

**NCSX June 2007 ETC**  
**TABLE IV - Uncertainty of Estimate and Residual Risk Assessment**

**WBS Number: 185**  
**WBS Title: Assembly of Field Periods**  
**Job Numbers: 1802, 1810, and 1815**  
**Job Title: FPA Oversight & Support (1802)**  
**Job Title: FPA Operations - Stations 1, 2, & 3 (1810)**  
**Job Title: FPA Operations - Station 5 (1815)**  
**Job Manager: Mike Viola**

**EWI Budgetary Proposal No. 50782GTH** Date: June 5, 2007

Submitted to: Princeton Plasma Physics Lab

Title: On-Site Design Review and Sample Evaluation

Objectives: Discuss design for welding with minimal distortion meeting minimum fatigue requirements. Perform evaluation of welds on test specimen.

**Approach:**

1. Design review with Bill Mohr from EWI in Princeton, New Jersey, followed up with a written report. Dr. Mohr has extensive experience in fitness-for-service assessment, design, and fatigue of welded structures. This will be an opportunity to validate your considerations regarding distortion, allowable stresses, and other design concerns.
2. A sample weld to be evaluated at EWI using ultrasonic and radiographic testing. Macros will be generated and evaluated and a report will be sent.
3. Recommendation for additional work will be made after the design review and test weld assessment.

**Deliverables:**

A report will be written summarizing the results of the design review. Lab results, macros and a summary of explanation will be delivered with recommendations.

**Program Budget and Duration:**

The above work can be completed with a price of **\$18,075**. The work is planned for a period of **20 days** after receipt of purchase order and any required materials. This quotation is firm fixed price for the work scope outlined in the proposal and, once accepted, will not be changed without the concurrence of both parties. It is understood that if the Client requests an expanded work scope, EWI will quote the cost and timing to complete the additional work.

| Budget                                | Hours | Total            | Labor         | Task | Hr |
|---------------------------------------|-------|------------------|---------------|------|----|
| Labor                                 | 63    | \$ 15,785        | Labor Grade   |      | 18 |
| Travel plus GAA                       |       | \$ 1,168         | Principal Eng |      | 1  |
| Material                              |       | \$ -             | Senior Eng    |      | 2  |
| Subcontracts                          |       | \$ -             |               |      | 20 |
| Miscellaneous                         |       | \$ -             | Program Mgr   |      | 3  |
| Fee on Material, Subcontracts & Misc. |       | \$ -             |               |      | 5  |
| Lab Services                          |       | \$ 1,122         |               |      | 63 |
| <b>Total Program</b>                  |       | <b>\$ 18,075</b> |               |      |    |

Notes  
 1 - Labor rates are fully burdened  
 2 - EWI indirect rates are ACO approved provisional rates

| Lab Services   |
|--|
| (B) Material Mounts @ \$132 per mount = \$792                              |
| (B) Micrograph with max field of view size of .290-in. by .370-in. = \$192 |
| (C) Macrographs @ \$40 per macro = \$138                                   |

**Edison Welding Institute Support of Test Welding Program**

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ORNL Updated Title III Engineering (6/8/2007)

| Station No. | start date | end date | days   | weeks | 1st peric | 2nd peri | 3thd period | ENGR | Designe | Total hrs |     |      |
|-------------|------------|----------|--------|-------|-----------|----------|-------------|------|---------|-----------|-----|------|
| station 2   | Oct-07     | Mar-09   | 517.00 | 74    | 2954      | 591      | 394         | 197  | 1182    | 591       | 591 | 1182 |
| station 3   | Feb-08     | Jul-09   | 516.00 | 74    | 2949      | 491      | 295         | 98   | 885     | 442       | 442 | 885  |
| station 5   | Apr-08     | Sep-09   | 518.00 | 74    | 2960      | 493      | 296         | 99   | 888     | 444       | 444 | 888  |
| station 6   | Jun-09     | Oct-10   | 487.00 | 70    | 2783      | 742      | 557         | 371  | 1670    | 1670      | 835 | 2505 |

| Total Hours             |      |
|-------------------------|------|
| Station 2 to 5 (FPA - . | 2954 |
| Station 6 (Fnl Mach A   | 2505 |

Assume each period is 1/3 of the number of weeks

| Station 2        | Coverage         | Title III Support Travel |                |
|------------------|------------------|--------------------------|----------------|
| 1st period       | 60% 60% Engr/Dsn | Job 1802                 | Job 7503       |
| 2nd period       | 40% 40% Engr/Dsn | \$4,500                  | FY2007         |
| 3thd period      | 20% 20% Engr/Dsn | \$9,000                  | FY2008         |
| ENGR             | 50% Average      | \$4,500                  | \$1,500 FY2009 |
| Designer         | 50% Average      |                          | \$6,000 FY2010 |
|                  |                  |                          | \$4,500 FY2011 |
| <b>Station 3</b> |                  |                          |                |
| 0                | 50% 50% Engr/Dsn |                          |                |
| 0                | 30% 30% Engr/Dsn |                          |                |
| 0                | 10% 10% Engr/Dsn |                          |                |
| ENGR             | 50% Average      |                          |                |
| Designer         | 50% Average      |                          |                |
| <b>Station 5</b> |                  |                          |                |
| 0                | 50% 50% Engr/Dsn |                          |                |
| 0                | 30% 30% Engr/Dsn |                          |                |
| 0                | 10% 10% Engr/Dsn |                          |                |
| ENGR             | 50% Average      |                          |                |
| Designer         | 50% Average      |                          |                |
| <b>Station 6</b> |                  |                          |                |
| 0                | 80% 80% Engr/Dsn |                          |                |
| 0                | 60% 60% Engr/Dsn |                          |                |
| 0                | 40% 40% Engr/Dsn |                          |                |
| ENGR             | 100% Average     |                          |                |
| Designer         | 50% Average      |                          |                |