



Consortium for Digital Innovation and Transformation– Request for Technologies (RFT)

Drones for Vessels and Confined Space Inspections

Date: July 25, 2018

Purpose

PTAC is seeking voluntary responses for new and innovative digital technologies related to oil and gas production as indicated in the scope section of this document. Interested parties are invited to submit proposals according to the specifications provided herein.

There is no pre-assigned budget for resourcing the proposals received under this RFT. The proposals may however become part of a Dragon’s Den style event where organizations who prepared successful proposals, as decided by the PTAC-facilitated Consortium for Digital Innovation and Transformation (CDIT), will be asked to present their technology to a panel of Canadian oil and gas end-users to encourage open communication between both parties.

Background

The oil and gas industry is increasingly demanding digital technology solutions to be incorporated into their workflows and operations. Technological advancements have allowed industry to increase efficiency and productivity from reduced costs, effective work output, quicker action, and better results. The digital revolution in oil and gas is found in areas such as Internet of Things, Artificial Intelligence, Blockchain, Machine Learning, and Data Analytics.

One of the digital innovations that could revolutionize the oil and gas industry is using small drones for performing inspections in confined spaces.

Scope

RFT submissions are invited for new products or services that result in the use of small tethered or untethered, aerial or non-aerial, drones to perform internal and/or external inspections of vessels, including inside confined spaces that may be hazardous. Details for the drone application are as follows:

1. Vessels with confined spaces such as:

- Tanks in use in services such as storage of oil, condensate, distillates, gas, water and emulsions. Additional information to note regarding end-user tank standards:
 - Tank Inspections are performed as per API 653 standard
 - Tanks are mostly 350K barrel which is about 215 ft in diameter and 60 ft high. The entry point is near the bottom of the tanks and is about 4ft by 4ft
 - Every month external (visual) inspections are performed – refer to API 653 for details
 - Every 5 years an external visual inspection but more thorough one is done and includes non-destructive inspection methods (ultrasound for example) to test the



- shell, roof plates, etc. for corrosion, check the cathodic protection etc. – refer to API 653 for details
- Open tank /floating tanks are harder to inspect due to the presence of VOCs making it more hazardous for the human inspectors (requires PPE, breathing apparatus etc.)
 - Every 10 years internal inspections are done to check the tank welds etc., floor plates and UT of the foundation of the tank. Complex inspection that requires emptying and cleaning of the tank
 - It would be useful if no cleaning of the tank was required for the internal inspection (contributes most to the cost of the inspection), even better if the fluid could remain in the tank during inspection
 - Boilers and steam generators
2. Inspection purposes:
- Corrosion inspection
 - Surface defects
 - On surfaces and for welds
 - Inspections must meet the requirements of API 653 or other relevant code.
3. The drones need to be intrinsically safe for use in confined spaces where hydrocarbons may be present. Indicate the intrinsically safe zone classification, whether zone 0 or 1.
4. The value provided by the drones is to avoid the need for technicians to enter the confined space.
5. Additional value provided by the drones could be avoiding emptying and cleaning tanks prior to inspection (e.g. submersible drones could inspect water tanks containing water; specialized sensors could inspect a tank surface coated with oil or other residues.)

Contents of Proposals

Proposals should be brief, approximately 2 to 4 pages in length, and submitted in PDF format. All proposals should be composed of non-confidential information only, including:

- Company name, address, and contact name;
- Title/Technology Name;
- Description of technology solution;
- Benefits of the technology;
- State of development (TRL) according to the NASA scale;
- Summary development plan;
- Estimated technology development or demonstration cost.

The deadline for submission is: August 29, 2018.

Proposals should be submitted to Kristie Martin by email: kmartin@ptac.org

Selection Process

The PTAC facilitated Consortium for Digital Innovation and Transformation (CDIT), composed of industry stakeholders with relevant expertise pertaining to digital innovation from ATCO,



Canadian Natural Resources, Cenovus Energy, Enbridge Pipelines, Encana Corporation, Husky Energy, Suncor Energy, and TransCanada Pipelines, makes all decisions pertaining to RFT selections. PTAC facilitates consortium proceedings but is not a decision-maker.

All submitted proposals will be provided to CDIT for review and CDIT will determine if proposals meet the requirements herein and provide an overall ranking based on the proposal quality. CDIT will make the final decision regarding the awarded outcomes (see below).

Outcome

Once a selection of the best proposal(s) according to CDIT have been made, all submission contacts will be notified by email of the regarding the outcome of their individual proposal.

Level 1: Top-ranked proposals will be invited to make a 20-minute presentation to CDIT to further expand on their proposal and engage in a 15-minute Q&A dialogue with all CDIT representatives. The benefit is direct interaction with and exposure to a number of end-user companies who can provide valuable insight into the needs of industry and how to improve or market a digital solution for the end-user.

Level 2: Potential collaboration on a funded project, as decided upon by CDIT.

RFT Schedule

July 25, 2018	RFT issued
August 29, 2018	Deadline for receipt of Full Proposals by PTAC
September 21, 2018	Selection of the top ranked proposals by CDIT

Contact Information

Kristie Martin
PTAC, Suite 400, 500 Fifth Avenue S.W.
Calgary, Alberta T2P 3L5
Tel.: 403-218-7711
Email: kmartin@ptac.org

For Technical Inquiries

Marc Godin
Tel.: 403-870-5402
Email: marc.godin@portfire.com