

and Problem Analysis

CLASSIFICATION (When Filled In)

CONTRACT PERFORMANCE REPORT

FORMAT 5 - Explanations and Problem Analysis

FORM APPROVED  
 OMB No. 0704-0188

4. REPORT PERIOD

a. FROM (YYYYMMDD)

2012 / 03 / 01

b. TO (YYYYMMDD)

(YYYYMMDD) 2011 / 12 / 20

2012 / 03 / 31

<b>1. CONTRACTOR</b>		<b>2. CONTRACT</b>		<b>3. PROGRAM</b>	
a. NAME Princeton University-Plasma Physics Lab		a. NAME DOE-SC-OFES-NSTX Upgrade		a. NAME NSTX Upgrade Project	
b. LOCATION (Address and ZIP Code) Princeton, New Jersey		b. NUMBER DE-AC02-09CH11466		b. PHASE CD-3	
c. TYPE M&O		d. SHARE RATIO		c. EVMS ACCEPTANCE No X Yes	

5. Evaluation

1.1 / 1304 Inner TF Bundle

	Budget	Earned	Actuals	SV in \$	SV in %	CV in \$	CV in %	SPI	CPI
Cumulative:	1,536	1,297	1,720	-239	-16%	-423	-33%	0.84	0.75

Explanation of Variance/Description of Problem:

All of the solder development time and costs have been charged against the 1304 job. Initially plans were to solder the cooling tubes with similar processes used on the original TF bundle. As a result of the TF bundle failure new materials and processes had to be developed. These costs include solder sub-contractor new equipment fabrication, procurement and installation as well as the solder runs and tests. Additionally, earned value for the procurement of the inner TF conductors has not caught up to the accrued costs (accounting affect).

Impact:

Solder processes and procedures have been developed and ready for production.

Corrective Action:

None can be taken for the soldering and the TF procurement will self-correct (accrued costs and BCWP will equalize).

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

Development costs associated for new soldering processes has far exceeded original plans. Process has successfully been developed and ready for production. Earned value and Accounting system are out of sync for the TF inner conductor procurement.

Prepared by:  
 James H. Chrzanowski

Date:  
 4/25/2012

Approved by:

Date: 4/26/2012

and Problem Analysis

CLASSIFICATION (When Filled In)

CONTRACT PERFORMANCE REPORT  
FORMAT 5 - Explanations and Problem Analysis

FORM APPROVED  
OMB No. 0704-0188

<b>1. CONTRACTOR</b>		<b>2. CONTRACT</b>		<b>3. PROGRAM</b>		<b>4. REPORT PERIOD</b>	
<b>a. NAME</b> Princeton University-Plasma Physics Lab		<b>a. NAME</b> DOE-SC-OFES-NSTX Upgrade		<b>a. NAME</b> NSTX Upgrade Project		<b>a. FROM (YYYYMMDD)</b>  2012 / 03 / 01	
<b>b. LOCATION (Address and ZIP Code)</b> Princeton, New Jersey		<b>b. NUMBER</b> DE-AC02-09CH11466		<b>b. PHASE</b> CD-3		<b>b. TO (YYYYMMDD)</b>  2012 / 03 / 31	
<b>c. TYPE</b> M&O		<b>d. SHARE RATIO</b>		<b>c. EVMS ACCEPTANCE</b>  No                      X                      Yes		<b>(YYYYMMDD)</b> 2011 / 12 / 20	

**5. Evaluation**

**1.2 / 2450 2nd NBI Services**

	Budget	Earned	Actuals	SV in \$	SV in %	CV in \$	CV in %	SPI	CPI
Cumulative:	416	699	680	283	68%	18	3%	1.68	1.03

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

Work is being performed ahead of schedule

**Impact:**

None

**Corrective Action:**

Self Correcting

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

Prepared by: **MARTIN DENAULT**

Digitally signed by MARTIN DENAULT  
DN: cn=MARTIN DENAULT, o=PPPL, ou=WELDING,  
email=mdenault@pppl.gov, c=US  
Date: 2012.04.25 12:43:30 -04'00'

