Partners, ONEOK, Goodnight Midstream, NDIC, and possibly others. It is anticipated that

additional pipeline operators will join the program in 2018, 2019, 2020, and 2021. Technology vendors that commit in-kind resources will also be considered program participants.

PROJECT DESCRIPTION

During a May 2017 meeting with North Dakota pipeline operators, Governor Doug Burgum challenged industry to apply advanced technologies to eliminate pipeline leaks in North Dakota. A press release from the Governor's Office stated that he advised pipeline industry leaders that "we are entering an era of zero public tolerance for pipeline leaks." Indeed, this is a high bar for industry to achieve. In response to the Governor's challenge, industry has chosen a proactive path and is proposing a 3½-year program to advance development and application of emerging technologies that will prevent and detect pipeline leaks.

The consortium program will assist in the development of multiple emerging technologies to prevent and detect pipeline leaks by engaging with technology providers to tune designs specifically for buried gathering pipelines in North Dakota and then demonstrate technology application on working gathering pipelines.

Goals and Objectives:

The goal of this intelligent Pipeline Integrity Program (iPIPE) is to develop and demonstrate cutting-edge technology that can prevent and/or detect gathering pipeline leaks. This goal will be supported by accomplishment of the following objectives:

- Select the most promising emerging (near-commercial) technologies for demonstration
- Demonstrate multiple technologies on working gathering pipelines
- Document results of technology demonstrations
- Facilitate adoption of technologies into North Dakota pipeline operations

Methodology:

Pipeline operators with operations in the state of North Dakota are coming together to fund, direct, develop, and demonstrate emerging technology that holds promise to either prevent or detect leaks from gathering pipelines. This consortium approach serves not only to convene the required funds to execute such development and demonstrations, but also to assure engagement among industry participants and adoption of worthy technologies. The consortium will select technologies for demonstration on an annual basis. This selection will be accomplished via a five-seat executive committee comprising members of the consortium and a nonvoting representative from the Energy & Environmental Research Center (EERC), who will serve to advise the committee and manage the voting process. Each fall, the EERC will research available emerging technologies to be included in the coming year's selection process, thus ensuring that technologies evaluated are always at the cutting edge of technology development.

Technology Selection

Throughout the program, the EERC will continually develop a revolving portfolio of new, not-yet-commercialized technology options for pipeline leak prevention and pipeline leak detection. Pipeline leak prevention options may include inline inspection technology, other pipeline health-monitoring sensors, novel self-healing technology for plastic pipelines, or other technologies. Pipeline leak detection technology may include options such as leak detection software/hardware, smart pigs, acoustic sensors, fiber optic distributed sensor arrays, or other technologies.

Each fall, the EERC will convene a five-seat executive committee comprised of consortium members (pipeline operators). The seats of this committee will rotate annually to facilitate input from all consortium members and to prevent any one member from dominating decision-making. The committee will entertain presentations from a variety of technology solution providers who will, in their own words, deliver information vital to the committee's decision process. After the series of technology provider presentations, the executive committee will vote immediately on demonstration projects to pursue during

the upcoming year. The consortium will then direct the EERC to begin contracting with the selected technology providers and assist in planning the demonstrations.

Specific demonstrations cannot be identified in this proposal because the decision on selection of specific technologies to demonstrate must be reserved for the executive committee. However, for the purposes of illustrating the types of technologies likely to be considered immediately upon program initiation, a sampling of technologies discussed within the stakeholder group of pipeline operators advising the current EERC Pipeline Study Phase III is presented:

1. *Produced Water Pipeline Leak Detection*: Use of artificial intelligence (machine learning algorithms) on data from multiple instruments aboard a drone aircraft, with emphasis on novel radiological sensors.
2. *Liquids Gathering Pipeline Leak Detection*: Use of drones to monitor large areas for pipeline leaks, with emphasis on beyond-visual-line-of-sight drone operations.
3. *Inline Inspection for Difficult-to-Pig Pipelines*: Miniaturized, neutrally buoyant sensor to locate pipelines and detect small leaks via acoustic measurements.
4. *Dedicated Leak Detection System for High-Consequence Areas (HCAs)*: Turnkey, nonintrusive suite of hardware and software to detect small leaks within pipelines in HCAs with limited power and communication infrastructure.
5. *Liquids Gathering Pipeline Leak Detection*: Opportunistic Artificial Intelligence (AI) processing of available data sets from satellites, commercial aircraft, drones, and fixed sensors.

