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BENCHMARK REQUIREMENTS FOR
THE ENERGY EMERGENCY MANAGEMENT
INFORMATION SYSTEM (EEMIS)

PHASE 1
WORK PLAN

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1.0 INTRODUCTION

The Office of Energy Emergency Management Information System (EEMIS) of the Department of Energy (DOE) has responsibility for providing special information and communication services to government officials, at Federal and State levels, who must deal with energy emergencies.

The EEMIS System contains proprietary information presently residing on the Energy Information Administration (EIA) computer that must be safeguarded from intentional or inadvertent disclosure. Hence the states are not allowed direct access to the EEMIS System in its present environment.

To avoid security/privacy problems and to alleviate pressure on the EIA computer, the Office of EEMIS intends to acquire teleprocessing services from a time-sharing commercial vendor. These services are to be procured under the General Services Administration (GSA) Teleprocessing Services Program (TSP) schedule contracts. The process for procurement must meet with the guidelines for approval by EIA's Office of ADP Services, Department of Energy (DOE) 's Office of Computer Services and Telecommunications Management, and GSA.

These guidelines demand (1) that a functional system requirements document be produced highlighting crucial DOE processing characteristics which will be specified as mandatory requirements in a Request For Proposal (RFP); (2) that the evaluation criteria used to select the winning bidder be specified; and (3) that the script for the benchmark demonstration by each bidder be provided.

In order to achieve these objectives the DOE has retained Wilson Hill Associates (WHA) under contract number DE-AC01-80 EI11581, to develop an EEMIS functional requirements document, a list of mandatory requirements for inclusion in the RFP, the benchmark evaluation criteria, and the benchmark scenario and script.

2.0 BACKGROUND

The DOE Office of EEMIS has requested that WHA submit a work plan and schedule to accomplish the objectives stated in Section 1.0, Introduction. Specifically the plan is to include estimates of time, cost, and resources required to accomplish the following tasks.

1. Prepare a detailed work plan and schedule which will include resources allocated, estimated costs, and specific activities to be performed within each task.
2. Interview designated EEMIS personnel to define and analyze all EEMIS systems operations which will have an impact on support requirements for candidate vendors.

Review the most recent EEMIS systems and support software documentation, the GSA TSP Automated Data and Telecommunications Services (ADTS) handbook (FRP 1-4.12), and related hardware and software services provided by the DOE Office of Automated Data Processing Services (ADPS).

Prepare an EEMIS functional requirements document.

3. Develop a list of mandatory requirements to be included in the RFP using the functional requirements document developed in Task 2, the TSP-ADTS handbook, and the DOE requirements checklist (DOE Form AD - H14B).

Develop a plan for the benchmark, the benchmark procedure and the benchmark evaluation criteria.

4. Prepare the benchmark scenario and script to be used by the candidate vendors during the performance of the benchmark tests.

Prepare benchmark evaluation forms to be used in the vendor evaluation process.

3.0 WORK PLAN

A work plan has been developed to identify, organize, and schedule all activities relating to the task areas presented in Section 2.0 of this report. The plan is discussed in detail in the following subsections.

3.1 WORK ORGANIZATION

Fourteen activities have been identified as being required to satisfy the development of the DOE EEMIS functional requirements document and the benchmark scenario and script. These activities are logically organized according to their dependent relationships and are presented in a network diagram shown in Figure 3-1.

Each task area, previously identified, is represented in the network diagram as a stream of one or more activities. Interdependencies between task areas are taken into consideration and parallel activities are planned wherever possible.

Activity durations are expressed in work days based on a five-day work week. A duration for each activity is shown on the network diagram beneath the arrow defining the activity. The tasks identified in Section 2.0, for which the activity is a number, are shown in parenthetical notation in an adjacent position to the activity duration.

It is planned that the DOE Office of EEMIS will periodically review and approve ongoing work. DOE review activities are expressed as major milestones on the network diagram. It is recognized, however, that DOE involvement is not necessarily limited to the specific milestones as shown.

ALL DURATIONS ARE EXPRESSED IN WORK DAYS BASED ON A FIVE DAY WORK WEEK.

ALL VALUES SET IN PARENTHESIS DESIGNATE THE TASK TO WHICH THE ACTIVITY BELONGS.

