**CLASSIFICATION (When Filled In)**

**CONTRACT PERFORMANCE REPORT**
**FORMAT 5 - Explanations and Problem Analysis**

**FORM APPROVED**
**OMB No. 0704-0188**

| 1. CONTRACTOR | 2. CONTRACT | | 3. PROGRAM | | | 4. REPORT PERIOD |
|---|---|---|---|---|---|---|
| a. NAME<br>Princeton University-Plasma Physics Lab | a. NAME<br>DOE-SC-OFES-NSTX Upgrade | | a. NAME<br>NSTX Upgrade Project | | | a. FROM (YYYYMMDD)<br>2012 / 08 / 01 |
| b. LOCATION (Address and ZIP Code)<br>Princeton, New Jersey | b. NUMBER<br>DE-AC02-09CH11466 | | b. PHASE<br>CD-3 | | | b. TO (YYYYMMDD)<br>2012 / 08 / 31 |
| | c. TYPE<br>M&O | d. SHARE RATIO | c. EVMS ACCEPTANCE<br>No X Yes | (YYYYMMDI | 2011 / 12 / 20 | |

**5. Evaluation**

**1.1 / 1200 Structures & Supports**

| | Budget | Earned | Actuals | SV in $ | SV in % | CV in $ | CV in % | SPI | CPI |
|---|---|---|---|---|---|---|---|---|---|
| Current: | 10 | 111 | 127 | 100 | 965% | -17 | -15% | 10.65 | 0.87 |
| Cumulative: | 2,326 | 3,165 | 4,036 | 840 | 36% | -870 | -27% | 1.36 | 0.78 |
| | BAC | EAC | VAC in $ | VAC in % | TCPI to BAC | TCPI to EAC | | | |
| At Complete: | 3,723 | 4,624 | -901 | -24% | - | 0.95 | | | |

**Explanation of Variance/Description of Problem:**

(1) Analysis, design validation, and documentation efforts were underestimated. Additional man-hours for analysis and design finalization were needed. (2) Some analyses and documentation was incomplete or lacking detail. When resolved these produced design changes requiring significant increased M&S.
(3) Man-hour crossover with title 3 engineering has occurred: (a) due to machine access field data/measurements, (b) Feedback received from vendors/fabrication. These produced design modifications. (4) CAD models and detailed drawings required rework - (a) per PPPL procedures (b) due to model functionality: These required additional designer man-hours. (5) Individuals working on multiple, simultaneous, and unrelated tasks produced rework and efficiency. These required additional engineering and designer man-hours. (6) Some components were fabricated on-site vs external vendors. On-site labor rates are often higher resulting in higher M&S.
(7) Unplanned in-house labor needed for reworking of components.

**Impact:**

Cost and schedule variances until design and procurement efforts are completed.

**Corrective Action:**

All analysis efforts are concluded. The design effort is almost completed. However, the cumulative variance increased through August due to higher than budgeted M&S and in-house unplanned labor needed for rework. Since this CA is almost concluded, little can be done to recovery the cost. Updated costs will be reflected in the next ETC.

**Monthly Summary (to include technical causes of VARs, Impacts) and Corrective Action(s):**

**Prepared by:** Mark Smith — Digitally signed by Mark Smith DN: cn=Mark Smith, o=PPPL, ou=FOM, email=msmith@pppl.gov, c=US Date: 2012.10.05 11:42:46 -04'00'

**Date:**

**Approved by:** Ron Strykowsky — Digitally signed by Ron Strykowsky DN: cn=Ron Strykowsky, o, ou=PPPL, email=rstrykow@pppl.gov, c=US Date: 2012.10.10 07:37:44 -04'00'

**Date:**