Approved by:



Date:

4/25/12

and Problem Analysis

CLASSIFICATION (When Filled In)

CONTRACT PERFORMANCE REPORT

FORMAT 5 - Explanations and Problem Analysis

FORM APPROVED  
OMB No. 0704-0188

4. REPORT PERIOD

a. FROM (YYYYMMDD)

2012 / 03 / 01

b. TO (YYYYMMDD)

2012 / 03 / 31

<b>1. CONTRACTOR</b>	<b>2. CONTRACT</b>	<b>3. PROGRAM</b>	
a. NAME Princeton University-Plasma Physics Lab	a. NAME DOE-SC-OFES-NSTX Upgrade	a. NAME NSTX Upgrade Project	
b. LOCATION (Address and ZIP Code) Princeton, New Jersey	b. NUMBER DE-AC02-09CH11466	b. PHASE CD-3	
	c. TYPE M&O	d. SHARE RATIO	c. EVMS ACCEPTANCE No                      X                      Yes

5. Evaluation

1.2 / 2460 2nd NBI Armor

	Budget	Earned	Actuals	SV in \$	SV in %	CV in \$	CV in %	SPI	CPI
Cumulative:	392	585	572	193	49%	13	2%	1.49	1.02

Explanation of Variance/Description of Problem:

There is a positive schedule variance due to a taken opportunity for the completion of some in-vessel work. Also, armor tile material was available earlier than anticipated, also putting this WP ahead of schedule.

Impact:

No negative impact from this action, job is now ahead of schedule, making it possible to trouble-shoot future issues concerning the armor installation. No major impact to project.

Corrective Action:

No corrective action needed.

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

Prepared by:

Kelsey Tresemer

Digitally signed by Kelsey Tresemer  
DN: cn=Kelsey Tresemer, o=PPPL, ou=Mechanical  
Engineering, email=ktresemer@pppl.gov, c=US  
Date: 2012.04.12 11:03:45 -0400

Date:

4/12/2012

Approved by:



Date:

4/25/12

and Problem Analysis

CLASSIFICATION (When Filled In)

CONTRACT PERFORMANCE REPORT

FORMAT 5 - Explanations and Problem Analysis

FORM APPROVED  
OMB No. 0704-0188

4. REPORT PERIOD

a. FROM (YYYYMMDD)

2012 / 03 / 01

b. TO (YYYYMMDD)

2012 / 03 / 31

<b>1. CONTRACTOR</b>		<b>2. CONTRACT</b>		<b>3. PROGRAM</b>			
a. NAME Princeton University-Plasma Physics Lab		a. NAME DOE-SC-OFES-NSTX Upgrade		a. NAME NSTX Upgrade Project			
b. LOCATION (Address and ZIP Code) Princeton, New Jersey		b. NUMBER DE-AC02-09CH11466		b. PHASE CD-3			
		c. TYPE M&O		d. SHARE RATIO		c. EVMS ACCEPTANCE No X Yes	

5. Evaluation

1.2 / 2470 2nd NBI Power

	Budget	Earned	Actuals	SV in \$	SV in %	CV in \$	CV in %	SPI	CPI
Cumulative:	260	724	442	464	178%	283	39%	2.78	1.64

Explanation of Variance/Description of Problem:

We are performing work ahead of schedule. The Power cables and the Triax cable have been specified and ordered. Power cables have been received.

Impact:

Executing work ahead of schedule

Corrective Action:

It is self correcting

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

Working ahead of schedule. The SPI will self-correct.

