

October 29, 2019

Ms. Karlene Fine  
Executive Director  
North Dakota Industrial Commission  
State Capitol, 14th Floor  
600 East Boulevard Avenue, Department 405  
Bismarck, ND 58505-0840

Dear Ms. Fine:

Subject: Quarterly Progress Report Entitled "iPIPE – intelligent Pipeline Integrity Program,"  
Contract No. G-046-88; UND Project – Fund 43500-UND0022445  
EERC Funds 23121 and 23211

Attached is a quarterly progress report on the subject project for the period of  
July 1, 2019 – September 30, 2019.

If you have any questions, please contact me by phone at (701) 777-5260 or by e-mail at  
jalmlie@undeerc.org.

Sincerely,



Jay C. Almlie  
Principal Engineer  
Mid/Downstream Oil & Gas Group Lead

JCA/rlo

Attachment

c:/att: Brent Brannan, North Dakota Industrial Commission

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# **iPIPE – INTELLIGENT PIPELINE INTEGRITY PROGRAM**

## **Quarterly Progress Report**

*(for the period of July 1, 2019 – September 30, 2019)*

*Prepared for:*

Karlene Fine

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600 East Boulevard Avenue, Department 405  
Bismarck, ND 58505-0840

Contract No. G-046-88

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October 2019

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## **iPIPE – INTELLIGENT PIPELINE INTEGRITY PROGRAM**

### **Quarterly Progress Report July 1, 2019 – September 30, 2019**

#### **EXECUTIVE SUMMARY**

The intelligent Pipeline Integrity Program (iPIPE) is a game-changing program to develop new pipeline leak prevention and leak detection tools that will assist in the safe transport of produced oil and gas fluids. Formed in response to a challenge from North Dakota Governor Doug Burgum, pipeline operators and the Energy & Environmental Research Center (EERC) are working to create a launchpad for these tools.

During this reporting period, iPIPE continued 2019 technology development activities with Satelitics and Direct-C. Satelitics continued monitoring a 1100-km<sup>2</sup> Bakken area of interest, and a 200-km<sup>2</sup> Permian area of interest as the tool set refinement efforts continued. Lab work associated with Direct-C sensors was largely completed, although a few tests will continue in support of upcoming fieldwork. Preparations were made for field installation of several sets and several form factors of the Direct-C sensors.

During this period, preparations were made for the October 2019 technology selection event, to be held on October 22 and 23. Of 14 proposals received by iPIPE, the EERC screened these to the most promising eight proposals and forwarded those proposals to the iPIPE Technology Selection Committee in preparation for the technology selection event.

During this reporting period, additional in-kind cost share was reported by program members and technology providers alike. This has yielded an abundance of cost share in excess of that proposed at the start of the project.

# **iPIPE – INTELLIGENT PIPELINE INTEGRITY PROGRAM**

## **Quarterly Progress Report July 1, 2019 – September 30, 2019**

### **BACKGROUND**

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. In response to the Governor's challenge, industry chose a proactive path and engaged in a 3½-year program to advance development and application of emerging technologies that will prevent and detect pipeline leaks. The program intends to assist in the development of multiple emerging technologies to prevent and detect pipeline leaks by engaging with technology providers to refine not-yet-commercial products specifically for buried gathering pipelines in North Dakota, and then demonstrate technology application on working gathering pipelines.

The goal of this project 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.
- Assist technology providers in refinement of their products.
- Demonstrate multiple technologies on working gathering pipelines.
- Document results of technology demonstrations.
- Facilitate adoption of technologies into North Dakota pipeline operations.

Multiple 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 improve the performance and economics of gathering pipeline operations 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.

The nine members of the industry-led consortium include Hess Corporation, Equinor, Oasis Midstream Partners, Goodnight Midstream, ONEOK, Andeavor, Whiting Petroleum, DCP Midstream, and Enbridge. The consortium has asked the Energy & Environmental Research Center (EERC) to manage the program on its behalf. As such, the EERC submits a quarterly report and an annual report on behalf of the iPIPE consortium.

