**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>2013 / 06 / 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>2013 / 06 / 30 |
| | 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: | 8 | 4 | 2 | -4 | -48% | 2 | 43% | 0.52 | 1.75 |
| Cumulative: | 3,470 | 3,588 | 4,340 | 119 | 3% | -752 | -21% | 1.03 | 0.83 |
| | BAC | EAC | VAC in $ | VAC in % | TCPI to BAC | TCPI to EAC | | | |
| At Complete: | 3,791 | 4,543 | -753 | -20% | - | 1.00 | | | |

**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 CA is completed.

.A bottoms-up EAC will be prepared to ascertain the expected completion cost and when field work will be completed. Remaining parts being fabricated.. R Strykowsky 7/30/2013

**Corrective Action:**
All analysis efforts are concluded. The design effort is completed. However, the cumulative variance reflects the increased costs 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. The ETC reflects these variances.

**Monthly Summary (to include technical causes of VARs, Impacts) and Corrective Action(s):**
This CA is almost completed and little can be done to recovery the cost. The ETC reflects the variances. Additional cost associated with using in-house labor to complete the fabrication is expected. No negative schedule impact.

**Prepared by:** Mark Smith Digitally signed by Mark Smith DN: cn=Mark Smith, o=PPPL, ou, email=msmith@pppl.gov, c=US Date: 2013.07.10 14:55:14 -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: 2013.07.30 09:22:29 -04'00' **Date:**