Prepared by:

S. Ramakrishnan

Date:

4/20/2012

Approved by:



Date:

4/25/12

and Problem Analysis

CLASSIFICATION (When Filled in)

CONTRACT PERFORMANCE REPORT

FORMAT 5 - Explanations and Problem Analysis

FORM APPROVED  
OMB No. 0704-0188

4. REPORT PERIOD

a. FROM (YYYYMMDD)

2012 / 03 / 01

b. TO (YYYYMMDD)

2012 / 03 / 31

<b>1. CONTRACTOR</b>	<b>2. CONTRACT</b>	<b>3. PROGRAM</b>	
a. NAME Princeton University-Plasma Physics Lab	a. NAME DOE-SC-OFES-NSTX Upgrade	a. NAME NSTX Upgrade Project	
b. LOCATION (Address and ZIP Code) Princeton, New Jersey	b. NUMBER DE-AC02-09CH11466	b. PHASE CD-3	
	c. TYPE M&O	d. SHARE RATIO	c. EVMS ACCEPTANCE No                      X                      Yes

5. Evaluation

1.2 / 2475 2nd NBI Controls

	Budget	Earned	Actuals	SV in \$	SV in %	CV in \$	CV in %	SPI	CPI
Cumulative:	248	887	785	638	257%	102	12%	3.57	1.13

Explanation of Variance/Description of Problem:

Variance due to accelerated schedule. Tasks started ahead of baseline schedule.

Impact:

Jop will complete ahead of baseline schedule.

Corrective Action:

None

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


Variance will be corrected as the baseline schedula catches up to accelerated schedule.

Prepared by: **Mark B. Cropper**

Digitally signed by Mark B. Cropper  
DN: cn=Mark B. Cropper,  
o=Princeton Plasma Physics Lab,  
ou=NSTX Neutral Beam,  
email=mcropper@pppl.gov, c=US  
Date: 2012.04.16 07:43:09 -04'00'

Date:

Approved by:



Date:

4/25/12

and Problem Analysis

CLASSIFICATION (When Filled In)

CONTRACT PERFORMANCE REPORT

FORMAT 5 - Explanations and Problem Analysis

FORM APPROVED  
OMB No. 0704-0188

4. REPORT PERIOD

a. FROM (YYYYMMDD)

2012 / 03 / 01

b. TO (YYYYMMDD)

2012 / 03 / 31

<b>1. CONTRACTOR</b>	<b>2. CONTRACT</b>	<b>3. PROGRAM</b>	
a. NAME Princeton University-Plasma Physics Lab	a. NAME DOE-SC-OFES-NSTX Upgrade	a. NAME NSTX Upgrade Project	
b. LOCATION (Address and ZIP Code) Princeton, New Jersey	b. NUMBER DE-AC02-09CH11466	b. PHASE CD-3	
	c. TYPE M&O	d. SHARE RATIO	c. EVMS ACCEPTANCE No                      X                      Yes

5. Evaluation

1.2 / 2490 NTC Equipment Relocations

	Budget	Earned	Actuals	SV in \$	SV in %	CV in \$	CV in %	SPI	CPI
Cumulative:	767	1,335	939	568	74%	396	30%	1.74	1.42

Explanation of Variance/Description of Problem:

Removals were performed at an accelerated rate while the field crews wait for the new coil supports to be designed and fabricated.

Impact:

Increased schedule contingency for field work.

Corrective Action:

None required.

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

Removals are being performed at an accelerated rate while the field crews wait for the new coil supports to be designed and fabricated. No corrective action is required since this will just increase the scheduler coontingency for the field work.

Prepared by: Erik D. Perry

Digitally signed by Erik D. Perry  
DN: cn=Erik D. Perry, o, ou,  
email=eperry@pppl.gov, c=US  
Date: 2012.04.18 10:24:04 -04'00'

Date:

Approved by:



Date:

4/18/12

and Problem Analysis

**CLASSIFICATION (When Filled In)**

**CONTRACT PERFORMANCE REPORT**

**FORMAT 5 - Explanations and Problem Analysis**

**FORM APPROVED**

**OMB No. 0704-0188**

**4. REPORT PERIOD**

**a. FROM (YYYYMMDD)**

2012 / 03 / 01

**b. TO (YYYYMMDD)**

2012 / 03 / 31

**1. CONTRACTOR**

**a. NAME**

Princeton University-Plasma Physics Lab

**b. LOCATION (Address and ZIP Code)**

Princeton, New Jersey

**2. CONTRACT**

**a. NAME**

DOE-SC-OFES-NSTX Upgrade

**b. NUMBER**

DE-AC02-09CH11466

**c. TYPE**

M&O

**d. SHARE RATIO**

**3. PROGRAM**

**a. NAME**

NSTX Upgrade Project

**b. PHASE**

CD-3

**c. EVMS ACCEPTANCE**

No

X

Yes

(YYYYMMDI

2011 / 12 / 20

**5. Evaluation**

**1.3 / 3200 Water Cooling System Mods**

	Budget	Earned	Actuals	SV in \$	SV in %	CV in \$	CV in %	SPI	CPI
Cumulative:	74	68	38	-6	-8%	30	45%	0.92	1.81

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

Positive cost variance due the fact that the original design assumed replacement of water pumps; however, pump replacement was not necessary which led to less time being required for design.

**Impact:**

Other than the cost savings to the project there are no impacts.

**Corrective Action:**

No corrective action required at this time.

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

A positive cost variance has been realized due to savings in system design. There are no corrective actions required at this time.

Prepared by: **MARTIN DENAULT**

Digitally signed by MARTIN DENAULT  
 DN: cn=MARTIN DENAULT, o=PPPL, ou=WELDING,  
 email=mdenault@pppl.gov, c=US  
 Date: 2012.04.12 16:18:10 -04'00'

Approved by:

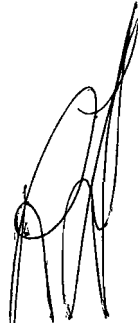



Date:

4/12/12

and Problem Analysis

**CLASSIFICATION (When Filled In)**

CONTRACT PERFORMANCE REPORT										FORM APPROVED	
FORMAT 5 - Explanations and Problem Analysis										OMB No. 0704-0188	
<b>1. CONTRACTOR</b>		<b>2. CONTRACT</b>		<b>3. PROGRAM</b>						<b>4. REPORT PERIOD</b>	
a. NAME Princeton University-Plasma Physics Lab		a. NAME DOE-SC-OFES-NSTX Upgrade		a. NAME NSTX Upgrade Project						a. FROM (YYYYMMDD)  2012 / 03 / 01	
b. LOCATION (Address and ZIP Code) Princeton, New Jersey		b. NUMBER DE-AC02-09CH11466		b. PHASE CD-3						b. TO (YYYYMMDD)  2012 / 03 / 31	
		c. TYPE M&O	d. SHARE RATIO	c. EVMS ACCEPTANCE No X Yes						(YYYYMMDD) 2011 / 12 / 20	
<b>5. Evaluation</b>											
<b>1.3 / 3300 Bakeout System Mods CSU</b>											
	Budget	Earned	Actuals	SV in \$	SV in %	CV in \$	CV in %	SPI	CPI		
Cumulative:	5	55	39	50	1050%	15	28%	11.50	1.39		
<b>Explanation of Variance/Description of Problem:</b> A positive schedule variance exists due to the bake out power supply was specified and procured much ahead of schedule to facilitate tasks under WBS1 for welding the TF conductors using this supply.											
<b>Impact:</b> WBS1 will use the supply to facilitate fabrication of TF coils.											
<b>Corrective Action:</b> No corrective action required. The schedule will self-correct.											
<b>Monthly Summary (to include technical causes of VARs, Impacts) and Corrective Action(s):</b> Bake out supply has been procured ahead of schedule leading to a positive schedule variance.											
Prepared by: <b>S. Ramakrishnan</b>		Digitally signed by S. Ramakrishnan DN: cn=S. Ramakrishnan, o, ou, email=raki@princeton.edu, c=US Date: 2012.04.20 08:56:51 -04'00'				Date:		Approved by: 		Date: 	