Many other technologies are being investigated for possible inclusion in the initial round of selection for first-year demonstrations.

Technology Demonstration

Each year, the consortium will authorize one or more technology demonstrations as described above. The consortium will direct the EERC to work closely with selected technology provider(s) to plan and execute

the technology demonstrations on working gathering pipelines. The EERC will also work with individual consortium members to negotiate a specific volunteer pipeline system or segment to host the demonstration.

During demonstration activities, the host pipeline company (a consortium member) will provide the technology provider with access to the pipeline and will support the installation of the demonstration technology at the host site, including data acquisition integration, qualified pipeline specialist labor, and logistical support. The EERC will serve as independent observer, ensuring data integrity. It is also expected that technology providers will contribute substantially with some in-kind contributions to the demonstration to ensure that the demonstration is not seen merely as a one-time, invoiceable “sale.” The technology providers will understand that this is an opportunity for mutually supported technology development and refinement.

Demonstration Results Analysis and Reporting

Following each demonstration, the technology provider and the host pipeline operator will share data resulting from the demonstration with the EERC. These data will be independently analyzed and evaluated by the EERC to ensure objectivity. The EERC will create an evaluation report on each demonstration for consumption by consortium members. This report will include an assessment of performance, readiness for adoption by pipeline operators, and additional development needed before commercialization (if any). A summary of this information can also be provided to the North Dakota Industrial Commission (NDIC), if requested.

Consortium Management

The program will be managed on behalf of the consortium members by the EERC. The EERC will be responsible for coordinating communications among program members, program reporting to NDIC, scheduling of executive committee meetings, communications with technology providers, financial planning, and contracting for demonstrations.

Anticipated Results:

This program will result in development of new technology options to prevent and detect leaks. As more technologies are demonstrated, awareness of best practices among all pipeline operators will increase. Some technologies currently receiving a high level of optimistic attention may be demonstrated to be ineffective. Some technologies currently unknown will be demonstrated to be surprisingly effective. With increased adoption of effective new technologies and even the possible demonstration of the ineffectiveness of other technologies, public perception of pipeline safety and pipeline operators' diligence toward it will also improve. North Dakota, which is already leading the nation in diligent oversight of gathering pipelines, will further enhance its leadership position.

Facilities, Resources, and Techniques to Be Used:

Volunteer Demonstration Sites: Member companies will be encouraged to volunteer a variety of working pipeline segments upon which technology demonstrations can be applied. The program will seek a variety of pipeline configurations to demonstrate the full envelope of factors impacting technology performance. Volunteer companies will understand that when they volunteer, certain costs may also be incurred by the pipeline operator in support of the demonstrations.

Technology Provider Vested Participation: Although the consortium program will contract with technology providers to accomplish the demonstrations, it is anticipated, and will be encouraged, that technology providers will not recover all costs associated with the demonstration. The program is helping the technology providers mature their offerings for this specific market sector. Therefore, they will be expected to provide some level of in-kind cost share.

EERC Field Data Center: The EERC built a custom trailer with built-in support system during 2016 pipeline leak detection demonstration work for NDIC and will reuse this trailer in support of the independent observation of field demonstrations. The field data center houses data acquisition hardware

and software, fluid flow instrumentation, a portable electric generator, a fluid pump, and fluid containment equipment.

Environmental and Economic Impacts while Project Is under Way:

During demonstration of some technologies, penetration of operating pipelines may be required to incorporate components of the demonstration. There is a small risk of unintentional spills during these operations. In situations where this risk exists, extra precautions will be taken by the volunteering pipeline operator to limit any potential spills to negligible amounts, and protections for nearby soils will be employed.

Ultimate Technological and Economic Impacts:

Ultimately, it is envisioned that development of new tools specifically designed for small-diameter, highly segmented, networked gathering pipelines will result in improved pipeline integrity. With improved integrity, the incidence and total volume of liquids gathering pipeline leaks in North Dakota will be dramatically reduced, resulting in lower cleanup costs and pipeline inspection costs to industry, more efficient use of pipeline-monitoring staff, better relations with landowners, and easier permitting of new pipelines. Moreover, it is envisioned that these tools, developed in North Dakota, could become standard practice for gathering and transmission pipelines nationwide.