The following quarterly report summarizes the program activities from July 1, 2019, through September 30, 2019.

## ACCOMPLISHMENTS DURING REPORTING PERIOD

- Program-level activities
  - Program briefings
    - ♦ Governor Burgum presented an overview of iPIPE at the Interstate Oil and Gas Compact Commission (IOGCC) Annual Conference in Medora, North Dakota, on August 25, 2019.
  - Member recruitment
    - ♦ The program continued discussion with a number of companies regarding membership in the consortium. Some of these companies have approached the program regarding membership requirements and benefits, while others have been approached by the program and/or existing consortium members.
  - Program media mentions
    - ♦ iPIPE has now been highlighted in more than 50 public multimedia and printed articles. A partial listing of known media mentions, is provided in Appendix A.
- Technology selection
  - During this reporting period, the EERC increased the total number of requests for proposal (RFPs) sent to potential technology providers to 65.
  - The due date for proposals was September 6, 2019. The EERC received 14 proposals, up from ten a year ago and seven prior to that. This shows that technology providers are beginning to address the needs expressed by industry for new tools.
  - The 14 proposals were screened, and highest-quality proposals were forwarded to the iPIPE Technology Selection Committee for consideration during this year's annual technology selection event, scheduled for October 22 and 23 in Williston, North Dakota.
- Development project execution
  - Ingu Solutions
    - ♦ The last Ingu test report was received on September 5, 2019. This served as the final deliverable for the Ingu Solutions project.
  - Satelytics, Phase II
    - ♦ Satelytics monitoring of both areas of interest in North Dakota (Williston Basin) and the New Mexico (Permian Basin) area of interest continued during this reporting period. Several hydrocarbon and produced water alerts were produced over this period. Analysis of these alerts will be completed and presented in the annual report to North Dakota Industrial Commission (NDIC).
    - ♦ Weekly WebEx-facilitated video conference calls were held between program members, Satelytics, and the EERC throughout this reporting period to facilitate maximum engagement with the Satelytics project and maximum feedback from program members on the Satelytics technology development.
    - ♦ By the end of the reporting period, Satelytics had completed 15 of 16 planned weekly data captures and analyses.
  - Direct-C
    - ♦ Lab testing of Direct-C coupons continued. These tests are helping iPIPE to establish expected response of the sensors to various fluids in various soil compositions. This information will be valuable while analyzing data from field installations.
    - ♦ During this reporting period, EERC staff obtained commitments and specific details from program members for in-field installations of two typical configurations of Direct-



C sensors for long-term tests over winter 2019/2020. Three configurations were originally planned, but Direct-C has since dropped one of these from its line of product development.

## MEMBERSHIP AND FINANCIAL INFORMATION

The original budget proposed to the NDIC Oil and Gas Research Program (OGRP) was \$3,714,000, as shown in Table 1. Table 2 presents an expected budget and actual expenses incurred by the program to date.

**Table 1. iPIPE Original Budget**

<b>Sponsors</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>Total</b>
NDIC – Cash	\$403,320	\$405,226	\$393,454	\$398,000	\$1,600,000
Industry – Cash	\$264,000	\$450,000	\$450,000	\$450,000	\$1,614,000
Industry and Technology Provider – In-Kind	\$125,000	\$125,000	\$125,000	\$125,000	\$500,000
<b>Total</b>	<b>\$792,320</b>	<b>\$980,226</b>	<b>\$968,454</b>	<b>\$973,000</b>	<b>\$3,714,000</b>