and Problem Analysis

**CLASSIFICATION (When Filled In)**

**CONTRACT PERFORMANCE REPORT**

**FORMAT 5 - Explanations and Problem Analysis**

**FORM APPROVED**

**OMB No. 0704-0188**

**4. REPORT PERIOD**

**a. FROM (YYYYMMDD)**

2012 / 03 / 01

**b. TO (YYYYMMDD)**

2012 / 03 / 31

**1. CONTRACTOR**

**a. NAME**

Princeton University-Plasma Physics Lab

**2. CONTRACT**

**a. NAME**

DOE-SC-OFES-NSTX Upgrade

**3. PROGRAM**

**a. NAME**

NSTX Upgrade Project

**b. LOCATION (Address and ZIP Code)**

Princeton, New Jersey

**b. NUMBER**

DE-AC02-09CH11466

**b. PHASE**

CD-3

**c. TYPE**

M&O

**d. SHARE RATIO**

**c. EVMS ACCEPTANCE**

No

X

Yes

(YYYYMMDD)

2011 / 12 / 20

**5. Evaluation**

**1.4 / 4500 MPTS VV Modification**

	Budget	Earned	Actuals	SV in \$	SV in %	CV in \$	CV in %	SPI	CPI
Cumulative:	774	630	843	-143	-19%	-212	-34%	0.81	0.75

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

The early stages of the design resulted in a significant variance in the development of the design and cost ( complexity from over constrained geometry including a conscious choice to include important locations as vacuum interfaces for future diagnostics) and stress analysis and eddy current force analysis. MPTS paid for the development of the global analysis model since it was not in a completed form when MPTS need results. These cost cannot be recovered., There have been a number of problems with the some parts of the model after the Windchill drawing file system was adapted which along with the general complexity of the design has resulted in a longer time fram to complete the detail drawings.

**Impact:**

Added cost and time resources must expend to complete the job. The fabrication has started and is expected to be completed in the August to September 2012 timeframe.

**Corrective Action:**

Non anticipated at this time, and it is anticipated that the CV will not worsen. The remaining detail drawings should be completed witin 2 weeks. The detail drawing of the Bay L faceplate will be released for fabrication by Tuesday 4/24/12 and stock material is in place for PPPL to begin machining.

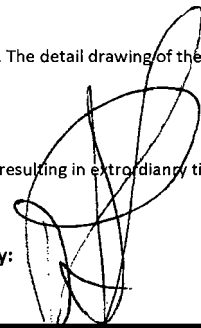
**Monthly Summary (to include technical causes of VARs, Impacts) and Corrective Action(s):**

Expanded scope by adding vacuum interfaces for future diagnostics. Global analysis model developed for MPTS bay L. Overconstrained location resulting in extraordinary time required to define a suitable reinforcement scheme at bay L due to proximity to Bat K J cap. The detail drawings are close to being completed so no corrective action is anticipated.

Prepared by: G. Labik

Date: 20 Apr 2012

Approved by:



Date:

4/20/2012

and Problem Analysis

**CLASSIFICATION (When Filled In)**

**CONTRACT PERFORMANCE REPORT**

**FORMAT 5 - Explanations and Problem Analysis**

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

<b>1. CONTRACTOR</b>	<b>2. CONTRACT</b>	<b>3. PROGRAM</b>		<b>4. REPORT PERIOD</b>
<b>a. NAME</b> Princeton University-Plasma Physics Lab	<b>a. NAME</b> DOE-SC-OFES-NSTX Upgrade	<b>a. NAME</b> NSTX Upgrade Project		<b>a. FROM (YYYYMMDD)</b>  2012 / 03 / 01
<b>b. LOCATION (Address and ZIP Code)</b> Princeton, New Jersey	<b>b. NUMBER</b> DE-AC02-09CH11466	<b>b. PHASE</b> CD-3		<b>b. TO (YYYYMMDD)</b>  2012 / 03 / 31
	<b>c. TYPE</b> M&O	<b>d. SHARE RATIO</b>	<b>c. EVMS ACCEPTANCE</b>  No                      X                      Yes	(YYYYMMDD) 2011 / 12 / 20

**5. Evaluation**

**1.6 / 6100 Control Sys Data Acquisition**

	Budget	Earned	Actuals	SV in \$	SV in %	CV in \$	CV in %	SPI	CPI
Cumulative:	122	209	213	88	72%	-3	-2%	1.72	0.98

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

A positive SV has occurred because work was started earlier than scheduled. The CV has also been positive for these activities.