Why the Project Is Needed:

North Dakota has been highlighted via extensive media coverage in recent years regarding pipeline leaks. Increasing pressures from environmental groups after the Dakota Access Pipeline events of 2015–2016 have only exacerbated a negative public perception of pipelines. Governor Burgum has challenged industry to explore application of new technology and novel, out-of-the-box thinking to conquer the

problem of continuing pipeline leaks. Industry and the state share a vested interest in safe operations of pipelines. This program intends to contribute significantly to that goal.

STANDARDS OF SUCCESS

The proposed research and development (R&D) effort will be judged successful if the commercial readiness of multiple solutions is advanced, bringing commercial application closer to fruition. Success will be declared if the efficacy of multiple new technology options is proven and if new technologies are made available to the gathering pipeline market sector.

Holistically, the project will be successful if it inspires enthusiasm for new technology application to the challenge of early identification of pipeline issues before they become leaks and if it demonstrates North Dakota leadership in such endeavors. When the general public learns of North Dakota's involvement in advancing the cutting edge, its confidence in regulators and industry alike will be increased, facilitating a more productive relationship between the public, regulators, and industry. In the end, this will result in improved regulatory oversight and improved economics for industry and the state of North Dakota.

Ultimately, success of this program will be reflected in measurable improvements in pipeline integrity, especially noted in decreased spills statistics.

BACKGROUND/QUALIFICATIONS

Hess Corporation (Hess) has operated in North Dakota continuously since 1951 and is one of the state's largest oil and gas producers. Hess operates upstream and midstream facilities both north and south of Lake Sakakawea, which includes over 3000 miles of gathering pipelines for oil, gas, and produced water. The referenced gathering systems were installed over a wide range of years and are constructed of various materials from carbon steel, polypropylene, fiberglass, and FlexSteel. Hess is proactively researching alternative technologies that can be used to economically provide early leak detection and that will aid in determining the integrity of its in-service gathering systems.

Statoil Pipelines LLC(Statoil) is a Norwegian multinational oil and gas company that acquired Brigham Exploration Company’s Bakken assets in late 2011. Statoil splits upstream and midstream operations into two companies: Statoil Oil & Gas LP for the upstream and Statoil Pipelines LLC for the midstream. Statoil Pipelines LLC operates approximately 1000 miles of gathering pipeline network supporting crude, produced water, freshwater, and gas. Statoil Pipelines LLC has developed and implemented its own produced water leak detection technology in several HCAs and is looking to new technologies to improve monitoring of produced water and crude.

Oasis Midstream Partners (Oasis) owns and operates approximately 450 miles of liquid gathering pipelines in North Dakota that gather produced water and crude oil. Oasis is focused on pipeline integrity management and pipeline leak detection capabilities. Oasis’s goals are aligned with the iPIPE goal to prevent or detect leaks in gathering pipeline systems. In addition to safe pipeline operation, quality pipeline construction methods, and third-party damage prevention, Oasis desires to explore emerging technologies that may improve the ability to detect or prevent leaks in gathering pipeline systems.

EERC EERC has been engaged in an ongoing study of liquids gathering pipelines since 2015. Phases I and II of this study were mandated by Section 8 of the North Dakota Legislature’s House Bill 1358 in 2015. The first two phases of the study served to inform the state on the status of the liquid gathering pipelines industry in North Dakota and to demonstrate different approaches to leak detection, respectively. Phase III of this study focuses on risk assessment and emerging technologies that can help North Dakota eliminate pipeline leaks.

MANAGEMENT

Program decisions, especially those related to selection of specific technologies for investigation, will be made by a five-seat executive committee acting on behalf of the greater consortium membership. This five-seat executive

committee, comprised of pipeline operators, will meet each fall to select demonstration projects for the coming year. The seats of the executive committee will rotate yearly, giving all consortium members the opportunity to direct the program equally.

The executive committee will direct the EERC, which will act as operating manager of the program. The EERC will be responsible for coordinating communications among program members, program reporting to NDIC, scheduling of executive committee meetings, communications with technology providers, financial planning, and contracting for demonstrations.