**Table 2. iPIPE Expected Budget and Expenses to Date**

<b>Sponsors</b>	<b>Expected Budget</b>	<b>Actual Reported Expenses as of 9/30/19</b>	<b>Balance Remaining of Expected Budget</b>
<b>NDIC Share – Cash</b>	\$1,600,000	\$1,159,025	\$440,975
<b>Industry Share – Cash</b>	\$2,402,000*	\$788,014	\$1,613,986
<b>Industry – In-Kind</b>	\$250,000	<i>Andeavor</i> \$17,936 <i>DCP Midstream</i> \$13,580 <i>Enbridge</i> \$7,905 <i>Equinor</i> \$126,530 <i>Goodnight</i> \$6,800 <i>Hess</i> \$104,181 <i>Oasis</i> \$19,620 <i>Whiting</i> \$3,642 <b>Total</b> <b>\$300,194</b>	\$0**
<b>Technology Providers – In-Kind</b>	\$250,000	<i>Satetytics</i> \$971,550 <i>Direct-C</i> \$16,847 <i>Ingu</i> \$88,266 <b>Total</b> <b>\$1,076,663</b>	\$0**
<b>Total</b>	<b>\$4,502,000*</b>	<b>\$3,323,896</b>	<b>\$2,054,961*</b>

\* These expected budget figures were each increased by \$788,000 over the original budget because of the addition of three new consortium members.

\*\* The program has already exceeded the budgeted amount of in-kind cost share by \$715,820.

CY2019 program membership dues have been collected from all nine members of the iPIPE consortium. The program continues to solicit additional members to contribute to this

program. As additional members join the program, Table 2 will be updated to show the additional financial resources brought to the program.

Project progress, as represented by the project schedule presented in the original NDIC OGRP proposal, is shown in Figure 1.

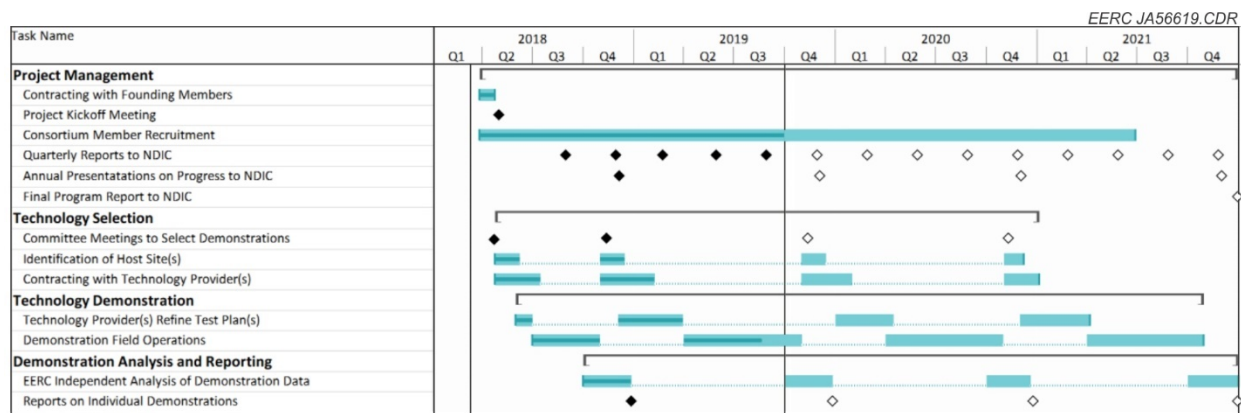


Figure 1. Project progress.

## FUTURE ACTIVITIES

The planned activities for the next quarter are detailed below:

- Program-level activities
  - On October 31, EERC staff will present a high-level iPIPE program summary at the Western Dakota Energy Association meeting in Minot, North Dakota.
  - On November 2, EERC staff will present a high-level iPIPE program summary at the Pipeliners Association of Houston meeting in Houston, Texas.
  - iPIPE will continue to solicit additional consortium members, following up on several open discussions.
- Technology selection
  - EERC staff will attend the Pipeline Technology Forum in Houston, Texas, to scout new technologies during the week of October 1–4.
  - The EERC will continue to research and evaluate potential new and emerging technologies for consideration by iPIPE. The EERC will contact several potential candidates for the next technology selection event and will solicit proposals from select technology providers. This is a continuous task.
  - The 2019 technology selection event will be held October 22 and 23. Shortly after this event, selections will be finalized for 2020 development activities. Contracting with those selected will begin immediately.
- Development project execution
  - Satelytics, Phase II
    - ♦ Weekly satellite data capture and processing will be completed in early October.

