

**FLIGHT DYNAMICS SUPPORT SERVICES II (FDSS II)**

**GOVERNMENT SURVEILLANCE PLAN**

**Enclosure B**

**FOREWARD**

This Surveillance Plan has been prepared in accordance with NPG 8735.2, Management of Government Safety and Mission Assurance Surveillance Functions for NASA Contracts, to describe the Government's surveillance of this contract. It is a "living" document that will be tailored to reflect the final contract award. The Government welcomes suggestions for improving this Plan. Of particular interest are ideas on what information the Government should monitor (i.e., metrics) and how the Government can most cost-effectively obtain the relevant performance data it needs.

## 1.0. INTRODUCTION

### 1.1 Purpose

The purpose of this Surveillance Plan is to define the overall approach and identify specific techniques that NASA Goddard Space Flight Center (GSFC) intends to use to monitor Contractor performance under Contract No. **XXXX**. This plan defines the process the Government expects to follow to obtain data, evaluate the Contractor, and determine if contract performance is acceptable. The goal is to balance the level of Government surveillance with the perceived impacts and risks associated with performance hereunder. The Government reserves the right to modify this Plan at any time during the contract.

### 1.2 Scope

This plan identifies program requirements, strategy, resources, review and control processes, and surveillance activities for continuous measurement of Contractor performance under Contract No. **XXXX**. It is intended to be a “living” document from which resources and activities will evolve from one phase to another during the life of the contract. The plan will be updated as required. The surveillance program addresses all elements of the contract, including the following:

### 1.3 Program Definition and Contract Description

Government task orders under this contract will determine the Contractor’s involvement in specific missions and mission operations activities. The Contractor may be tasked to perform any of the following functions:

- a. Orbit determination. Estimation of spacecraft state vectors from tracking measurements.
- b. Tracking data evaluation. Evaluation and monitoring of quality of tracking measurements.
- c. Acquisition data. Development and delivery of ground station pointing information for purposes of spacecraft acquisition.
- d. Mission planning and scheduling products. Development and delivery of mission specific flight dynamics products.
- e. Maneuver support. Maneuver planning for on-orbit spacecraft.
- f. Human space flight. Operational support of ISS.
- g. Expendable launch vehicle support. Operational support of ELV launches.
- h. FDF sustaining engineering. Facility and software maintenance, operations, and design architecture.
- i. Navigation analysis. Pre-launch navigation analysis for flight projects.

**Enclosure B**

- j. Mission design. Pre-launch trajectory design and mission planning for flight projects.
- k. Maneuver planning. Pre-launch deterministic and statistical maneuver planning for flight projects.
- l. Attitude determination and control analysis. Ground attitude determination analysis for flight projects.
- m. Ground system development. Development of Flight Dynamics Ground System for flight project use in Mission Operations Center (MOC).
- n. Advanced navigation techniques. Algorithm & software development and feasibility studies for navigation technology.
- o. Advanced mission design techniques. Algorithm & software development and feasibility studies for mission design technology.
- p. Advanced attitude techniques. Algorithm & software development and feasibility studies for attitude technology.
- q. Formation flying techniques. Algorithm & software development and feasibility studies for formation flying technology.
- r. COTS evaluation. Evaluation, integration and testing of COTS tools for analysis and operations.
- s. Advanced visualization environment. Maintenance and operation of 3D cave.
- t. Conjunction assessment analysis. Operational CA support for in-flight missions and algorithm & software development for CA technology.

1.4 Guiding Directives

The guiding documents for this surveillance effort include the contract's Basic SOW (BSOW) and specific Task SOWs. The BSOW identifies general requirements, and the Tasks identify specific objectives or results desired for each requirement. In addition, the Tasks identify specific performance standards, including deliverable requirements specified therein.

**2.0 SURVEILLANCE STRATEGY DEFINITIONS**

2.1 Insight

Insight is an assurance process that uses performance requirements and if definable, performance metrics to ensure process capability, product quality and end-item effectiveness. Insight relies on gathering a minimum set of product or process data that provides adequate visibility into the integrity of the product or process. The data may be acquired from Contractor records, usually in a non-intrusive parallel method.

Insight as applied to this contract will result in lower levels of Government surveillance and allow the Contractor to assume increased responsibility and accountability for the

**Enclosure B**

integrity of processes. Insight will rely heavily on evaluating planned contract deliverables, performance standards, and existing Contractor procedures and working documents, if available.

2.2 Oversight

Oversight as applied to this contract will result in higher levels of Government surveillance. The Government will gather information pertaining to the Contractor's process through on-site involvement and/or inspection in the process and will monitor the process itself. The Government's involvement in the Contractor's performance, through oversight, will be determined necessary by the Contracting Officer's Technical Representative.

