Sally K. Ride Papers - STS-51L Mission Operations Manual

Extracted on Mar-28-2024 06:01:30

c. All flight controller logs and hardcopies were impounded in JSC building 30, third floor action center. Access is being controlled via Mission Data Request Form (MDRF), and no originals have been allowed to leave the room. However, copies of data were made and removed.

d. An inventory of all impounded data was provided to the MER's central data facility.

e. A copy of each ascent team member's statement of the accident was provided to the MER for review.

f. All STS 51-L Flight Data File (FDF) change and verification records were impounded. The backup FDF was impounded at KSC.

g. The JSC command history, starting with activation of the Space Shuttle communications system, was reviewed.

h. A telemetry and trajectory reconstruction of lift-off through the event was done in the MCC on January 29 and 30, 1986, by a second ascent team. A mission operations computer (MOC) checkpoint was established for trajectory analysis that picks up at L-5 minutes.

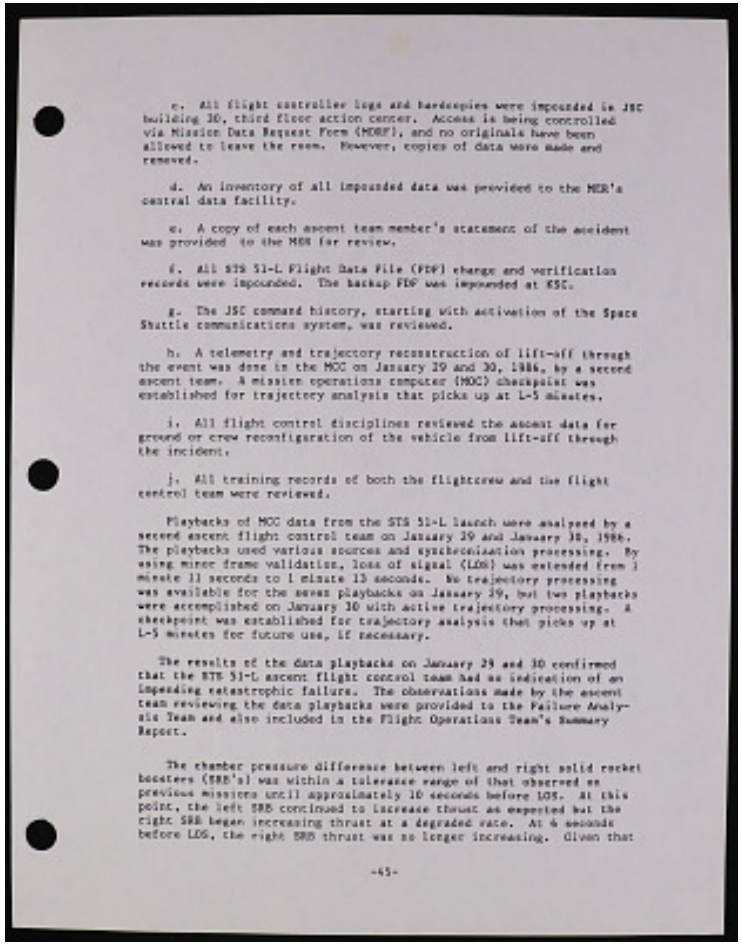
i. All flight control disciplines reviewed the ascent data for ground or crew reconfiguration of the vehicle from lift-off through the incident.

j. All training records of both the flightcrew and the flight control team were reviewed.

Playbacks of MCC data from the STS 51-L launch were analyzed by a second ascent flight control team on January 29 and January 30, 1986. The playbacks used various sources and synchronization processing. By using minor frame validation, loss of signal (LOS) was extended from 1 minute 11 seconds to 1 minute 13 seconds. No trajectory processing was available for the seven playbacks on January 29, but two playbacks were accomplished on January 30 with active trajectory processing. A checkpoint was established for trajectory analysis that picks up at L-5 minutes for future use, if necessary.

The results of the data playbacks on January 29 and 30 confirmed that the STS 51-L ascent flight control team had no indication of an impending catastrophic failure. The observations made by the ascent team reviewing the data playbacks were provided to the Failure Analysis Team and also included in the Flight Operations Team's Summary Report.

The chamber pressure difference between left and right solid rocket boosters (SRB's) was within a tolerance range of that observed on previous missions until approximately 10 seconds before LOS. At this point, the left SRB continued to increase thrust as expected but the right SRB began increasing thrust at a degraded rate. At 6 seconds before LOS, the right SRB thrust was no longer increasing. Given that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