- ♦ Following completion of all scheduled data capture and processing, the EERC will begin evaluating the performance of Satelytics during this phase of operations and will compile a final report. This report will be vetted by an iPIPE team and the Satelytics team prior to release to iPIPE members by the end of the quarter. The executive summary of this report will be integrated into the annual report to NDIC, which is due by January 30, 2020.
- Direct-C
  - ♦ Lab tests exposing Direct-C sensor coupons to actual fluid samples collected from consortium member facilities will conclude at the EERC. A report on lab results will be shared with consortium members.
  - ♦ Installation of field demonstrations will be completed in November. The field demonstrations will commence and will operate through at least February 2020. A report on this development effort will not be available to include in the annual report in January 2020 because the project will not be completed by then.

## **APPENDIX A**

# **PARTIAL LISTING OF iPIPE MEDIA MENTIONS**

## Partial List of Articles Highlighting iPIPE

Title	Date	URL
Industry responds to governor's initiative to improve pipeline technology; Program funding approved by North Dakota Industrial Commission		<a href="https://www.ndoil.org/industry-responds-to-governors-initiative-to-improve-pipeline-technology-program-funding-approved-by-north-dakota-industrial-commission/">https://www.ndoil.org/industry-responds-to-governors-initiative-to-improve-pipeline-technology-program-funding-approved-by-north-dakota-industrial-commission/</a>
Satetytics Selected to Participate in the Intelligent Pipeline Integrity Program (iPIPE)	5/18/2018	<a href="https://mailchi.mp/satetytics/satetytics-chosen-to-participate-in-ipipe-project?e=922473135e">https://mailchi.mp/satetytics/satetytics-chosen-to-participate-in-ipipe-project?e=922473135e</a>
ND implements intelligent pipeline project	5/22/2018	<a href="http://northamericanshalemagazine.com/articles/2380/nd-implements-intelligent-pipeline-project">http://northamericanshalemagazine.com/articles/2380/nd-implements-intelligent-pipeline-project</a>
North Dakota Governor Doug Burgum provides remarks this morning at the Williston Basin Petroleum Conference in Bismarck, thanks Hess and the industry for innovation through iPIPE program.	5/23/2018	<a href="https://twitter.com/HessCorporation/statuses/999315208261853185">https://twitter.com/HessCorporation/statuses/999315208261853185</a>
North Dakota Pipeline Leak Detection Initiative Announced	5/25/2018	<a href="https://extension.psu.edu/north-dakota-pipeline-leak-detection-initiative-announced">https://extension.psu.edu/north-dakota-pipeline-leak-detection-initiative-announced</a>
New consortium sets goal of improving pipelines	5/26/2018	<a href="https://www.mrt.com/business/oil/article/New-consortium-sets-goal-of-improving-pipelines-12941971.php">https://www.mrt.com/business/oil/article/New-consortium-sets-goal-of-improving-pipelines-12941971.php</a>
Industry Responds To Governor's Initiative To Improve Pipeline Technology; Program Funding Approved By North Dakota Industrial Commission	5/26/2018	<a href="https://www.oilandgasonline.com/doc/industry-governors-initiative-pipeline-program-north-dakota-industrial-commission-0001">https://www.oilandgasonline.com/doc/industry-governors-initiative-pipeline-program-north-dakota-industrial-commission-0001</a>
