Marshall Space Flight Center
Engineering, Science & Technical Services

Task Order Plan (TOP)

Contract Number: *NNM05AB50C*
TO Title: *Chandra X-Ray Observatory Thermal Operations Support*
TO Number: *32-030401* **Revision:** *07*

Period of Performance: *10/02/2010* to *1/31/2011*

MSFC Initiator: *John Sharp*

(b)(4) [redacted]

Emergency: *No*

Revision 7:

The purpose of this revision is to extend this task into Contract Year 6 of the NNM05AB50C ESTS contract. This revision defines and estimates work for the period October, 2, 2010 through January 31, 2011. Additionally, the Schedule, Performance Plan and Risk Assessment have been revised to reflect changes in task activities for the new period of performance. This revision affects the Chandra X-Ray Observatory Program.

Revision 6:

The purpose of this revision is to extend this task into Contract Year 5 of the NNM05AB50C ESTS contract. This revision defines and estimates work for the period October, 3, 2009 through October 14, 2010. Additionally, the Schedule, Performance Plan and Risk Assessment have been revised to reflect changes in task activities for the new period of performance. This revision affects the Chandra X-Ray Observatory Program.

Revision 5:

The purpose of this revision is to extend this task into Contract Year 4 of the NNM05AB50C ESTS contract. This revision defines and estimates work for the period September, 27, 2008 through October 2, 2009. Additionally, the Schedule, Performance Plan and Risk Assessment have been revised to reflect changes in task activities for the new period of performance.

Revision 04:

The purpose of this revision is to convert (b)(4) [redacted] of the labor estimate from an (b)(4) [redacted] cost category to an (b)(4) [redacted] cost category to reflect the current task order staffing.

Revision 03:

The purpose of this revision is to extend this task into Contract Year 3 of the NNM05AB50C ESTS contract. This revision defines and estimates work for the period 29 September 2007 through 26 September 2008. Additionally, the Schedule, Performance Plan and Risk Assessment have been revised to reflect changes in task activities for the new period of performance.
PR#: PR in work

Revision 02:

The purpose of this revision (02) is to reduce the labor estimate for an (b)(4) [redacted] cost category by (b)(4) [redacted] (b)(4) [redacted] The work will be completed in less than originally estimated hours.

Revision 01:
The purpose of this revision is to extend this task into Contract Year 2 of the NNM05AB50C ESTS contract. This revision defines and estimates work for the period 30 September 2006 through 29, September 2007. Additionally, the Schedule, Performance Plan and Risk Assessment have been revised to reflect changes in task activities for the new period of performance.

This Task Order (TO) replaces TO 22-030401 due to the NASA/MSFC reorganization and the subsequent realignment of the NNM05AB50C ESTS contract. This TO defines and estimates work for the period 1 April 2006 through 29 September 2006. Funding for this task is provided per MSFC PR that is in work. Additionally, the Schedule, Performance Plan and Risk Assessment have been revised to reflect changes in task activities for the new period of performance.

1.0 Task Order Description & Objectives

The objective of this task order is to provide technical support to the Chandra Program Office. This support includes the following:

(a) to monitor and analyze Chandra X-Ray Observatory (CXO) thermally-relevant flight telemetry, and
(b) to notify the program office of temperature yellow/red limit exceedances and/or significant thermal control trends that may impact future system performance.

2.0 Technical Approach (Including required input, guidelines & assumptions)

Use existing Near Real Time (NRT) data requests to download CXO thermal flight telemetry data (Integrated Science Instruments, Spacecraft, Integrated Propulsion System (IPS), and Telescope) as it is made available from the present till 1/31/2011. Convert the flight data from flight data format to excel spreadsheet format. Develop color trend plots for all the data and observe data for trends and abnormalities. Monitor real time flight data during abnormal conditions and assist with thermal corrections as needed. Develop and distribute quarterly trending reports and yearly trending reports.

3.0 Discussion of Skills Required

This task order requires a thermal engineer that is familiar with the CXO and the Enhanced HOSC System (EHS).

4.0 Special Tools Required

None.

5.0 Participating Subcontractors

None.

6.0 Milestones & Deliverables

(a) Quarterly status report
(b) Monthly Activity Reports (MAR)
(c) Yearly trending report

7.0 Special Considerations (Recruiting, Special Equipment / Material, Safety, etc.)

The success of this task order is directly affected by the availability of data and a connection to workstations at the Operational Control Center (OCC) in Cambridge MA. Also, due to operating system constraints at the OCC, NRT list requests cannot be submitted during times when CXO flight data is being downloaded from the flight recorder.

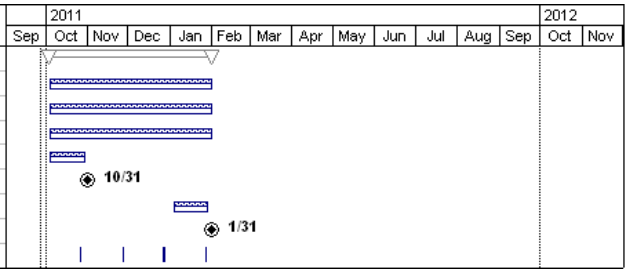
8.0 Work Shelf

The following activities could be accomplished as part of the Task Order performance by personnel that are temporarily available due to program or funding delays on other Tasks. Specific assignments will be coordinated with the Task Initiator to ensure appropriate skills and experience.