**Impact:**

Completing the work early has retired risk and moved WBS6 ahead of schedule. The scope and resources for the work are not substantial.

**Corrective Action:**

Work with management to monitor the impact on FY12 costs; and if directed, cease work.

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

Variance will be corrected as the baseline schedule catches up to accelerated schedule

Prepared by:

Paul  
Sichta

Digitally signed by  
Paul Sichta  
DN: cn=Paul Sichta,  
o=PPPL,  
email=psichta@pppl.  
gov, ou=US  
Date: 2012.04.16  
09:23:16 -0400

Date:

Approved by:



Date:

4/15/12

and Problem Analysis

CLASSIFICATION (When Filled In)

CONTRACT PERFORMANCE REPORT

FORMAT 5 - Explanations and Problem Analysis

FORM APPROVED  
OMB No. 0704-0188

<b>1. CONTRACTOR</b>		<b>2. CONTRACT</b>		<b>3. PROGRAM</b>		<b>4. REPORT PERIOD</b>	
a. NAME Princeton University-Plasma Physics Lab		a. NAME DOE-SC-OFES-NSTX Upgrade		a. NAME NSTX Upgrade Project		a. FROM (YYYYMMDD) 2012 / 03 / 01	
b. LOCATION (Address and ZIP Code) Princeton, New Jersey		b. NUMBER DE-AC02-09CH11466		b. PHASE CD-3		b. TO (YYYYMMDD) 2012 / 03 / 31	
c. TYPE M&O		d. SHARE RATIO		c. EVMS ACCEPTANCE No                      X                      Yes		(YYYYMMDD) 2011 / 12 / 20	

**5. Evaluation**

**1.8 / 8200 CS & Coil Sprt Structure Install**

	Budget	Earned	Actuals	SV in \$	SV in %	CV in \$	CV in %	SPI	CPI
Cumulative:	1,271	1,509	1,416	238	19%	93	6%	1.19	1.07

**Explanation of Variance/Description of Problem:**  
Removal procedures being combined (fewer to prepare and review) and field removals being completed more quickly than estimated.


**Impact:**  
None

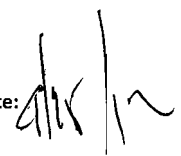
**Corrective Action:**  
None required

**Monthly Summary (to include technical causes of VARs, Impacts) and Corrective Action(s):**  
Removal procedures being combined (fewer to prepare and review) and field removals being completed more quickly than estimated.

Prepared by: **Erik D. Perry**  
Digitally signed by Erik D. Perry  
DN: cn=Erik D. Perry, o, ou,  
email=eperry@pppl.gov, c=US  
Date: 2012.04.18 10:24:43 -04'00'

Date:

Approved by: 

Date: 

and Problem Analysis

CLASSIFICATION (When Filled In)

CONTRACT PERFORMANCE REPORT

FORMAT 5 - Explanations and Problem Analysis

FORM APPROVED

OMB No. 0704-0188

4. REPORT PERIOD

a. FROM (YYYYMMDD)

2012 / 03 / 01

b. TO (YYYYMMDD)

2012 / 03 / 31

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

**5. Evaluation**

**1.1 / 1306 Inner PF Coils**

	Budget	Earned	Actuals	SV in \$	SV in %	CV in \$	CV in %	SPI	CPI
Cumulative:	391	235	328	-156	-40%	-93	-39%	0.60	0.72

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

A redesign of the PF coil support structures and ssembly processes were required based on the final analysis results.

**Impact:**

No impact because coils are being delayed until FY13.

**Corrective Action:**

None

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

Resign of PF coil support structures and assembly has accounted for cost overruns.

Prepared by:  
James H. Chrzanowski

Date:  
4/25/2012

Approved by:



Date:

4/25/12