

U.S. Department of Transportation  
Research and Special Programs Administration (RSPA)  
Office of Contracts and Procurement, DMA-30  
400 7<sup>th</sup> Street, SW, Room 7104  
Washington, DC 20590

Pipeline Safety Research and Development – Improved Materials Performance and Other  
Pipeline Safety Improvements

DTRS56-03-BAA-0001, due January 31, 2003, POC Warren D. Osterberg, Contracting Officer,  
Phone: 202-366-6942, Fax 202-366-7974, Email: [warren.osterberg@rspa.dot.gov](mailto:warren.osterberg@rspa.dot.gov)

CONTRACT INFORMATION: Through this Broad Agency Announcement (BAA), the U.S. Department of Transportation (DOT), Research and Special Programs Administration (RSPA) is soliciting information and descriptions (white papers) for cost-shared activities to address research that will complement and enhance pipeline safety. White papers are not to exceed five pages per project and must include the offeror's contact information: point of contact, telephone number, fax number and email address. Separate white papers must be submitted for each proposed project and multiple projects cannot be combined into a single white paper.

On April 23 and April 25, 2002, RSPA's Office of Pipeline Safety (RSPA/OPS) held two (2) briefings to provide additional information on the BAA process. Interested parties may obtain more details on these briefings via the Pipeline Safety Research and Development (R&D) Internet Web site <http://primis.rspa.dot.gov/rd/index.htm>. The Internet Web site contains the presentation from the briefings, questions and answers from the briefings, and a list of potential bidders and others who requested that their contact information be made public.

SPECIAL NOTE: This announcement will be open through January 31, 2003, unless otherwise amended. The purpose of the BAA is to solicit research projects to assure the long-term integrity and security of the nation's gas and hazardous liquid pipeline network. A team of experts will review white papers submitted in response to this announcement and offerors will be advised accordingly, as the evaluation is completed.

SCOPE: In November 2001, a RSPA/OPS Research & Development workshop brought together government agencies (Federal, State, local and international), research institutions, pipeline companies and their associations, standards organizations, and public representatives to begin development of a national pipeline safety research agenda. The workshop description, speaker notes, and other documents of interest are on the Pipeline Safety R&D Internet Web site: <http://primis.rspa.dot.gov/rd/index.htm>. On March 28, 2002, RSPA issued the first of three BAAs aimed to address the major research areas highlighted by the November workshop. The first BAA solicited white papers for Damage Prevention and Leak Detection research and development. RSPA has awarded \$1.6 million for seven research contracts focused on damage prevention and leak detection. Additional information on these contracts can be found on the Pipeline Safety R&D Internet Web site. RSPA issued a second BAA on June 5, 2002, to solicit white papers for Enhanced Pipeline Operations, Controls, and Monitoring. RSPA expects to award contracts in this research area in the near future and will post information on each award on our Pipeline Safety R&D Internet Web site. This BAA solicits white papers for the final research area highlighted by the November 2001 workshop and several areas identified in the first and second BAA:

**Improved Material Performance and Other Pipeline Safety Improvements:** Research in this area should focus on improving pipeline materials to extend the integrity and lifetime of installed pipelines and their various components. Other areas of interest include research that will improve pipeline safety or reduce the cost of state-of-the-art pipeline safety activities. Topics of interest include the following:

- *Damage and defect resistant materials* – Advanced pipeline materials that will prevent corrosion, mitigate 3<sup>rd</sup> party damage, or are resistant to environmental factors like soil movement and moisture and will extend pipeline life and lower maintenance costs. Examples of projects of interest include materials that will avoid or mitigate environmentally assisted damage, improved non-metallic liners for pipelines that have defects that threaten the structural integrity of the pipeline, and technical and economic justification methodologies for alternative pipe designs, including composite pipe.
- *Higher grade/strength steel* - Installation of thicker and higher strength steels may add to pipeline damage and defect resistance, but may be offset by complications in joint welding and pipe flexibility. Examples of projects of interest include decision-making protocols to optimize the use of higher grade/strength steels; technical basis for the use of higher grade/strength steels; improved assessment and inspection techniques for higher grade/strength steels; fracture considerations for higher grade/strength steels; and strength, ductility and toughness characteristics of higher grade/strength steels.
- *Higher pipe design pressure* - Pipe designed to allow higher pressure would allow greater volumes of gas or liquid to be moved through a given diameter of pipe without adversely affecting safety or integrity. Examples of projects of interest include guidelines for the use of higher design factors, the technical basis for the use of higher pressure designs, and design approaches to allow design pressures of 2800 psig and above.
- *Welding and joining* - Welds and joints, particularly in replacement or repair situation, have different performance characteristics and failure factors than the pipe itself. Examples of projects of interest include improved weld defect detection and assessment methods, weldability and weld metal requirements of higher grade/strength steels, weldability and weld metal requirements for welding in-service pipes, welding techniques to avoid hydrogen cracking, alternative repair and remediation methods for in-service pipelines, and improved welding processes.
- *Composite pipe* - Pipe made of, or layered with, materials other than steel may exceed current performance standards or allow greater flexibility or lower cost in challenging installation conditions. Examples of projects of interest include flexible composite or non-metallic pipe for moderate or low pressure systems, composite reinforced line pipe and pipes making extensive structural use of thermoplastic resins.
- *Pipe coatings* - Properly applied coatings, whether applied in the factory or in the field, can be one of the most significant factors in insuring pipeline integrity. Examples of projects of interest include test methodologies to predict long-term performance, development of decision methodologies to improve coating choices, developing field-applied coatings with the cost and performance of factory-applied coatings, and intelligent coatings that monitor their conditions.

