

SEAS TASK 38 Mod 98

L9 Fault Management and Related SE Activities

1. Background:

The Landsat 9 Mission (L9) is the future of Landsat satellites, and is scheduled for launch during 4th quarter of 2020. It will obtain valuable data and imagery to be used in agriculture, education, business, science, and government. The Landsat Program provides operational acquisition of moderate resolution multispectral data of the Earth's surface on a global basis. The data from the Landsat spacecraft constitute the longest record of the Earth's continental surfaces as seen from space, and is a record unmatched in quality, detail, coverage, and value. L9 will consist of a single observatory in the EOS 705 km sun-synchronous orbit.

The L9 spacecraft bus is built by Northrop Grumman Innovation Systems (NGIS). There are two instruments on L9: the Operational Land Imager -2 (OLI-2) instrument is being built by Ball Aerospace Technology Corporation (BATC) of Boulder, CO, and the Thermal InfraRed Sensor-2 (TIRS-2) is an instrument being developed as a GSFC in-house effort. The TIRS-2 is an imaging thermal optical instrument with a cold (~40 K) focal plane.

The ground system for L9 is a partnership between NASA and the United States Geological Survey (USGS) Center for Earth Resources Observation and Science (EROS) of Sioux Falls, SD, who currently operate the existing Landsat-7 and -8 observatories.

L9 launch vehicle support services will be provided via the NASA KSC Launch Services Program Office.

2. Summary of Work:

The contractor will provide senior systems engineering support to the Landsat 9 (L9) Project Office in the areas of Fault Management (FM) and related SE activities as required. The FM engineer will be a critical senior member of the L9 Mission Systems Engineering team with the primary responsibilities of:

- Perform fault management requirements definition for the draft and Landsat-9 spacecraft requirements document and instrument(s) redesign.
- Review Mission Operations Concept
- Review Ground system design
- Review instrument designs and support major design reviews

3. Period of Performance

The period of performance for this task shall be between October 15, 2020~~March 1, 2020~~ and April 14, 2021~~October 14, 2020~~.

4. Specific Tasks

Provide Fault Management and related SE activities as required including;

- Review materials generated by the spacecraft contractor for requirements compliance in the areas of fault management and related SE disciplines
- Support mission system activities in identifying and incorporating mission level inputs to FM systems design and verification.
- Review FM and SE documentation and provide comments as needed
- Support peer and system level reviews
- Support major spacecraft, instrument, and project-level reviews
- Review Ground System design and support GS Heritage Review
- Support FM testing and simulation activities, and other spacecraft testing as required

5. Deliverable Items and Schedules

- All FM and related SE activities, comments, analytical and trade studies shall be documented in memo form and the deadline(s) shall be in accordance with the L9 Project Mission schedule.
- Support the L9 Project Mission-level reviews as required.
- Provide Input and guidance to L9 lead engineers (systems manager, instrument and spacecraft system engineers, I&T manager, etc.), as appropriate in accordance with the L9 Project Mission schedule.

6. Travel

Six trips to NGIS to participate in reviews and technical interchange meetings. ~~OneThree~~ overnight trips from Jenkintown PA to GSFC ~~is~~ are expected for attending meetings and technical reviews after Calendar Year 2020 but before the end of the task period of performance.

7. Work Location

This work will be performed at the Goddard Space Flight Center and Jenkintown, PA.

8. Reporting Requirements

The contractor shall report status to the L9 project on a monthly basis. No presentation slides are required except for special occasions. The contractor shall report to the Technical Representative (TR) or designated alternates on a tri-monthly basis. Reports may be in the form of email, memos, informal presentation of interim results, and status of FM and SE related development activities as required. The contractor shall deliver

formal memo documents in electronic document format (PDF or Word) electronic form to the TR. Informal communications can be handled via email.

9. Qualifications and Experience

The contractor shall be a senior systems engineer with 10+ years of experience working with an in depth knowledge of the NASA Fault Management process and requirements and have a good understanding of the SE processes throughout the NASA mission lifecycle.