TIMETABLE



Deliverables	Due Date
Quarterly Reports	Quarterly
Individual Demonstration Reports	12/31/19
	12/31/20
	12/31/21
	12/31/22
Final Report	12/31/22
Briefings to NDIC and North Dakota Legislation	On Demand

BUDGET

Project-Associated Expense	NDIC's Share	Applicant's Share (Cash)	Applicant's Share (In-Kind)	Other Project Sponsor's Share
Project Management	\$446,000	\$93,000		
Contracts with Technology Providers for Demonstrations	\$900,000	\$1,250,000		
Other Costs of Demonstration Execution			\$300,000	\$200,000
Independent Observation of Demonstrations	\$90,000	\$107,000		
Analysis of Demonstration Performance Data	\$85,000	\$89,000		
Reporting	\$79,000	\$75,000		
TOTAL	\$1,600,000	\$1,614,000	\$300,000	\$200,000

Initially, the consortium will comprise at least six industry members, each committing \$269,000 in cash over the 44-month period of performance. At the time of submittal of this proposal, 3 unnamed companies have indicated probable commitment to the program starting in 2018, but have not yet provided letters of commitment. The program requests consideration of additional cost match from NDIC as additional pipeline operators (beyond the founding six members) commit additional cash cost share. This will be done on a sliding scale to balance the desire to encourage additional industry participation with the need to be fair to members who joined earlier in the program.

If at least four consortium members are added in 2019, the program requests that NDIC consider an additional \$1,000,000 cost match committed to the program to facilitate additional development and demonstration activities. The program requests an additional \$800,000 if at least four consortium members are added in 2020. The program requests an additional \$600,000 if at least four consortium members are added in 2021. At no time will NDIC cost share exceed 50% of the program value.

Additional consortium members will serve North Dakota's goals of uniformly advancing pipeline integrity across the industry. Additional consortium members will also ensure that gains made from this program will be quickly and equally shared among more of the pipeline operator sector. If less funding than that requested herein is available from NDIC, the program will proceed, but the scope of work may be adjusted to accomplish fewer emerging technology demonstrations than planned.

CONFIDENTIAL INFORMATION

It is anticipated that some specific aspects of individual demonstrations will necessarily require maintenance of confidentiality to preserve competitive advantage for the technology provider. To a minimum extent, this information will be held confidential by the EERC and by the hosting pipeline operator. To the extent possible, the program will be as transparent as possible in all demonstration reports.

PATENTS/RIGHTS TO TECHNICAL DATA

It is anticipated that any patents required will have been secured outside the confines of this program by technology providers. As such, no patent protections will be sought within this program.

STATUS OF ONGOING PROJECTS (IF ANY)

Hess: No active project with NDIC at time of submittal.

Statoil: No active project with NDIC at time of submittal.

Oasis: No active project with NDIC at time of submittal.

EERC:

1. (G-040-080) Bakken Production Optimization Program 2.0. Project status: currently in progress. Contract ends on 11/1/2019.
2. (G-000-004) NDIC Emerging Issues. Project status: currently in progress. Contract ends on 11/1/2019.
3. (G-Sandia 01) NDIC Resource Characterization. Project status: currently in progress. Contract ends on 8/31/2018.
4. (G-043-084) Pipeline Study Phase III (HB1347). Project status: currently in progress. Contract ends on 6/30/2019.
5. (G-015-030) Plains CO₂ Reduction Partnership – Phase III. Project status: currently in progress. Contract ends on 12/31/2018.

APPENDIX A

LETTERS OF COMMITMENT



Hess Corporation
1501 McKinney Street
Houston, TX 77010

April 5, 2018

Mr. Brent Brannan
Director
Oil & Gas Research Program
State Capitol, 14th Floor
600 E Boulevard Ave.
Dept.405
Bismarck, ND 58505-0840

Subject: Program Entitled "iPIPE – Intelligent Pipeline Integrity Program"

Dear Mr. Brannan:

This letter is provided to convey Hess Corporation's intent to fund and actively participate in the industry-led, consortium based proposed program named in the subject line above. The program will explore, develop, and evaluate emerging technology that can be applied to gathering pipelines to reduce leaks and spills. This mission is important to our industry, to landowners, and to the state overall.

