



**Fermi National Accelerator Laboratory**

**FERMILAB-Conf-93/113**

**Experience with the Source Evaluation Board Method of  
Procuring Technical Components for the  
Fermilab Main Injector**

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May 1993

Presented at the *1993 Particle Accelerator Conference*, Washington, D.C., May 17-20, 1993

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# Experience with the Source Evaluation Board Method of Procuring Technical Components for the Fermilab Main Injector

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## *Abstract*

Fermilab has adopted the Source Evaluation Board (SEB) method for procuring certain major technical components of the Fermilab Main Injector. The SEB procedure is designed to ensure the efficient and effective expenditure of Government funds at the same time that it optimizes the opportunity for attainment of project objectives. A qualitative trade-off is allowed between price and technical factors. The process involves a large amount of work and is only justified for a very limited number of procurements. Fermilab has gained experience with the SEB process in awarding subcontracts for major subassemblies of the Fermilab Main Injector dipoles.

## I. INTRODUCTION

Government-funded laboratories have become accustomed to make purchases by the process of awarding subcontracts to the lowest-priced responsive and responsible offeror. Sometimes this involves pre-assigning relative values to various technical elements in order to determine the best price/performance ratio. While this is usually appropriate, in some cases it would be more advantageous to be able to consider the trade-off between price and technical merit. Private industry has this flexibility. In government this can be implemented using a Source Evaluation Board (SEB).

In May 1992 representatives of the Fermilab Main Injector Project (FMI) met with a Department of Energy (DOE) Business Strategy Group (BSG) to discuss the procurement of dipole magnets for the FMI ring. At that time we were advised to consider using the SEB method for selecting the vendors for certain major subassemblies of the dipoles.

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\*Operated by Universities Research Association under contract with the United States Department of Energy

## II. PROCEDURE

Since Fermilab had never used an SEB, a procedure had to be developed. The Procurement Department of the Fermilab Business Services Section wrote a procedure which has been reviewed and adopted by the Laboratory. The procedure is based on the DOE SEB Handbook, adapted to Fermilab's requirements. We describe here this procedure, which we have followed over the last year in selecting vendors to be awarded subcontracts for fabrication of major subassemblies of the dipoles. Your organization's SEB procedure may vary.

### A. *Participants*

The key participants in the SEB procedure are the Source Selection Official (SSO) and the SEB members. At Fermilab the SSO is usually the Head, Business Services Section (BSS). The SSO appoints the SEB. He reviews the statement of work and qualifications and the evaluation criteria. And, lastly, he makes the final decision (subject to review by DOE) regarding selection of a source.

The SEB at Fermilab consists of three to seven members, preferably an odd number to avoid tie votes. There must be at least one member from the Procurement Department and at least one from the project organization. Each member is required to sign confidentiality and conflict of interest statements.

### B. *Determination*

The SEB procedure is only used for "certain major procurements". These procurements are those that have sufficient financial and/or project risk to require the efforts of the SEB. The decision to utilize the SEB depends on the complexity or nature of the procurement, type of subcontract, extent of competition, specialized terms and conditions, and other factors pertinent to the overall risk. The decision is made by the Head, BSS. Most procurements sufficiently major to require an SEB will have required an Advanced Procurement Plan (APP) which discusses, among other things, the decision to use an SEB.

### C. Preparation

The first thing that is required is a full, detailed specification and/or statement of work. The SEB is responsible for reviewing the specification to ensure that it is appropriate. This will become the basis for the Request for Proposal (RFP) that is the vehicle for the solicitation.

The next requirement is a set of qualification criteria. These are minimum requirements for consideration of an offeror's proposal. These qualification criteria must be clearly defined, unambiguous, measurable, and justifiable. All mandatory requirements are listed here. Any proposal which fails to meet any required criterion is not evaluated further. Required criteria are listed as such in the RFP.

The key difference between a usual procurement and the SEB process is that in the latter the award is not necessarily made to the lowest priced responsive and responsible offeror. The SEB process provides for more detailed analysis of evaluation criteria which are used to determine an offeror's understanding of the specification, potential for successful completion of the job, and comparative competitive status. The SEB develops a plan for scoring and ranking the proposals based on the evaluation criteria. The evaluation criteria and their relative importance are included in the RFP. Details of the relative weights are not given.

Evaluation criteria require much thought. To be useful they must be factors that can be objectively evaluated. They must be relevant to the probability of success in performing the subcontract. They must not be absolute requirements; those belong in the qualification criteria. They should provide the SEB members the ability to differentiate the offerors. If all of the acceptable offerors are going to get a high score on a criterion, then it should not be an evaluation criterion but rather a qualification criterion. A typical "good" criterion is the amount of experience the offeror has in doing jobs comparable to the one at hand.

In the SEB evaluation of proposals, cost is not assigned a numerical weight and the technical evaluation is not preassigned a financial value. Whether the cost or the technical factors is more important must be determined initially and stated in the RFP. Neither can be completely ignored, but either one can be more important. The SEB should also state in the RFP how the cost information is to be presented, *e.g.* on Form SF1411. This is essential to allow comparisons of the proposals on equal footing.

In a procurement that is sufficiently complicated to warrant an SEB, it may be useful to conduct a pre-proposal conference. At that conference there can be a free discussion of the requirements after the potential offerors have had a chance to study the RFP. There certainly can be no private communication with a single potential offeror after the RFP has been distributed.

### D. Evaluation

When the proposals are received, the Procurement representative surveys the proposals to ensure that there

is no cost information in the technical and business/management section. This material is then evaluated independently of the evaluation of the cost material. Any proposal that does not meet the qualification criteria is eliminated from further consideration.