- *Mathematical pipeline modeling enhancements or computational pipeline modeling enhancements* - Examples of projects of interest include better modeling of growth defects, mathematical algorithms that will improve pipeline modeling and improved pipeline operating data to better detect small leaks.
- *Improved directional drilling* – Directional drilling can safely and effectively place an underground utility beneath roads, rivers, and other difficult areas but recent accidents have shown problems may occur during the process. Examples of projects of interest include new drilling techniques that can prevent accidental damage to existing underground utilities or the utility being installed, and technologies that will detect underground utilities in the path of the directional drill.
- *Airborne chemical mapping and encroachment monitoring* – Approaches using aerial surveillance with technologies for right-of way and leak detection monitoring. Examples of projects of interest include the use of unmanned or other aerial vehicles to monitor pipeline conditions, encroachment, and small leaks, and innovative approaches to preempt third party damage to pipelines by detecting encroachment of pipelines and their rights-of-ways.
- *Small leak detection* – Ecological and drinking water resources can be severely impacted by small pipeline leaks that are not quickly detected. Examples of projects of interest include monitoring technologies that can quickly detect the release of a small portion of the total product being transported, leak detection equipment for very small leaks, and research that will reduce the cost of current leak detection equipment.
- *Human factors* – Rotating pipeline controller shifts, human fatigue, and the interaction between operator personnel and pipeline machinery can contribute to pipeline accidents. Topics of interest include technologies and procedures designed or modified to minimize operator error, research on the effects of rotating pipeline controller shifts and potential solutions for minimizing those effects, human interface in database management and other portions of the pipeline operating system.

WHITE PAPERS: RSPA is soliciting white papers on proposed research activities dealing with improved material performance and other pipeline safety improvements. Proposals must include a cost sharing contribution of at least fifty percent of the proposed project's cost in order to be considered. Each white paper, not to exceed five pages including appendices and backup materials, must include sufficient information to evaluate the following areas:

1. Offeror's understanding, and description, of the "state of the art" in the research area the offeror is proposing to address;
2. The scientific and technical merit of the proposal to advance pipeline safety;
3. The adequacy and feasibility of the technical approach and realism of cost estimate;
4. Technical experience and capabilities of the offeror in federal research programs, and
5. Time line to implement the proposed technologies and concepts into practice in the pipeline industry (one to three years preferable)

All evaluation factors are of equal importance.

GENERAL INFORMATION: This BAA can be downloaded via the Internet at:

<http://www.rspa.dot.gov> under Procurement Opportunities. In all correspondence to the RSPA

Office of Contracts and Procurement, please reference the BAA No. DTRS56-03-BAA-0001. Early submission of white papers responding to this BAA is strongly encouraged. All white papers must be submitted via overnight mail (e.g., Federal Express, UPS) to Warren Osterberg, Research and Special Programs Administration, ATTN: DMA-30, 400 Seventh Street SW, Room 7104, Washington, D.C., 20590. Because of continued security concerns, do not send white papers via regular mail. Please submit ten (10) copies of each white paper. White papers must be received by the above office no later than January 31, 2003, at 4:00 PM, EST. NOTE: All inquiries concerning this announcement shall be directed to the RSPA Office of Contracts and Procurement, ATTN: Mr. Warren D. Osterberg, Contracting Officer, telephone: (202) 366-6942; e-mail: [warren.osterberg@rspa.dot.gov](mailto:warren.osterberg@rspa.dot.gov).

**BROAD AGENCY ANNOUNCEMENT:** This FedBizOps notice, in conjunction with further announcement details available from the RSPA procurement site Internet address identified above, constitutes the BAA as contemplated by FAR 6.102(d)(2). A formal Request for Proposals (RFP) for other type of solicitation regarding this announcement will not be issued. No more than \$500,000 in funding is expected to be awarded to any single research project. A technical evaluation panel will review all white papers received for responsiveness to the evaluation areas stated in this BAA. Offerors providing white papers deemed worthy of further consideration and meeting the criteria of this BAA will be notified with possible suggestions for change in scope and detailed guidelines for submitting full proposals. No discussions will be held between an offeror and the Government's technical staff after submission of a white paper without the Contracting Officer's prior approval. It is DOT/RSPA's desire to encourage the widest participation, particularly the involvement with universities and other academic institutions, as well as with individuals, corporations, non-profit organizations, small and small disadvantaged businesses, and State or local governments or other entities.