

Notice of Funding Opportunity (NOFO) #693JK31852A01
Pipeline Safety Research Competitive Academic Agreement Program (CAAP)
Fiscal Year 2018 Questions & Answers

Financial/Administrative Questions

Q1. Are only universities in the United States eligible to apply?

A1. See Section 3.02 "Minimum Requirements".

Q2. Can an organization submit more than one application?

A2. There is no limit to the number of application an organization may submit, but PHMSA will only consider one submittal per topic area per organization.

Q3. The announcement limits subcontractor costs to 20% May a university partner with another university and fund their work in an amount greater than this 20% limitation?

A3. The Notice of Funding Opportunity states that *"the total cost of consultants and/or subcontractors should not exceed 20 percent of the proposed amount of Federal contribution to project"*. Universities may pool resources with the understanding that the total federal award for a project may not exceed \$300,000 and the subcontractor costs should not exceed 20%.

Q4. Should we use Standard Form 424A or Standard Form 424?

A4. The Notice of Funding Opportunity states in Section 5.02 *applicants must use Standard Form (SF) 424A through Grants.gov to submit their budget/cost proposal.*

Engineering/Technical Questions

Questions Focused on Research Area #1

Q5. Are you interested in liquid petroleum pipelines or natural gas pipelines?

A5. Internal corrosion threats face both natural gas and hazardous liquid pipelines. PHMSA is interested in solutions to internal corrosion threats to either type, or cross-functional solutions addressing both types of pipelines.

Q6. Do you prefer the internal detection techniques or a technique which can be used externally to provide internal corrosion information?

A6. Whichever technology provides the best solution to detecting, mitigating, or locating internal pipeline corrosion is preferred. Whether the approach is internal or external to the pipeline will likely impact how the technology is adopted in the future.

Q7. Are you interested in residual water detection or the detection of early stage corrosion caused by water and other corrodents?

A7. Residual water may lead to internal corrosion and may be considered a preventative measure to internal corrosion, thus addressing one threat mechanism. Detection of early stage corrosion caused by water and other corrodents would also be satisfactory for this research area.

Q8. Do you like to see an industrial consultant on this project? Do you want to see a field demonstration at the end of the project?

A8. Pipeline operator involvement specifically as an industrial consultant is desirable, as they are the potential adopters of any technology resulting from this effort. Field demonstrations are also desirable.

Q9. Do you prefer a topic of general corrosion or stress corrosion cracking?

A9. This funding opportunity is looking for solutions addressing internal corrosion in pipelines.

Questions Focused on Research Area #2

Q10. Should address all variances, from data measurement and damage types, to reporting protocols, or we could select certain variances within the data and provide solutions to address it?

A10. Pipelines operate in varied conditions across the country. The most successful proposal will likely address the most variances, but may select certain variances if the researcher proposes this to have the most impactful outcome.

Q11. What is specific requirement for the finite element (using finite element analysis to predict performance data? or tool to generate data?), as stated in the announcement that includes the statement in the Project Challenges, “**project of this nature would likely require Finite Element Analysis (initially) in addition to...**”.

A11. There is neither a requirement to include Finite Element Analysis in a solution, nor requirements for Finite Element Analysis if it is included in a solution. PHMSA considers that it would be natural for some solutions to include FEA for certain approaches to this Research Area.

Miscellaneous Questions

Q12. What types of fluids, flowing through the pipe, are of primary interest? Crude oil, gas, fresh water, saline water, etc.?

A12. PHMSA is interested in those lines regulated under 49 Code of Federal Regulations Parts 192 & 195, which include natural gas (49 CFR 192) and hazardous liquids (49 CFR 195).

Q13. What types of pipeline materials are of primary interest; carbon steel (grade), stainless steels, lead, copper, aluminum, mixed materials/alloys?

A13. The majority of pipelines regulated by PHMSA are carbon steel.

Q14. What types of surface treatments (for main materials) are of primary interest?

A14. Pipelines under PHMSA jurisdiction may be coated by one of several methods, or bare.

Q15. What types of corrosion should be diagnosed? Pitting, general, crevice, cracking, weld, 6 o'clock position?

A15. This solicitation is seeking solutions generally for internal corrosion threats.

Q16. Is the agency interested in research targeting microbially induced corrosion (MIC)? If yes, would the use of field microbial consortia versus a laboratory system be preferred or it is not important?

A16. MIC solutions could possibly be in the suite of solutions addressing internal corrosion. A MIC solution would need to reflect the actual microbial situations facing pipeline environments.

Q17. Is the agency interested in developing a risk assessment method, based on the presence of metabolites and chemical molecules (other than chloride, sulfate, etc.) as well as on biological risk factors?

A17. PHMSA is interested in the described method insofar as it would potentially reduce or mitigate the discovery time or cost of internal corrosion compared to existing technologies.

Q18. Do pH mapping and detection of organic molecules other than organic acids, as indicators of corrosion process, fit into the scope of this program?

A18. The onus to demonstrate how such mapping and detection would adequately address the research area would fall to the proposal to illustrate. If this mapping/detection can be shown to keenly address internal corrosion threats, it would fall within scope.

Q19. Is the primary interest to map areas of severe corrosion attack (for example inside a pipeline), i.e. a method and instrument that could be incorporated into a robot system, such as the Explorer?

A19. Detecting internal corrosion is one of the focuses of this research area. A platform, such as a robotic system, which mapped internal corrosion could satisfying the need for innovative salutation that may mitigate internal corrosion.

Q20. Is the agency interested in a method to determine corrosion risk in systems, such as a length of pipeline of a specific tank (as opposed to corrosion mapping)?

A20. PHMSA is most interested in solutions which detect, mitigate, and/or locate internal corrosion in a pipeline. A systemic approach would also need to be capable of localization.

Q21. Would the agency be interested in laboratory studies that aim to determine the feasibility of a corrosion detection system in the field?

A21. PHMSA understands that a laboratory study is likely to be an important part of developing nascent technology. While a laboratory study would be acceptable, studies which resulted in field demonstrations of corrosion detection would likely be more competitive.

Q22. Is there interest in developing methods to demonstrate the importance of the distribution and density of inclusions (in carbon steel pipe materials) for the development of severe corrosion?

A22. This could play a part in a scheme to detect, mitigate, and/or locate internal pipeline corrosion, but would be insufficient as the sole proposal topic.

Q23. Is the agency interested in research targeting the role that the metallurgical history, structural defects and strains in the material play in the corrosion process?

A23. This could play a part in a scheme to detect, mitigate, and/or locate internal pipeline corrosion, but would be insufficient as the sole proposal topic.