The SEB then ranks the proposals based on the merit of the technical and business/management proposals. Generally this is accomplished by the Board agreeing on a numerical score for the technical evaluation factors. The relative weights of the factors will have been already determined. The cost proposals may then be examined for additional technical information and the scores adjusted, if necessary. The SEB then compares the cost of each proposal to the relative strength of the proposal.

Based on the initial evaluation two courses of action are possible. If there is a clearly superior firm with a low price, then the SEB can recommend that that the proposal be accepted based on the initial offer. This recommendation can be subject to confirmation of the qualifications of the offeror through a visit to the plant to validate the technical proposal. Otherwise, the SEB determines a "competitive range", a list of the initial offerors who have a reasonable chance of improving their proposals to the point of winning the subcontract.

The SEB then enters into "discussions" with the firms in the competitive range. The purposes of the discussions are twofold. First, the Board can elicit additional information from the offerors. It can visit the firms to confirm the information presented and observe the general practices of the firms. A discussion of the proposal can reveal how well the offeror understands the processes proposed and how well they are prepared to deal with them.

Second, the Board must tell each offeror about the deficiencies in its proposal that should be improved. The Board must be very careful in these discussions not to disseminate information from one offeror's proposal to another offeror. The comments must point to the weaknesses but not suggest specific remedies. For example, the Board would say that it believes that a shipping container is not strong enough for the item, not that the offeror should add gussets in the bottom corners. This would be especially critical if another offeror had proposed a shipping container with gussets. Any mandatory submissions or qualifying criteria that the offeror may have missed on the initial submission must be called to their attention during discussions.

Upon completion of discussions, all outstanding questions and concerns about any of the proposals should have been answered. The offerors in the competitive range are then invited to submit Best and Final Offers (BAFO's).

When the BAFO's have been received the SEB evaluates them, following essentially the same procedure as with the original proposals. In some cases there will only be a limited amount of supplementary information. Other offerors will submit new, complete proposals incorporating any changes or additional information.

The SEB must then make a recommendation to the SSO.

This recommendation takes into account their evaluation of the quality of the proposals and the associated costs, considering the agreed upon relative emphasis on the two. The basic criterion is to select the proposal that is in the best interest of the Laboratory, not necessarily the lowest proposed price. The recommendation is written up in a detailed report.

#### E. *Disposition*

The SSO reviews the report from the SEB. He can then take any one of four actions. He may select the recommend source. He may direct the SEB to continue negotiations with all of the firms in the competitive range through BAFO's. He may request further information from the SEB. Or he may make an independent decision to award to an offeror other than the one recommended by the SEB. Whatever the decision, the SSO issues a selection statement. As with any subcontract of this size, DOE approval must be obtained. Finally the Procurement member of the SEB begins the final negotiations with the selected offeror.

### III. EXPERIENCE

After over a year of preparation and work we have awarded six subcontracts for fabrication of three portions of the R&D dipoles for the FMI. We have awarded a subcontract for twelve coils sets for our 12 R&D dipoles, with options for fabrication of bare copper coils for the dipoles. We have awarded subcontracts to three firms for insulating the coils, each firm fabricating three coils sets and Fermilab doing three. We have awarded subcontracts to two firms to stack half-cores from Fermilab supplied laminations.

#### A. *Fermilab Assessment*

Overall we are quite happy with the results of the process. In some cases the firms that were judged most qualified were the lowest price offerors and some cases they were not. In each case the SEB is confident that the best interests of the Laboratory have been served by the selection that was made.

The process has taken much longer than was anticipated. The extra time has come from several sources. In part we were inefficient in executing the process because it was so unfamiliar to us. In part we could not perform as effectively as we might otherwise have because we each had so many other responsibilities at the same time. We suffered from trying to execute three procurements simultaneously. And finally, the process was inherently much more time-consuming than any of us had imagined.

As we gained familiarity with the process the evaluations progressed more smoothly. We have learned about selecting good evaluation criteria. We became comfortable with the level of documentation required to support the recommendations.

Bringing in more people, especially procurement professionals, might seem like the efficient solution to the manpower problem. We do not feel that it would have been advantageous. The issues were technical and required much discussion among the technical staff to reach agreement.

The preparation, the evaluations, the visits to the offerors, the discussions, the documentation, the writing, the editing all took significant amounts of time. A major lesson that we have learned is that one can not undertake an SEB procurement lightly. It requires a major commitment of time from both the procurement staff and from the technical staff.

#### B. *Vendor Reaction*

The reaction to this process from our vendors has generally been favorable. Most of them work with both private industry and with government-funded laboratories. One firm, much more accustomed to dealing with industry, commented that this was the way things were supposed to work. Another firm, seemingly more accustomed to government work, had a difficult time accepting the fact that this was not a straight low bid procurement. The major complaint has been the length of time that our inefficiencies and inexperience introduced into the process.

### IV. CONCLUSIONS

Now that Fermilab is familiar with the SEB process and has an approved SEB procedure, we expect to make additional procurements this way. In some cases the advantages are tremendous. However, the effort involved precludes routine use of SEB's. For most procurements they are not needed.

It is also clear that good communication between the technical and procurement staffs within Fermilab is essential, as is communication between Fermilab and the Department of Energy.

### ACKNOWLEDGMENTS

We would like to thank the members of the DOE Business Strategy Group, who initially guided us in this direction, and particularly the Chairman, Jerry Zimmer. Chicago Headquarters and Batavia Area Office staff have graciously offered valuable guidance. Jim Finks, our Source Selection Official, and Dick Auskalis, our Procurement Head, have been very supportive of our efforts. Dave Gassman and Greg Wojciechowski have offered pertinent legal advice. Steve Holmes, Fermilab Project Manager for the FMI, has encouraged us throughout the process. We thank Dixon Bogert, Associate Project Manager, for enlightening philosophical discussions.