New consortium sets goal of improving pipelines	5/27/2018	<a href="https://www.timesunion.com/business/oil/article/New-consortium-sets-goal-of-improving-pipelines-12941971.php">https://www.timesunion.com/business/oil/article/New-consortium-sets-goal-of-improving-pipelines-12941971.php</a>
Principal Engineer Jay Almlie discusses the iPipe Program on Energy Matters Radio	5/31/2018	<a href="https://www.youtube.com/watch?v=ZQuwsK0z2aM">https://www.youtube.com/watch?v=ZQuwsK0z2aM</a>
North Dakota selects Ingu Solutions for demonstration of cutting-edge leak detection and prevention technology for oil and gas pipelines	5/31/2018	<a href="https://ingu.co/ipipe/">https://ingu.co/ipipe/</a>
Leak Detection Project Kicks Off This Summer	6/1/2018	<a href="https://myemail.constantcontact.com/Here-are-the-week-s-top-North-Dakota-energy-stories-.html?soid=1102657032033&amp;aid=NpwT2Ynl17c">https://myemail.constantcontact.com/Here-are-the-week-s-top-North-Dakota-energy-stories-.html?soid=1102657032033&amp;aid=NpwT2Ynl17c</a>
How a Canadian solution to detecting pipeline leaks is being used in North Dakota	6/5/2018	<a href="https://www.bnnbloomberg.ca/video/how-a-canadian-solution-to-detecting-pipeline-leaks-is-being-used-in-north-dakota~1410402">https://www.bnnbloomberg.ca/video/how-a-canadian-solution-to-detecting-pipeline-leaks-is-being-used-in-north-dakota~1410402</a>
iPIPE Program helps solve pipeline leaks in ND	6/6/2018	<a href="http://www.kfyrvtv.com/content/news/iPIPE-Program-helps-solve-pipeline-leaks-in-ND--484747291.html">http://www.kfyrvtv.com/content/news/iPIPE-Program-helps-solve-pipeline-leaks-in-ND--484747291.html</a>
Startup uses small sensors to check North Dakota oil pipes	6/10/2018	<a href="https://www.alvareviewcourier.com/story/2018/06/10/interesting-items/startup-uses-small-sensors-to-check-north-dakota-oil-pipes/37406.html">https://www.alvareviewcourier.com/story/2018/06/10/interesting-items/startup-uses-small-sensors-to-check-north-dakota-oil-pipes/37406.html</a>
Sensors to monitor oil, brine gathering lines coming to ND	6/12/2018	<a href="https://www.westfargopioneer.com/news/science-and-nature/4459638-sensors-monitor-oil-brine-gathering-lines-coming-nd">https://www.westfargopioneer.com/news/science-and-nature/4459638-sensors-monitor-oil-brine-gathering-lines-coming-nd</a>
Pipe sensors to monitor gathering lines	6/12/2018	<a href="https://bismarcktribune.com/business/local/pipeline-sensors-to-monitor-gathering-lines/article_cd64586c-1d52-52df-83e6-b661d3b95f0a.html">https://bismarcktribune.com/business/local/pipeline-sensors-to-monitor-gathering-lines/article_cd64586c-1d52-52df-83e6-b661d3b95f0a.html</a>
Startup uses small sensors to check North Dakota oil pipes	6/21/2018	<a href="https://www.apnews.com/9d65538034a24711a4a84d4e2bb38efe">https://www.apnews.com/9d65538034a24711a4a84d4e2bb38efe</a>
Startup Uses Small Sensors to Check North Dakota Oil Pipes	6/21/2018	<a href="https://www.usnews.com/news/best-states/north-dakota/articles/2018-06-21/startup-uses-small-sensors-to-check-north-dakota-oil-pipes">https://www.usnews.com/news/best-states/north-dakota/articles/2018-06-21/startup-uses-small-sensors-to-check-north-dakota-oil-pipes</a>
Startup uses small sensors to check North Dakota oil pipes	6/21/2018	<a href="https://m.washingtontimes.com/news/2018/jun/21/startup-uses-small-sensors-to-check-north-dakota-o/">https://m.washingtontimes.com/news/2018/jun/21/startup-uses-small-sensors-to-check-north-dakota-o/</a>