**3.0 RESOURCES**

3.1 General

All surveillance activities will be implemented using NASA and Contractor support personnel, a delegated agency (e.g., Defense Contract Management Agency (DCMA)), and/or a surveillance support Contractor (e.g., resources provided under the Supplier Assurance Contract (SAC)). The surveillance team may be composed of:

- a GSFC Mission Engineering and Systems Analysis (MESA) support personnel (i.e., contracting officer's technical representative, task monitor(s), and financial analyst(s));
- b GSFC Safety & Health and Security personnel
- c NASA Safety and Mission Assurance Lead (Code 300); and
- d Resident Office or Defense Contract Management Agency (DCMA) personnel at the Contractor's facility (if appropriate).

3.2 Surveillance Team

The surveillance team will be composed of key Government MESA personnel, Government task monitors, and the Safety and Mission Assurance Lead. The team's primary purpose will be to provide direction for contract surveillance activities and to serve as the Government's focal point in reviewing and evaluating overall Contractor performance under Contract No. **XXXX**. The team will obtain information from various sources, including deliverable Contractor documents, communications with the Contractor, and reports by other personnel or representatives (e.g., task monitor(s), GSFC Health & Safety personnel, DCMA) who interact with the Contractor.

All available information will be evaluated, and any action by GSFC will be determined based upon the scope and magnitude of any particular issue or problem. The

**Enclosure B**

surveillance team chairperson (COR) will formally notify the Contracting Officer of situations where it is perceived that the Contractor has failed to take prudent corrective or preventive action, of situations perceived to increase risk, or of findings of continued contractual non-compliance.

3.3 Defense Contract Management Agency (DCMA), if participating

A DCMA representative may be collocated with the Contractor. The DCMA representative is tasked to provide surveillance support in accordance with the provisions of the GSFC Letter of Delegation (LOD) and this plan.

**4.0 SURVEILLANCE STRATEGY AND APPROACH**

4.1 General

The level of risk and the impact of failure are major determinants in helping define the type of surveillance to be conducted. Clearly, if the impact of failure is minor and the level of risk is low, only a small amount of insight-driven surveillance would normally be needed. Conversely, if the impact of failure could be significant and the level of risk is high, more extensive surveillance (including possible oversight surveillance) is warranted.

GSFC will strive to use an insight-driven surveillance approach throughout the period of performance of Contract No. **XXXX**. The overall surveillance goal will be to obtain objective evidence and data that enable the Government to determine whether the Contractor's program and processes are functioning as intended in accordance with the terms of the contract. The focus will be on prevention rather than detection, i.e., emphasizing controlled processes and methods of operation, as opposed to relying solely upon inspection and test to identify problems.

Surveillance team members will have open access to all areas in which this contract is being performed and will interface directly with their Contractor counterparts. They will document problems, concerns and issues, and take note of Contractor accomplishments. They will collect performance metric data, where applicable and will participate in Contractor review meetings, such as those described herein. Information will flow from individual team members through the COR to surveillance team representatives, who will present issues and achievements at surveillance team meetings. Information gained from these formal and informal exchanges of ideas and collection of data will be compiled and evaluated as a continuous measure of contract performance.

The COR will annually complete "Contractor Performance Assessment" which will also be reviewed by the Contractor, and become a part of the active GSFC data base of Contractor Performance Assessments.

4.2 Forms of Surveillance

**Enclosure B**

Under this contract, surveillance will take the following forms:

4.2.1 Communications

- Informal discussions
- Electronic mail
- Surveillance team meetings
- Progress reviews
- Technical information meetings
- Formal reviews
- Other communication methods, as needed
- Weekly and Monthly Status Reviews

4.2.2 Evaluation and Reporting

- Review of deliverables from contract data requirements list (e.g., Quality Manual, Risk Management Plan)
- Review of Task unique products/documentation
- Documentation of problems, issues and concerns
- Data collection reporting

**5.0 SELECTED SURVEILLANCE ACTIVITIES**

5.1 The following selected activities will be performed by various surveillance team members during applicable stages of contract performance:

<b>Area of Risk Identified</b>	<b>Impact to Government</b>	<b>Surveillance Team Activity</b>
System Maintenance	System downtime or loss of functionality could result in loss of service to in-flight missions which may directly affect quality of science data	Review RMA data and trouble data Review corrective action performance
Computer Security	Potential corruption and loss of data; disruption of schedule	Review Contractor's surveillance plan to ensure firewalls and protection software will be used.
Configuration Management Documentation	Erroneous use of equipment and facilitation of activities	The surveillance team will periodically sample the current available baseline documentation, and active management documents to verify compliance with