FIGURE 3-1. PHASE I WORK PLAN FOR THE ENERGY EMERGENCY MANAGEMENT INFORMATION SYSTEM (EEMIS) BENCHMARK REQUIREMENTS

The network solution dictates a forty-five work day duration for the completion of all activities. The project duration, therefore, is equivalent to nine work weeks or sixty-three calendar days. The critical path passes through all activities with the exception of 9 and 11, as identified by the J node number ¹. Consequently there is virtually no float time that can be used for the distribution or phasing of activities. The critical nature of this plan is discussed in Section 4.0, Schedule.

3.2 ACTIVITY DEFINITIONS

All activities defined below are listed by the number corresponding to their J node as given in the network diagram.

1. Orientation Meeting

At the outset of the project key personnel from the DOE Office of EEMIS and WHA will attend various meetings, to be scheduled at that time, in order to establish a foundation for the activities to follow. These meetings will provide WHA personnel with an overview of the EEMIS operation, its major design characteristics, and the DOE specific regulations that may be encountered. In addition WHA personnel will become familiar with the DOE Office of EEMIS and will acquire access to EEMIS documentation material.

2. Work Plan

Prior to the commencement of work, WHA will submit a comprehensive plan with identified milestones and an estimated accumulative time to each milestone. The contractor will segment

¹ The J node represents the completion point of an activity. All activities have been assigned a unique J node number.

the previously stated tasks into discrete activities and allow for DOE approval prior to proceeding with the next activity.

DOE's acceptance of this document, Benchmark Requirements for the Energy Emergency Management Information System (EEMIS), Phase I Work Plan, will constitute the completion of this activity, and of Task 1.

3. Review the TSP-ADTS and DOE Requirements

The GSA TSP Automated Data and Telecommunications Services (ADTS) handbook (FRP 1-4.12), the DOE Requirements Checklist (DOE Form AD - H 14B), the DOE Request for Timesharing Services and Logon Code (DOE Form Ad - H14), and all other DOE requirements which surface during meetings with DOE Office of EEMIS personnel will be reviewed. The impact of these requirements on the future RFP will be reflected in the functional requirements document.

4. Interview Designated EEMIS Personnel

Interviews will be scheduled and conducted with designated EEMIS personnel in order to define and analyze all EEMIS system operations which will have an impact on support requirements for candidate vendors. The results of these meetings will provide direct input to the development of the EEMIS functional requirements document and the list of EEMIS mandatory requirements. A secondary benefit of these meetings will be to provide directions and scope for the development of the benchmark scenarios and script.

5. Review EEMIS Systems Documentation

A complete review of EEMIS systems documentation and EEMIS support software documentation will be conducted. This activity will provide the data necessary to develop the EEMIS functional requirements document and to provide a framework for the development of the benchmark evaluation criteria.

6. Develop EEMIS Functional Requirements Document

Using the data gathered from activities 4 and 5, the EEMIS functional requirements document will be developed. This document will detail the EEMIS operational characteristics and will include such items as data access methods, host language interface requirements, interactive and batch processing, etc. Although the EEMIS operational characteristics should be independent of the GSA TSP requirements, these are kept in focus through predecessor activity 3, in order to provide direction toward the development of the mandatory requirements checklist.

7. Review and Approve

The DOE Office of EEMIS will review the functional requirements document and provide comment on the scope, content, clarity, etc. WHA will respond to the DOE comments, if any, and resubmit the document for approval.

The completion of this activity marks the completion of Task 2.

8. Prepare EEMIS Mandatory Requirements

Using the functional requirements document, the TSP handbook, and the DOE requirements checklist (DOE Form AD-H14B) as a guide, a list of mandatory requirements will be developed to assure a successful system operation. The mandatory requirements will include operational characteristics; software support; simultaneous users support; response time; system availability; back-up and security; telecommunications capability and capacity, including all geographic locations required for EEMIS system access; and system capacity.

9. Develop Plan for the Benchmark

A plan to develop the benchmark, the benchmark procedure, and the benchmark evaluation process will be prepared. The plan will involve the selection of functions or activities performed by EEMIS which are considered representative of the current environment in terms of processing workload.