iPIPE: Taking a bite out of leaks	6/25/2018	<a href="http://blogs.und.edu/und-today/2018/06/taking-a-bite-out-of-leaks/">http://blogs.und.edu/und-today/2018/06/taking-a-bite-out-of-leaks/</a>
iPIPE: Taking a Bite Out of Leaks	6/29/2018	<a href="http://www.northdakotaagconnection.com/story-state.php?Id=688&amp;yr=2018">http://www.northdakotaagconnection.com/story-state.php?Id=688&amp;yr=2018</a>
Industry demonstrates commitment to stoping pipeline leaks	7/17/2018	<a href="http://northamericanshalemagazine.com/articles/2444/industry-demonstrates-commitment-to-stoping-pipeline-leaks">http://northamericanshalemagazine.com/articles/2444/industry-demonstrates-commitment-to-stoping-pipeline-leaks</a>
Testing of New Pipeline Inspection Device Begins in Bakken	7/18/2018	<a href="https://www.spe.org/en/ogf/ogf-article-detail/?art=4404">https://www.spe.org/en/ogf/ogf-article-detail/?art=4404</a>
Testing of New Pipeline Inspection Device Begins in Bakken	7/18/2018	<a href="https://www.spe.org/en/print-article/?art=4404">https://www.spe.org/en/print-article/?art=4404</a>
6 companies collaborating on pipeline leak detection	8/15/2018	<a href="https://www.willistonherald.com/news/companies-collaborating-on-pipeline-leak-detection/article_bbce3194-a098-11e8-8bac-1b765123019e.html">https://www.willistonherald.com/news/companies-collaborating-on-pipeline-leak-detection/article_bbce3194-a098-11e8-8bac-1b765123019e.html</a>
More Skin in the Game: New Technology to Find, Fix Leaks	8/20/2018	<a href="https://pgjonline.com/magazine/2018/august-2018-vol-245-no-8/features/more-skin-in-the-game-new-technology-to-find-fix-leaks">https://pgjonline.com/magazine/2018/august-2018-vol-245-no-8/features/more-skin-in-the-game-new-technology-to-find-fix-leaks</a>
Burgum highlights oil industry's progress, challenges at ND Petroleum Council's annual meeting in Fargo	9/25/2018	<a href="https://www.governor.nd.gov/news/burgum-highlights-oil-industry%E2%80%99s-progress-challenges-nd-petroleum-council%E2%80%99s-annual-meeting">https://www.governor.nd.gov/news/burgum-highlights-oil-industry%E2%80%99s-progress-challenges-nd-petroleum-council%E2%80%99s-annual-meeting</a>
Burgum highlights oil industry's progress, challenges at ND Petroleum Council's annual meeting in Fargo	9/25/2018	<a href="https://votesmart.org/public-statement/1287849/burgum-highlights-oil-industrys-progress-challenges-at-nd-petroleum-councils-annual-meeting-in-fargo#.XDz9tVxKjmE">https://votesmart.org/public-statement/1287849/burgum-highlights-oil-industrys-progress-challenges-at-nd-petroleum-councils-annual-meeting-in-fargo#.XDz9tVxKjmE</a>
The Digital Oilfield: How digital technologies are changing the oil industry in ND and nationwide	9/30/2018	<a href="http://www.prairiebusinessmagazine.com/business/energy-and-mining/4506605-digital-oilfield-how-digital-technologies-are-changing-oil">http://www.prairiebusinessmagazine.com/business/energy-and-mining/4506605-digital-oilfield-how-digital-technologies-are-changing-oil</a>
Progress for Partners Key to Energy & Environmental Research Center		<a href="https://www.ndliving.com/content/progress-partners-key-energy-environmental-research-center">https://www.ndliving.com/content/progress-partners-key-energy-environmental-research-center</a>