Hess Corp., in collaboration with other founding members of the iPIPE consortium, wishes to pursue R&D funding for this project through the North Dakota Industrial Commission (NDIC) Oil & Gas Research Council. The consortium wishes to request cash support of \$1,600,000 from NDIC, and intends to commit \$1,614,000 in cash cost share. Additionally, it is anticipated that consortium members and selected demonstration technology providers will contribute approximately \$500,000 in-kind toward execution of the program demonstrations. Hess' commitment is contingent on the award of adequate matching funds from NDIC's Oil & Gas Research Program and other pipeline operators participating in the program.

We are eager to participate in this program. Any questions regarding Hess' involvement in the project may be directed to me by phone at (713) 496-5443 or by e-mail at blohnes@hess.com.

Sincerely,

A handwritten signature in black ink that reads "Brent Lohnes".

Brent Lohnes
General Manager – North Dakota
Hess Corporation

March 28, 2018

Mr. Brent Brannan
Director
Oil & Gas Research Program
State Capitol, 14th Floor
600 E Boulevard Ave.
Dept. 405
Bismarck, ND 58505-0840

Subject: Program Entitled "iPIPE – intelligent Pipeline Integrity Program"

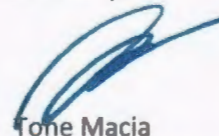
Dear Mr. Brannan:

This letter is provided to convey Oasis Midstream's intent to fund and actively participate in the proposed program named in the subject line above. We believe this industry-led, consortium-based program will result in improved pipeline performance in North Dakota and beyond. The program will explore, develop, and evaluate emerging technology that can be applied to gathering pipelines to reduce leaks and spills. This mission is important to our industry, to landowners, and to the state on the whole.

Oasis Midstream, in collaboration with other founding members of the iPIPE consortium, wishes to pursue R&D funding for this project through the North Dakota Industrial Commission (NDIC) Oil & Gas Research Council. The consortium wishes to request cash support of \$1,600,000 from NDIC, and intends to commit \$1,614,000 in cash cost share. Additionally, it is anticipated that consortium members and selected demonstration technology providers will contribute approximately \$500,000 in-kind toward execution of the program demonstrations. Oasis' commitment is contingent on the award of adequate matching funds from NDIC's Oil & Gas Research Program and other pipeline operators participating in the program.

We are eager to participate in this program. Any questions regarding Oasis Midstream's involvement with this project may be directed to me by phone at (281) 404-9657 or by e-mail at tmacia@oasispetroleum.com.

Sincerely,



Tone Macia
Manager, Engineering & Construction
Oasis Midstream Services



April 5, 2018

Mr. Brent Brannan
Director
Oil & Gas Research Program
State Capitol, 14th Floor
600 E Boulevard Ave.
Dept. 405
Bismarck, ND 58505-0840

Subject: Program Entitled "iPIPE – intelligent Pipeline Integrity Program"

Dear Mr. Brannan:

This letter is provided to convey Statoil Pipelines LLC 's intent to fund and actively participate in the proposed program named in the subject line above. We believe this industry-led, consortium-based program will result in dramatic improvements to the performance and integrity of gathering pipelines in North Dakota and beyond. The program will explore, develop, and evaluate emerging technology that can be applied to gathering pipelines to greatly reduce leaks and spills. This mission is important to our industry, to landowners, and to the state on the whole.

Statoil, in collaboration with other founding members of the iPIPE consortium, wishes to pursue R&D funding for this project through the North Dakota Industrial Commission (NDIC) Oil & Gas Research Council. The consortium wishes to request cash support of \$1,600,000 from NDIC, and intends to commit \$1,614,000 in cash cost share. Additionally, it is anticipated that consortium members and selected demonstration technology providers will contribute approximately \$500,000 in-kind toward execution of the program demonstrations. Statoil's commitment is contingent on the award of adequate matching funds from NDIC s Oil & Gas Research Program and other pipeline operators participating in the program.

We are eager to participate in this program. Any questions regarding Statoil's involvement in the project may be directed to Linda Pitman by phone at (701) 875-3510 or by e-mail at lpitman@statoil.com.

