

Ms. Susan T. Grissom
NAC International
655 Engineering Drive
Suite 180
Atlanta, GA 30092

SUBJECT: PROPOSED NUCLEAR MATERIAL MANAGEMENT AND SAFEGUARDS
SYSTEMS UPGRADE

Dear Ms. Grissom:

This letter is a follow-up to my e-mail of October 13, 1999, in which I provided some preliminary comments on the Nuclear Material Management and Safeguards System (NMMSS) upgrade Planning Stage documents and committed to forward more detailed comments following completion of NRC staff review of those reports. At the time we also raised the issue of how the upgrade would be financed and noted, among other things, that there are no U.S. Nuclear Regulatory Commission (NRC) funds, beyond those planned for operating the current system, budgeted in FY 2000 or FY 2001 for this activity, nor were any proposed for the out-years.

We agreed that, taking our fiscal concerns into account, NRC would not object to exiting the Planning Stage and proceeding to the Requirements Stage subject to consideration of forthcoming NRC comments. Those comments are provided in the attachment to this letter. Although many relate to actions that we believe should have been taken during the already completed Planning Stage, it might nevertheless be appropriate to revisit the feasibility study to consider some of the questions raised by our staff.

We are looking forward to your response.

Sincerely,

Abraham L. Eiss
Licensing and International
Safeguards Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

Attachment: NRC comments on NMMSS
upgrade Planning Stage Documents

cc: Ken Sanders, DOE

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PROPOSED NMMSS UPGRADE

NRC COMMENTS

The following comments reflect NRC staff views on the upgrade in general and on the four Planning Stage documents prepared by NAC International. Note that a number of these comments reflect concerns regarding the NRC/DOE sharing of NMMSS costs. Although they are raised here to alert you to all NRC's concerns, we expect the resolution of those comments to evolve from direct discussions and negotiations between NRC and DOE.

General Comments:

- NRC cannot make a financial commitment to the NMMSS upgrade or the new system until all costs are identified. How and when will the specific costs of the upgrade and of the operation of the new system be identified to NRC?
- There are no resources in NRC's FY 2000 or FY 2001 budgets to support the NMMSS upgrade.
- What would be the impact on the NMMSS upgrade if NRC were unable to provide funding in FY 2000 and FY 2001? What impact on NRC licensees?
- The Interagency Agreement (IA) between NRC and DOE to fund the current NMMSS system expires on December 31, 2000. What effect will the NMMSS upgrade have on the existing and new IAs?
- NRC should not be expected to pay for modifications to NMMSS that will benefit only DOE organizations. DOE should develop and implement a system to ensure that costs for modifications unique to DOE are not charged to NRC.
- NRC will need to provide guidance to its licensees to inform them of data reporting requirements associated with the new system. When will all new reporting requirements (i.e., new data fields, new formats, new reporting mechanisms) be identified and finalized? How much time will NRC have to issue new guidance prior to implementation of the new system?
- The proposed revision to the DOE/NRC "Programmatic Agreement for Development and Operation of the Nuclear Materials Management and Safeguard System (NMMSS)", included as an attachment to the September 28, 1999, letter from L. Roché, NRC/FCSS, to K. Sanders, DOE, addresses the sharing of NMMSS costs. **Item e. of Section V. Conduct of Business** states, "Any operational and management costs which support NRC task work, but which cannot be directly attributed to either party, shall be accounted for in the NRC portion according to a sharing factor. The sharing factor shall represent the average percentage of total NMMSS operational resource utilization

ATTACHMENT

attributable to NRC licensee/certificate holder operations. Initially, the sharing factor shall be set at 34% of the total actual cost of NMMSS operations. The sharing factor shall be reviewed annually.” If DOE agrees to the annual review of the sharing factor, what mechanism will be used to determine the NRC share of the operating costs?

- We understand that the contractor may have already “spent” some portion of \$350K in NRC funds (from a system maintenance budget) in the development of this Feasibility Study and other associated documents. NRC needs to understand how that funding was spent, and if it reasonably falls under the agreement with DOE.
- If there are NMSS users of NMMSS, who will be using the system from NRC networked workstations, then the upgraded system must be coordinated with NRC’s planned infrastructure. Similarly, if NRC users are to have access to classified data, OCIO’s security staff must be involved in the design stage.