**Enclosure B**

Area of Risk Identified	Impact to Government	Surveillance Team Activity
		NASA and Goddard Management Instruction: GPG-1410.2, Configuration Management.
Control and Maintenance of Property	Loss of or damage to equipment; potential schedule impact	Review Contractor property management techniques, compliance with policies, and record-keeping via sampling techniques during Government semi-annual walkthrough inspections.
Safety	Loss of work-time or equipment, with schedule of cost impact	The Government will evaluate the Contractor's safety and health plan. The surveillance team will conduct semi-annual walkthrough inspections to ensure compliance with safety and health requirements.
Technical Documentation and Archiving	Loss of knowledge of processes and results	The Government will periodically sample documents (review for accuracy).
Quality of Work Force	<p>I. Unfilled positions:</p> <ul style="list-style-type: none"> <li>a. Inability to meet NASA Performance Metrics</li> <li>b. Additional cost resulting from decreased productivity of other staff reliant on unfilled staff positions</li> </ul> <p>II. Inadequate experience or expertise:</p> <ul style="list-style-type: none"> <li>a. Same as Ia.</li> <li>b. Same as Ib.</li> <li>c. Poorer data quality, e.g., derived products, through impacts on algorithm development &amp; evaluation</li> </ul>	<p>The Surveillance team will do the following:</p> <ul style="list-style-type: none"> <li>a. Track time required to fill positions and Contractor efforts &amp; approaches used to fill vacancies.</li> <li>b. Assess Contractor efforts to train staff in areas of required expertise.</li> <li>c. Evaluate skill levels of Contractor staff, e.g., routine presentation and documentation of analysis.</li> <li>d. Recommend staffing realignments as deemed</li> </ul>

**Enclosure B**

Area of Risk Identified	Impact to Government	Surveillance Team Activity
	Delayed data delivery and poor data quality also impacts NASA supported research outside GSFC	<p>necessary to ensure critical tasks remain on schedule.</p> <p>e. Receive all National Agency Check (NAC) Forms and receive all List Forms.</p>
Cost	<p>Cost Overrun:</p> <p>a. Delay or deletion of other work</p> <p>b. Inability to meet data delivery requirements or NASA Performance Metrics</p> <p>c. Funding fluctuations</p>	<p>The Contracting Officer's Technical Representative, the task monitor(s) and the contracts financial analyst will evaluate and monitor costs incurred on a monthly basis resulting from NASA financial reporting requirements due from the Contractor on a monthly or quarterly basis.</p>
Process Controls	Degradation of work products; potential schedule impact	<p>The Surveillance team, with assistance from DCMA and/or SAC, will periodically monitor the Contractor's adherence to key processes and their internal audit schedules/results</p>
TBD (to be completed after Contractor selection and issuance of new Tasks)		

Surveillance team members will have broad background and experience working with the flight dynamics work supported under Contract No. **XXXX**. They will participate in review meetings, such as those described in Section 4.0. They will provide assistance, as necessary, with the development and approval of technical requirements, flow-down of requirements, and with design, development, production and test activities. They will also maintain insight into the Contractor's compliance with relevant deliverables submitted under the contract. When the Government has concerns regarding Contractor performance, surveillance team members may conduct independent audits of the Contractor's activities, processes, products, documentation and data in order to provide assurance that the program is being implemented according to all requirements and specifications. These audits will normally be conducted with advance notification and

**Enclosure B**

coordinated with the Contractor. However, the Government reserves the right to conduct unscheduled audits when evidence indicates that Contractor performance is deficient.

5.2 Performance Verification

The term 'Performance Verification' in the context of this plan refers to the activities related to the insight activities. Additionally, specific performance requirements are provided in the Task SOW requirements. Audits as described above may be considered necessary for performance verification.

5.3 Safety

The responsibility for meeting all safety requirements rests with the Contractor. Surveillance team safety engineers and technical personnel (Code 205 personnel) will review Contractor-generated hazard analyses, safety compliance data packages or other safety-related documentation, as appropriate; to help ensure all safety requirements have been satisfied. Surveillance team personnel will also maintain insight into the Contractor's safety activities through the review of the Contractor's submitted Health and Safety Plan as required by this contract.

**6.0 SUMMARY**

This Surveillance Plan describes the approach NASA Goddard Space Flight Center (GSFC) intends to use to monitor the Flight Dynamics Support Services contract and assure that the Contractor performs in accordance with the terms and conditions of the Contract. GSFC anticipates using an insight surveillance approach. The goal is to balance the level of Government surveillance with the perceived impacts and risks of mission failure.

GSFC plans to utilize a surveillance team along with each task monitor to evaluate Contractor performance and direct surveillance activities. The team will establish and rely on objective and subjective performance metrics based on the specific Task SOW and Addendum requirements to evaluate Contractor performance against requirements.

As experience is gained with the Contractor, the Government reserves the right to change this Surveillance Plan and the metrics used to evaluate Contractor performance.