Sincerely,

A blue ink signature of Todd Walls, consisting of a stylized, cursive 'T' followed by a horizontal line.

Todd Walls
Finance Manager

A blue ink signature of Linda Pitman, featuring a cursive 'L' and 'P' followed by a horizontal line.

Linda Pitman
Leader, Operation & Maintenance
(Williston Basin Regional Manager)

Company

Statoil Pipelines LLC

Office address

120 Long Ridge Road, Suite 3E01
Stamford, CT 06902
USA

Telephone

+1 203 978 6900



March, 29 2018

Mr. Brent Brannan
Director
Oil & Gas Research Program
State Capitol, 14th Floor
600 E Boulevard Ave.
Dept. 405
Bismarck, ND 58505 0840

Subject: iPIPE – Intelligent Pipeline Integrity Program

Dear Mr. Brannan:

This letter is provided to convey Goodnight Midstream's support of the proposed iPIPE – Intelligent Pipeline Integrity Program. The iPIPE program is being established to explore, develop, and evaluate emerging technology that may be applied to gathering pipelines to greatly reduce the likelihood of leaks and spills. As a founding member of the iPIPE consortium, this mission is important to Goodnight Midstream, and we believe this mission is equally important for our industry, to North Dakota landowners, and to the State as a whole.

The iPIPE consortium wishes to pursue R&D funding for this project through the North Dakota Industrial Commission (NDIC) Oil & Gas Research Program (OGRP). Specifically, the consortium is respectfully requesting cash support of up to \$1,600,000 from the NDIC, and intends to directly commit up to \$1,614,000 for its cash cost share. Additionally, the founding members of the consortium expect that they and selected demonstration technology providers will also make up to approximately \$500,000 through in-kind contributions toward execution of the program demonstrations. The founding members of iPIPE have pledged their initial commitments contingent on the award of adequate matching funds from the NDIC's Oil & Gas Research Program and other pipeline operators participating in the program.

Should you have any questions regarding Goodnight Midstream's involvement in the iPIPE program, please contact me by phone at (701) 690-4311 or by email at mtaylor@goodnightmidstream.com. Additionally, Mr. Fred Kershisnik, advisor to the Board of Directors of Goodnight Midstream, is available to answer questions regarding the mission of the iPIPE consortium and Goodnight Midstream's role therein at fkershisnik@goodnightmidstream.com.

Sincerely,

Goodnight Midstream

Mark Taylor
Director of North Dakota Regional Operations

At the time of submittal of this proposal, the program has obtained verbal commitment from ONEOK, but a signed letter of commitment was not available at submittal time. Verification of this can be obtained by contacting Christopher Fonck, Director of Field Operations for ONEOK. Mr. Fonck can be reached by telephone at 406-433-8708 or by email at cfonck@oneok.com. Additional letters of commitment will be provided during the proposal review process, if requested.



March 29, 2018

Mr. Brent Brannan
Director
Oil & Gas Research Program
State Capitol, 14th Floor
600 East Boulevard Avenue, Department 405
Bismarck, ND 58505-0840

Dear Mr. Brannan,

Subject: Program entitled "iPIPE – intelligent Pipeline Integrity Program"

The Energy & Environmental Research Center (EERC) is proud to be named in the proposal referenced in the above subject line. The founding members of the iPIPE consortium have communicated to the EERC that they wish to contract with the EERC to manage the proposed program on their behalf. We look forward to the opportunity to lead this program to success.

The EERC hereby commits to serving the role outlined in this proposal. Although an exact budget for our role cannot be determined until specific technology field demonstrations have been selected, the budget table in the proposal provides notional figures that are in line with the role we anticipate.

We are eager to participate in this program. Any questions regarding the EERC's involvement with this project may be directed to me by phone at (701) 777-5153 or by e-mail at terickson@undeerc.org.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas A. Erickson", is written over a light gray rectangular background.

Thomas A. Erickson
CEO

TAE/mro

c: Jay Almlie, EERC

March 29, 2018

Ms. Karlene Fine
North Dakota Industrial Commission
ATTN: Oil and Gas Research Program
State Capitol – 14th Floor
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Sincerely,



Linda Pitman
Statoil Williston Basin Regional Manager