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JUL 15 1980

MEMORANDUM FOR: Harris E. Coleman, Chief
Contract Policy Staff
Division of Contracts

FROM: Donald E. Solberg, Chief
Systems Performance Research Branch
Division of Safeguards, Fuel Cycle
and Environmental Research

SUBJECT: REVIEW OF SCIENCE APPLICATIONS, INC. UNSOLICITED PROPOSAL ENTITLED, "A PROPOSAL TO PROVIDE THE NRC WITH A REACTOR RADIATION STREAMING ANALYSIS CAPABILITY."

This responds to your memorandum of July 8, 1980 on the same subject. I am the NRC project manager on a radiation streaming contract with Mathematical Applications Group, Inc. (MAGI) Contract Number NRC-04-79-179. Science Applications, Inc. (SAI) was an unsuccessful offeror on the RFP for which MAGI was selected as contractor. In fact, a comparison shows that much of the current SAI proposal is identical to the original technical proposal, although the proposed scope of work has been changed. Under these circumstances, I do not see how this work could conceivably be considered as unique, innovative or present ideas which originated with the offeror. Thus the proposal does not meet the first criterion set forth in your memorandum.

One of the requirements of the original RFP was that the offeror develop procedures which they would follow "to assure the validity of the comparisons." Our purpose was to obtain some assurance that the contractor had not "fine tuned" the code and problem input to provide a good comparison of analytical results with experimental data. The SAI response to this requirement in the original proposals was unacceptable and is not addressed in the current proposal. The statement is made on page 1 of the current proposal that the SAI-generated, methodology is "a true engineering 'tool' and as such should not require sophisticated changes and time consuming 'fine tuning' when calculating dose rates...". This problem has been satisfactorily resolved with the MAGI program but would be a significant unresolved problem with the SAI proposal since they are unable or unwilling to give the NRC any reasonable assurances that fine tuning will not or has not been used for their analyses with MORSE. This, I think, is a strong technical shortcoming of the proposal.

The SAI proposal on page 1 referred to "excessive running times to calculate dose rates" with the SAM-CE code supplied to NRC by MAGI. There has been no complaints from NRR that the running time of the code is excessive. Perhaps

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for an architect/engineering firm that required large numbers of these calculations on a continuing basis, the additional cost of $50,000 to $100,000 for a more efficiently running code would be cost-effective. However, for the NRC I do not believe the expenditure would be cost effective, even if we did believe the unsubstantiated claims of SAI that MORSE can do streaming analyses less expensively than SAM-CE. Thus, the proposal fails the test of making a significant contribution to the agency's mission because we already have installed at NRC a verified, acceptable streaming code.

SAI claims SAM-CE has an unacceptable accuracy with "average standard deviations of 20 percent (some as high as 33 percent)." The NRC finds this accuracy to be adequate for our purposes. The nature of the streaming problem is exemplified by errors of orders of magnitude in dose rates. Thus, codes capable of calculating dose rates within a factor of two or three of measured values, such as SAM-CE, are acceptable. Additionally, this difference could be attributed to measurement errors rather than calculational errors. Independent, NRC-sponsored measurements at Millstone II gave a measured dose rate nearly identical to the MAGI-calculated dose rate at the one location in common to both. Thus, I believe that the SAI proposal lacks technical merit because (1) it strives for accuracy where it is not critical and (2) has not demonstrated that the SAM-CE or its application is the source of error.

The current SAI proposal is basically identical in scope and purpose to our original RFP for which MAGI was the successful offeror. From this it should be obvious that there are no special capabilities, experience or facilities that SAI or key proposed personnel have which are critical to providing NRC with a needed streaming analysis capability.

I feel obligated to add one last comment to this review. The NRC staff is very busy conducting the business of the agency. I for one resent having to take valuable time to review proposals by disgruntled, unsuccessful offerors which are almost identical to the previous proposal. The SAI proposal is such a case and lacks the technical merits and understanding of NRCs needs to warrant serious consideration by NRC. I hope you will tell SAI to quit wasting NRC staff time until they have something novel and worthy of serious consideration.

If you wish to compare the current SAI proposal with their previous proposal, the latter can be obtained from Sharon Wollett or Kellogg Morton.

Donald E. Solberg, Chief
Systems Performance Research Branch
Division of Safeguards, Fuel Cycle
and Environmental Research

Completes action 002726

Enclosure: SAI proposal

bcc: S. Wollett, RCB, K. Morton, RCB, J. Minns, NRR, T. Murphy, NRR

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