Comments Related to the Planning Documents:

General:

- The contractor evaluated five “alternative solutions” for the NMMSS upgrade. Of these, the first three involved retaining the existing Foxpro/DOS environment. It is reasonable to evaluate a “no change” scenario for the upgrade as a baseline. However, evaluating three of five “alternatives” using the obsolete and outdated DOS platform, with software no longer supported by the vendor, is not a very productive exercise.
- The differences between the two evaluated “alternative solutions” using a RDBMS is not clear. Our understanding from our meeting with NAC on October 20, 1999, is that the “no redesign” alternative is simply a “replatforming,” but the written Feasibility Study lists seven planned changes that would be implemented. We would like to know how or if these changes benefit NRC users, or how they would affect NRC’s licensees.
- From the October 20, 1999, meeting, it seems that the contractors did not investigate the use of any commercial off-the-shelf or government off-the-shelf packages either for data entry or report generation. Use of such products might lower the cost of the upgrade. In addition, it appears that no evaluation of other successful commercial tracking systems which are in use and have been deployed were performed. Costs could be greatly reduced by reuse of code and from knowledge gained from lessons learned.
- From the October 20, 1999, meeting, we understand that NAC’s software project methodology bases costs on experience with similar systems. While NAC and some of its key employees seem to have extensive experience with the MC&A program, we would like to know how close cost estimates at each stage (requirements, design, operation) are expected to be to true system costs. How well (success record) has NAC performed in delivering IT projects on time and within their initial estimate? To date, we are trying to make budget/resource commitments based on a preliminary cost estimate.

- The contractor's Feasibility Study offers "a practical example of benefit analysis" as an aid to understanding the cost-benefit analysis they performed. It appears to be simplistic and not measurably helpful to the decision at hand.
- In section 3.8.2.2, there is a one-time cost of \$35,520 for Oracle training. Whom are we training: contractor employees, or DOE (NRC?) employees?
- The Feasibility Study indicates in several places that DOE users have been queried regarding needed changes to the NMMSS system, yet generally fails to mention any querying of NRC users or managers, or any surveys of NRC licensees. In particular, we are concerned about the absence of any indication that NRC's licensees were included at the Planning Stage of this project. Since NRC licensees are among the primary data providers for NMMSS, it is imperative that they be formally included in the design process, to ensure "buy-in."
- The evaluation of seven "candidate platforms" was compressed into an appendix of the Feasibility Study ("NMMSS Platform Evaluation February 26, 1999), rather than being more central in this investigative stage. The almost perfect "straight-10" grading of Oracle makes one suspicious of possible biases of the evaluation criteria, which might lead to a foregone conclusion. We question the relatively arbitrary weighting factors. Based on the contractor's grading, several of the top-scoring platforms (SQL server, Sybase, Informix) seem comparably able to meet the specified criteria. Has the contractor costed out any of these options other than Oracle? Might there be a substantial difference in cost? It is unclear from the material provided to us.
- Costs seem high for a replatformed system (based on experience). Development efforts should be reduced since most of the requirements are known (existing system). The costs seem to be comparable to a brand new development effort (although they still seem to be high for someone already familiar with the system and that does not include the data entry). In addition, the costs are only rough estimates and may increase when the requirements analysis has been completed.

Software Configuration Management Plan Document:

- SCM roles and responsibilities - The listed responsible persons are "too close" to the project (i.e., Project manager, Database administrator, and Senior Technical Manager). The SCM responsible persons should not be directly involved with development, planning and scheduling of the project.

Software Project Management Plan:

- Does the database administrator have sufficient skills and background (i.e., trained in interviewing, requirements gathering, problem resolution, etc.)? Most of the work defined on page 18 is normally performed by a senior system analyst. In the project budget, it mentions system analysts. Why not use the persons with the appropriate skills and training?

- Do the Software engineers have sufficient background with the development tools chosen? Appendix E, contains a training plan. It includes introductory training in the tools for Senior Software Engineers. Why pay for a senior level person to be trained? Why not hire someone already trained or train a junior level programmer. Salaries for programmers are typically based on their experience level with a tool set. A senior level C++ programmer does not imply that the same individual is a senior level Oracle forms programmer.
- Table indicating project responsibilities does not include the users. For a successful project, you need to get user buy-in. The users should be responsible for defining the requirements and testing the application to ensure that it meets their requirements.
- Section 3.2.1 - Testing should be thorough to ensure that the user's needs are met and that the tools chosen are compatible with DOE's infrastructure, not based on "minimal anticipated problems". They should not rely on the product's reliability unless they have performed an analysis which supports that their system design is the same (compatible) with a known reliable system developed using the same tools and infrastructure (i.e., same environment, same size (database), number of concurrent users, same type of requirements, etc.).
- Section 3.4.3 - Managerial reviews - What is the trigger level which will require reevaluation of the cost/benefit analysis (eg., 10 %)?
- Section 4., Methods, Tools, and Techniques - Will they perform functional tests based on a requirements matrix (i.e., test plan based on requirements)?
- Appendix B - Role: Process and Quality Assurance - These individuals should have approval authority versus Review authority for the Stage Exit Function. Deliverables should be compliant with the applicable standards or approved deviations and meet the users' requirements. QA professionals in Industry have the authority to stop production or release of a product.