SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE ACTIVITIES (D5)
Safety of Vehicules and Ground Segment for Aerospace Missions (1)

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THE INDEPENDENT GERMAN NATIONAL SURVEILLANCE ORGANISATION IN ESA'S LAUNCHER PRODUCT ASSURANCE FRAMEWORK

Abstract

To ensure an autonomous and independent quality monitoring in addition to the space industry's own quality control, governments participating in the Launchers Exploitation Declaration have entrusted the European Space Agency (ESA) to set up the ARIANE National Surveillance Organisation (NSO). The NSO is an essential institution of ESA's Launcher Product Assurance framework and has representation within each member state.

The German NSO, as part of the pan-European Surveillance Organisation, works in close cooperation with the French space agency CNES which assists ESA in the monitoring of all industrial activities regarding these surveillance tasks. The German NSO contract is assigned to IABG and focuses on the central task of safeguarding and improving the technical reliability of the ARIANE launcher system in addition to the reduction of manufacturing risks without substituting industrial responsibilities. The activities of NSO regarding **production and development** combine

- surveillance and monitoring of
  - activities of contractors and suppliers,
  - procurement and production,
  - manufacturing facilities ,
  - configuration management,
  - technical events,
- realisation of audits,
- participating in design reviews, and
- periodical and immediate anomaly reporting.

These operations consist of surveillance of Key Inspection Points, review of test set-up and test result examination as well as Visual Inspections and documentation traceability checks during 'Provisional Acceptances'. These tasks are performed for such products as ARIANE 5 Vulcain 2 Main Engine, Aestus, HM7 and Vinci Upper Stage Engines at the Astrium ST facilities in Ottobrunn (Munich), for propellant tanks and Solid Rocket Propellant Booster Segments at the MT Aerospace premises in

Augsburg as well as for the upper composite integration at Astrium ST in Bremen. The German NSO has established an observation reporting process with immediate reporting of incidents, ensuring a detailed information flow to ESA/CNES. Moreover, NSO performs audits in order to gain an in-depth understanding of special processes and activities.

The tasks concerning **qualification and testing** are primarily

- surveillance and monitoring of
  - engine qualification and
  - engine test facilities.

During the preparation and performance of engine tests NSO observes the test set-up and participates in major key events such as Test Readiness Reviews and anomaly treatment. NSO also contributes to the test execution itself at the DLR Test Bench facilities in Lampoldshausen for the Vulcain 2, Aestus and Vinci engine tests.

The paper will present a closer look at various examples of mentioned activities.