10. Develop Benchmark Evaluation Criteria

The benchmark evaluation criteria defined to evaluate the candidate vendor's performance during benchmark tests will be as objective in nature as possible. The criteria will be developed to measure total elapsed time and aggregate processing costs to complete a defined and controlled activity and thus will seek to evaluate the vendor in terms of both performance and cost.

An important consideration in the development of the evaluation criteria will be the elimination of possible bias resulting from conditions (i.e., where and when) under which a benchmark will be conducted and to define scenarios to test communications software and system resource capacity for both the present and future workloads.

The completion of this activity marks the completion of Task 3.

11. Develop Benchmark Scenarios

The actual input data, program source data, data formats, and expected results will be identified by WHA and referenced as part of the benchmark scenarios. These scenarios will be developed so that the number and mix of jobs used during the benchmark will be implemented in movements so that performance measurement readings can be sampled at various levels of system resource loading.

12. Prepare Benchmark Script

The benchmark script will be constructed so as to carry the vendor through a stepwise progression of EEMIS software execution leading from the simplest of functions to the most complex. Concurrently the script will increasingly exercise the vendors resources to determine the extent, if any, or processing degradation.

In addition the script will seek to require the vendor performance be measured under predetermined loaded conditions. Consideration will be given to providing a set of programs which, when initiated, would create a background load during which the benchmark will be

conducted. This would provide the DOE evaluation team with a constant load against which the actual performance of the benchmark test could be compared. The vendor test system must be completely unloaded to achieve this effect.

13. Prepare Evaluation Forms

The benchmark evaluation criteria developed in Activity 10, will provide the foundation for the preparation of the vendor evaluation forms. These forms will be constructed in a matrix format and will lend themselves to ease of performance measurement against the criteria by scenario.

14. Review and Approve Forms and Script

The DOE Office of EEMIS will review the benchmark evaluation forms and the benchmark scenarios and script and will provide comment on the scope, content, clarity, etc. WHA will respond to the DOE comments, if any, and resubmit the document for approval.

The completion of this activity marks the completion of Task 4.

3.3 NON-SCHEDULED ACTIVITIES

Certain periodic activities may occur which are not identified on the work plan. These activities are defined as follows:

1. Weekly Meetings

Each week appropriate members of the WHA project team will attend status meetings with Emergency Energy Management Information System (EEMIS), Planning and Development Division Personnel. During these meetings, WHA project personnel will report on the progress of the project and will solicit information from the EEMIS personnel.

2. Weekly Status Reports

Each week WHA will prepare and submit a written status report covering the progress of the project and will identify therein existing or potential problems.

4.0 SCHEDULE

As previously determined, the 14 activities are to occur over a forty-five work day (nine calendar week) period. A schedule of all activities is shown in Figure 4-1.

The network solution (see Section 3.1), has revealed that there is no available float time for the activities which constitute the total project. Because of this the schedule must be adhered to in a strict manner. In order to complete all activities as defined and as scheduled a close working relationship between WHA and the DOE Office of EEMIS must be maintained.

Throughout the major portion of the project various activities will be carried out in parallel, however no more than four activities will be executed at any given time. It is anticipated that with the resources assigned a maximum workload has been defined and that any variations in the plan will seriously impact the schedule.

It is desirable to accomplish this work with the resources of two full-time staff members and a technical typist. This proposed staffing arrangement will provide DOE with both continuity and the necessary mix of skills.

FIGURE 4-1. ENERGY EMERGENCY MANAGEMENT INFORMATION SYSTEM
(EEMIS) BENCHMARK REQUIREMENTS SCHEDULE AND RESOURCES

5.0 PROJECT COST

A budgeted cost curve has been developed to monitor the progress of the DOE Energy Emergency Management Information System (EEMIS) benchmark requirements in terms of actual cost to date. This curve is shown in Figure 5-1.

The contract value is \$25,249 to be expended over a nine week period. The time related schedule and the resources assigned dictate that this expenditure will be linear with the exception of the first and last weeks of the project.

Comparisons of actual cost and budgeted cost and work accomplished will provide the tools for performance measurement.

FIGURE 5-1. ENERGY EMERGENCY MANAGEMENT INFORMATION SYSTEM
(EEMIS) BENCHMARK REQUIREMENTS, BUDGETED COST