TO/Subelement	Description	Due Date	Skill
None			

9.0 Schedule

Task Order #	SubE	Task Work Element
32-030401	**00**	**Chandra X-Ray Observatory Thermal Operations Support**
32-030401	00	Submit Near Real Time (NRT) List Requests
32-030401	00	Convert NRT List Requests to Excel Spreadsheet Format
32-030401	00	Develop Electronic Time vs Temperature Plots of Data
32-030401	00	Develop CY10 3rd Quarter Status Report
32-030401	00	Deliver CY11 3rd Quarter Status Report
32-030401	00	Develop CY10 Yearly Temperature Trending Report
32-030401	00	Deliver CY10 Yearly Temperature Trending Report
32-030401	**00**	**Monthly Activity Report**



ESTS Contract Task Order Request Performance Plan

Task Order Title: Chandra X-Ray Observatory Thermal Operations Support

Task Order Number: 32-030401 Revision: 07

Category	Weighting Technical %	End of Period Technical Score
Technical Objectives	65%	X 65% =
		Justification
Monitor and analyze Chandra X-Ray Observatory thermally relevant flight telemetry. Notify the program office of temperature yellow/red limit exceedances. Assess flight telemetry data to identify significant thermal control trends that may impact future system performance.		
Schedule Objectives (Milestones)	**Weighting Schedule %** 10% *(min 10%)*	**Schedule Score** X 10% =
		Justification
(a) Quarterly Trending Reports (b) Monthly Activity Reports (c) Yearly trending report		
Cost (actual vs. negotiated)	**Weighting Cost%** 25% *(min.25%)*	**Cost Score** X 25% =
		Justification
	Weighting Total % 100.00%	**Total Score**

Technical, Schedule, and Cost Grading Scale

Score	Description
9.0-10.0	Exceeded TO Performance Plan objectives resulting in major benefit(s)
8.0-8.9	Exceeded TO Performance Plan objectives resulting in modest benefit(s)
7.0-7.9	Met TO Performance Plan objectives
3.0-6.9	Did not meet all TO Performance Plan objectives resulting in minimal impact or requiring additional agency funds
0.0-2.9	Did not meet TO Performance Plan objectives resulting in substantial impact and/or requiring additional agency funds

ESTS Contract Task Order Request Performance Plan

Task Order Number: Chandra X-Ray Observatory Thermal Operations Support

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Comments:

Marshall Space Flight Center
Engineering, Science & Technical Services

JACOBS
ESTS Group

Risk Assessment

Contract Number: *NNM05AB50C*
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(b)(4)

Task Order Risk Assessment to Cost, Technical, and Schedule

List identified risk associated with Task Order performance as related to task cost, technical, and schedule. Classify the risk(s) according to probability of occurrence and impact as defined below and enter the risk into risk matrix.

Risk	Risk Type	Probability (1-4)	Impact (1-4)	Risk Description
Risk C1	Cost			No cost risks have been identified for this Task.
Risk T1	Technical			No technical risks have been identified for this Task Order.
Risk S1	Schedule	1	2	If required input data is not available on schedule, it may cause delays in associated deliverables.

*Note: See page 2 for risk mitigation plan for those risks which are Primary Risk Drivers.

Task Order Risk Matrix

		1 Minimal Impact	2 Minor Impact	3 Medium Impact	4 Major Impact
Inevitable Occurrence (>95% Probability)	4	Y	Y	R	R
High Probability of Occurrence (>60% but <95% Probability)	3	G	Y	Y	R
Medium Probability of Occurrence (>25% but <60% Probability)	2	G	Y	Y	Y
Low Probability of Occurrence (<25% Probability)	1	G	G	Y	Y

Legend

- R — **Primary Risk Driver:** Requires Risk Mitigation Plan
- Y — **Caution:** Requires status updates and general plan for risk reduction as determined necessary by Team Lead and Initiator
- G — **Watch:** No Action required

Impact Level	Cost Impact Definition	Technical Impact Definition	Schedule Impact Definition
(1) Minimal Impact	No significant cost impact	No significant technical impact	No significant schedule impact
(2) Minor Impact	Potential to recover cost	Potential to gain required technology without impact	Minor delay in deliverables but no impact to customer
(3) Medium Impact	>0 but <10% subtask cost overrun	Some technical impact but potential to recover	Delay in subtask deliverables but work arounds available and acceptable to customer
(4) Major Impact	>10% subtask cost overrun	Unable to meet technical requirements to perform subtask	Delay in subtask deliverables with impact to customer

Risk Mitigation Plan

Complete the following chart for those risks identified on page 1 as “Primary Risk Drivers”. The following chart will serve as the Risk Mitigation Plan.

Risk No.: Risk Description:		
Mitigation Step No.	Planned Completion Date	Mitigation Step Description