

FINDINGS AND DETERMINATION  
Under Section 302(c)(10) of the  
Federal Property and Administrative  
Services Act of 1949, as Amended

Findings

In accordance with the requirements of the Federal Procurement Regulations, I make the following findings:

1. The Nuclear Regulatory Commission (NRC) proposes to procure by sole source negotiations, services to conduct a research study entitled, "Analysis of Atmospheric Diffusion Through Application of Lidar Technology."
2. It is proposed to contract with SRI International (SRI) to perform this project to apply SRI's unique lidar technology to determine characteristics of atmospheric dispersion processes affecting concentration of radioactive effluents from nuclear facilities. This type of concentration data is only measurable by remote techniques due to the rapid vertical spread of effluents.
3. This effort is a continuation of a former effort for the Commission by SRI under Contract No. NRC-04-77-147 which was the result of an unsolicited proposal. Under this former effort SRI proposed to demonstrate that quantitative measurements on airborne effluents could be obtained by the innovative use of a remote sensing device known as a "lidar" (light detection and ranging). As a result of this effort, SRI was successful in demonstrating that its "Mark IX" mobile lidar could be a useful tool in solving the problem of gauging effluent dispersion in the vertical dimension.
4. The objective of the NRC's research program in atmospheric dispersion is to verify existing or proposed models used to predict the transport and diffusion of airborne radioactive effluents. The lack of concentration measurements in the vertical direction has precluded establishing the validity of the Gaussian plume assumption currently used by the NRC in predicting the behavior of airborne radioactive effluents from nuclear facilities. A number of field studies have been conducted over the years at various types of power plants in different types of terrain to obtain data on plume behavior and atmospheric diffusion characteristics. The resulting data have been used for the development and validation of predictive models of plume behavior. A serious weakness of all these field studies has been a lack of detailed information and measurements on plume dispersion above the near-ground layer. The available observational techniques for obtaining this information, such as the use of instrumented towers, balloons, or aircraft, are technically and logistically difficult, as well as expensive in the practical sense. These conventional techniques for above-ground plume measurements have been generally unsatisfactory as well as severely limited. The SRI "Mark IX" mobile lidar contribution uniquely fills the void and easily obtains diffusion data in the vertical.


5. The proposed program would significantly complement the RES research program in atmospheric dispersion. The utilization of SRI and its "Mark IX" lidar capabilities is an integral part of the research program in atmospheric transport and diffusion. It forms a necessary part of the program by providing actual measurements of the vertical spread of effluents released from ground level.
6. The lidar itself is not unique, but the SRI lidar system, "Mark IX," is the only one of its type known in the world. The "Mark IX" is a laser radar by which clouds of particulate material can be monitored and tracked remotely from the ground, even when the clouds are too tenuous to be visible to the eye. It is the only known system which is truly mobile, permitting observations while moving and can be transported to distant locations to observe localized phenomena. In addition the "Mark IX" is the only known system which contains its own power source. Other existing systems must either obtain power from a fixed source or tie into transmission lines. This aspect is extremely important since mobility is necessary to enable deployment of the system to any location where tests are to be conducted, such as TMI where a fixed power system link up does not exist.
7. In an effort to determine whether, in fact, the SRI "Mark IX" lidar is the only existing system of its kind, a "Sources Sought" action was initiated by the Contracting Officer. Four formal responses were received and reviewed by the cognizant technical. On a case-by-case basis, it was determined that none of the four offerors had the necessary techniques and capabilities in that they either had not developed a remote sensing device or they possessed a remote sensing device that was incapable of measuring the concentration and spread of effluents. (See memo contained in the file dated April 8, 1980 from RES to the Contract Specialist detailing each response and its review.)
8. Also contained in the file is a letter dated April 14, 1980, from the project manager of the associated NOAA program which substantiates the above finding and states that the SRI "Mark IX" is the only known system of its kind.
9. Use of formal advertising for acquisition of this effort is impractical because SRI has the only known system of its kind and holds the design as proprietary.
10. SRI is, therefore, considered to be the only source available to perform the proposed work to meet the minimum needs of this acquisition.

#### Determination

1. Based upon the foregoing findings, I hereby determine within the meaning of Section 302(c)(10) of the Federal Property and Administrative Services Act of 1949, as amended, that:

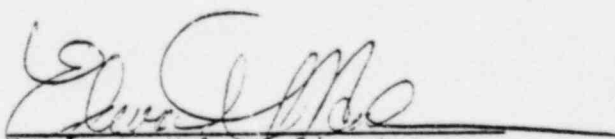
- a. It is neither feasible nor practicable to undertake this requirement in-house;
  - b. It is impracticable to secure competition by formal advertising due to the fact that it is impossible to draft specifications or an adequate detailed description of the required services for an invitation for bids; and
  - c. Negotiation on a sole source basis with SRI International is justified, since SRI is the only known source with the necessary expertise and equipment to perform the proposed work.
2. Upon the basis of these findings and determinations, I hereby authorize the negotiation of a contract with SRI International for the acquisition of the work described herein pursuant to Section 302(c)(10) of the Federal Property and Administrative Services Act of 1949, as amended.

Date: 6/13/80

  
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Kellogg V. Morton  
Contracting Officer

As required by Paragraph 1-3.101(d) of the Federal Procurement Regulations, I have reviewed and  approved ( ) disapproved the above described noncompetitive acquisition.

Date: 6/19/80

  
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Edward L. Halman, Director  
Division of Contracts