

**Statement of Work**

**By**

**The E907 Group at Fermilab**

**And**

**The E907 Group at Livermore**

**For Activities Related To**

**The E907 Experiment**

**During Fiscal Year 2002**

**Version 1.1**

**January 24, 2002**

## **I. Introduction**

This Statement of Work (SOW) is an annual amendment to the Memorandum of Understanding between Fermi National Accelerator Laboratory (Fermilab) and Lawrence Livermore National Laboratory (Livermore) concerning the design, construction and installation of the E907 Experiment.

This SOW provides the yearly details of the work agreed to between Fermilab and Livermore using the Livermore Funds, covering the specific period of performance from October 1, 2001 through September 30, 2002.

## **II. Responsibilities for this Period of Performance**

The E907 Cost and Schedule Plan contains the detailed work plan (Work Breakdown Structure, WBS), cost estimate, estimate basis, and schedule for designing, installing, and operating E907. This SOW contains the activities for FY02 using the Livermore Funds from that plan.

### **A. WBS Items and Estimated Costs**

Table 1 describes items (or partial completion of items) to be funded by Livermore (*via* the Livermore Funds) and executed by Fermilab during FY2002. These are referenced to the E907 Cost and Schedule Plan, version 1.1, dated January 24, 2002.

Fermilab and Livermore will support the normal research operating expenses (such as physicists' salaries, project managers' salaries, physicist travel expenses, miscellaneous supplies, administrative support, *etc.*) of their respective groups working on the E907 Experiment. In particular, no salary support for these individuals at Fermilab will be derived from the Livermore Funds.

Cost overruns exceeding \$1K on any task will be reported to the Livermore Project Manager. This report should be made as soon as the impending overrun is discovered.

### **B. Schedules and Milestones**

Table 1 lists the schedule dates and milestone dates for completion of each item. The milestone date for each item is the scheduled finish date plus the free slack (the longest delay that does not affect any other tasks), but no later than the end of the fiscal year (September 30, 2002). The E907 group at Fermilab will make every effort to carry out their institutional responsibilities consistent with the E907 schedule.

Schedule delays greater than one week in completing any task will be reported to the Livermore Project Manager. This report should be made as soon as the impending delay is discovered.

### **C. Change Orders and Contingency**

The E907 Cost and Schedule Plan contains the detailed work plan (Work Breakdown Structure, WBS), cost estimate, and estimate basis for designing, installing, and operating E907.

It is understood that the E907 Cost and Schedule Plan contains no contingency, and the anticipated Livermore funding profile, \$500K in FY02, can not be changed significantly. Any cost overruns will result directly in a delay in completing installation of E907.

Fermilab and Livermore will make every effort to carry out their institutional responsibilities consistent with the E907 Cost and Schedule Plan.

The work plan and estimate may have to be changed as the project progresses. Changes will be noted in Amendments to this Statement of Work.

Table 1. Fermilab Tasks and Deliverables funded by the Livermore Funds.

<b>WBS</b>	<b>Task</b>	<b>Estimated Cost</b>	<b>Schedule Date</b>	<b>Milestone Date</b>
4.5	MC7 DS Roof	\$ 104K	3/8/02	8/29/02
4.6	MC7 Magnet Primary Power	105K	1/29/02	9/30/02
5.2	Upstream Beamline Detectors	37K	7/12/02	8/19/02
5.3.1 5.3.3	JGG Installation Design JGG Installation	31K	2/4/02	2/21/02
5.4.1 5.4.2	Rosie Installation Design Rosie Installation	18K	2/8/02	2/21/02
5.5	Differential Cerenkov (CKOV)	59K	6/18/02	9/30/02
5.6	Magnets and CKOV in MC7	Milestone		2/22/02
5.7.1	Target Wheel	4K	5/7/02	9/30/02
5.9.4 5.9.5	TPC Installation Design TPC Installation	23K	4/30/02	9/23/02
5.10.1	TOF Design	6K	4/23/02	9/30/02
5.11	Ring Imaging Cerenkov (except 5.11.8, 5.11.10, 5.11.11)	19K	5/13/02	9/30/02
5.12.1 5.12.2	DC Move & Installation Design DC Move	15K	2/12/02	2/12/02
5.14	Trigger	8K	6/3/02	9/30/02
5.15	Data Acquisition	17K	6/17/02	9/30/02
	Total Table 1 Costs	\$ 446K		

### III. Logistics

#### A. Personnel

The present Livermore contact person for execution of the E907 Experiment is Edward P. Hartouni. The present Livermore Project Manager for execution of the E907 Experiment is Peter D. Barnes, Jr. The present Livermore Resource Analyst is Tracy Baldwin.

The present Fermilab contact person for execution of the E907 Experiment is Rajendran Raja. The present Fermilab Project Manager for execution of the E907 Experiment is Leon Beverly. The present Fermilab Resource Analyst is Ellie Arroyo.

## **B. Cost and Funding**

A total amount of \$446K (the Livermore Funds) will be transferred from Livermore to Fermilab by Integrated Contractor Order (ICO) to cover Table 1 activities. Any remaining funds needed to complete the tasks described in Table 1 will be provided subject to availability of funding and performance during the initial period.

### **1. Procurement Authorization**

Item purchases exceeding \$10K must be authorized by the Livermore Project Manager

### **2. Cost Reporting**

The Fermilab Project Manager will invoice all E907 related expenditures in each item of work by Work Breakdown Structure (WBS) on a monthly basis to the Livermore Project Manager. The Fermilab E907 group agrees to furnish complete documentation of the quality control and performance checks.

### **3. Recharge Rates and Overhead**

Estimated Fermilab labor recharge rates are shown in Table 2. These rates include indirect (overhead) rates of 29% on labor.

The overhead rate on materials and supplies is 16.67%.

Table 2. Estimated Fermilab labor recharge rates, including indirect (overhead) costs.

<b>Resource Type</b>	<b>Recharge Rates (\$ / Day)</b>
Engineer II	\$ 454
Technical Specialist	\$ 408
Senior Technical Aide	\$ 281
Technician II	\$ 233

## IV. Approval

The following concur in the terms of this Statement of Work.

### A. For Livermore

 1/24/02

Peter D. Barnes, Jr. – Livermore Project Manager  
HEP Group, N Division, Physics and Advanced Technology, Lawrence Livermore National  
Laboratory

 1/25/02

Edward P. Hartouni  
N Division Leader (Acting), Physics and Advanced Technology, Lawrence Livermore National  
Laboratory

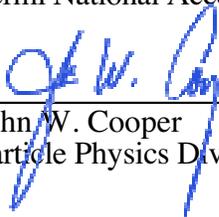
### B. For the E907 Collaboration

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Rajendran Raja – E907 Spokesman  
Particle Physics Division, Fermi National Accelerator Laboratory

### C. For Fermilab



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Leon Beverly - Fermilab Project Manager  
Fermi National Accelerator Laboratory

 1/28/02

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John W. Cooper  
Particle Physics Division Head, Fermi National Accelerator Laboratory