API Banquet salutes stars of Bakken oil and gas	11/19/2018	<a href="https://www.willistonherald.com/news/api-banquet-salutes-stars-of-bakken-oil-and-gas/article_a006f78e-eb98-11e8-a353-abe9fc1170fc.html">https://www.willistonherald.com/news/api-banquet-salutes-stars-of-bakken-oil-and-gas/article_a006f78e-eb98-11e8-a353-abe9fc1170fc.html</a>
Energy Matters: iPIPE receives Industry Innovation Award	12/3/2018	<a href="https://www.youtube.com/watch?v=L2lEr2Xu4aw">https://www.youtube.com/watch?v=L2lEr2Xu4aw</a>
Energy Matters with iPIPE	12/12/2018	<a href="https://www.satelytics.com/blog/oil-gas-solutions/2018-energy-matters-with-ipipe/">https://www.satelytics.com/blog/oil-gas-solutions/2018-energy-matters-with-ipipe/</a>
Developing Technology to Prevent Pipeline Leaks	1/3/2019	<a href="https://mydigitalpublication.com/publication/?i=547462&amp;p=&amp;pn=#{%22issue_id%22:547462,%22page%22:34}">https://mydigitalpublication.com/publication/?i=547462&amp;p=&amp;pn=#{%22issue_id%22:547462,%22page%22:34}</a>
Innovative Pipeline Consortium Marks New Highlights	1/8/2019	<a href="http://undeerc.blogspot.com/2018/12/innovative-pipeline-consortium-marks.html">http://undeerc.blogspot.com/2018/12/innovative-pipeline-consortium-marks.html</a>
2018 State of the State Address	1/23/2019	<a href="https://www.governor.nd.gov/events/2018-state-state-address">https://www.governor.nd.gov/events/2018-state-state-address</a>
North Dakota Eyes Expanded Use of Drones for Oil and Natural Gas Operations	2/8/2019	<a href="https://www.naturalgasintel.com/articles/117347-north-dakota-eyes-expanded-use-of-drones-for-oil-and-natural-gas-operations">https://www.naturalgasintel.com/articles/117347-north-dakota-eyes-expanded-use-of-drones-for-oil-and-natural-gas-operations</a>
The Crude Life Interview: Joe Dancy, Energy Expert & Educator	5/18/2019	<a href="http://www.thecrudelife.com/podcast/the-crude-life-interview-joe-dancy-energy-expert-educator/">http://www.thecrudelife.com/podcast/the-crude-life-interview-joe-dancy-energy-expert-educator/</a>
The Big Data Revolution: Detecting Pipeline Leaks, Encroachments and More Using Satellites	6/15/2019	<a href="https://www.pipeline-journal.net/journal/pipeline-technology-journal-32019">https://www.pipeline-journal.net/journal/pipeline-technology-journal-32019</a>
Energy Matters Radio: iPIPE	9/6/19	<a href="https://youtu.be/4tTA_WEsMI8">https://youtu.be/4tTA_WEsMI8</a>
iPIPE Program Assisting in Detection of Pipeline Leaks in the Pipeline & Gas Journal September Edition (Page 50-52)	9/10/2019	<a href="https://www.nxtbook.com/nxtbooks/gulfpub/pgj_201909/">https://www.nxtbook.com/nxtbooks/gulfpub/pgj_201909/</a>
iPIPE Receives IOGCC Chairman's Stewardship Award for Environmental Partnership	9/10/2019	<a href="https://www.am1100theflag.com/news/10755-ipipe-receives-iogcc-chairman%E2%80%99s-stewardship-award-environmental-partnership">https://www.am1100theflag.com/news/10755-ipipe-receives-iogcc-chairman%E2%80%99s-stewardship-award-environmental-partnership</a>
iPIPE Receives Chairman's Stewardship Award	9/10/2019	<a href="http://undeerc.blogspot.com/2019/09/ipipe-receives-chairmans-stewardship.html">http://undeerc.blogspot.com/2019/09/ipipe-receives-chairmans-stewardship.html</a>
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