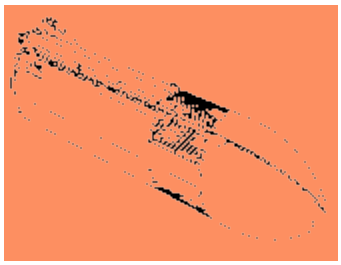
This document contains excerpts from the SLWT Independent Assessment Report (title page shown below). Only those sections which relate to the PBMA element **Program Management** are displayed.

The complete report is available through the PBMA web site, Program Profile tab.

Space Shuttle Super Lightweight Tank
(SLWT)
Independent Assessment
of Risk Management Activities



NASA Office of Safety and Mission Assurance
December 12, 1997

1.3 NPG 7120.5A Risk Management Process

Nineteen embedded safety and risk management processes were mapped into the six elements of the Risk Management Process (Figure 1.1) defined in the new NASA Policy Guidance document (NPG) 7120.5A, "NASA Program and Project Management Processes and Requirements."

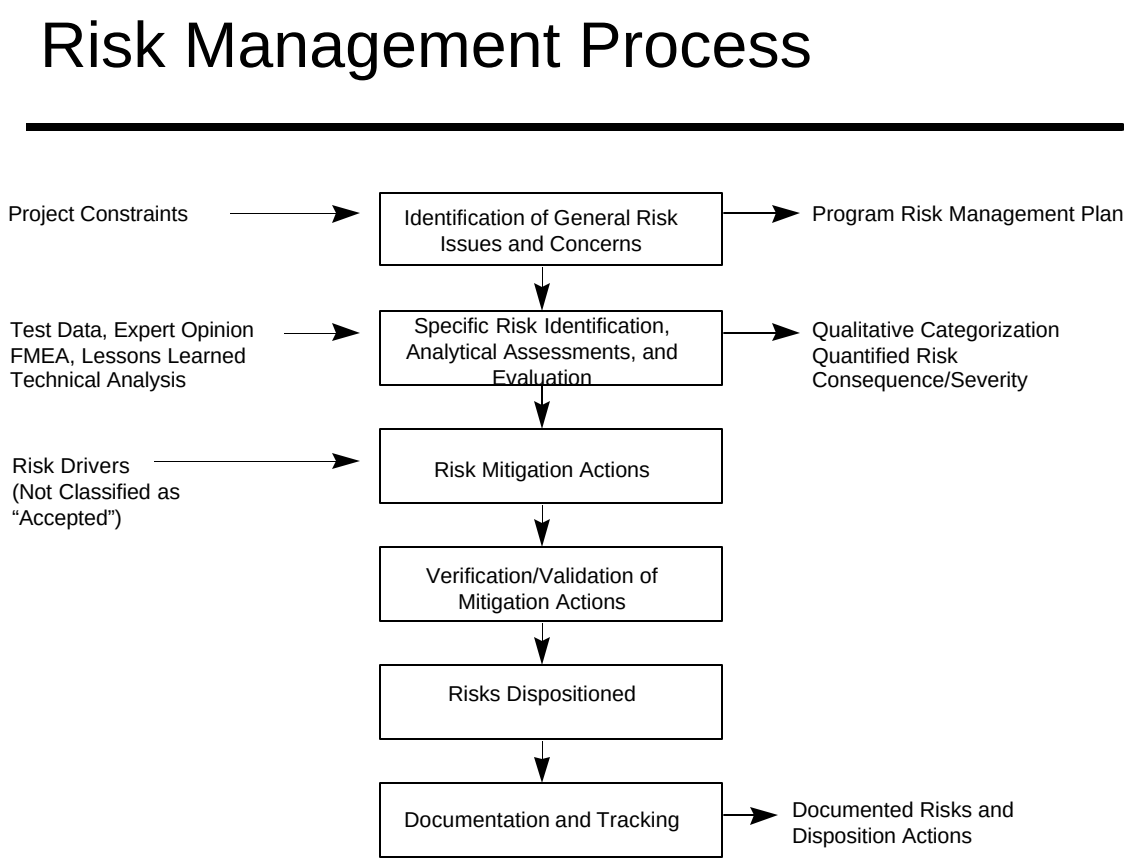


Figure 1.1

1.4 SLWT Safety and Risk Management Activity

LM and MSFC have employed numerous management and engineering processes that provide an interlocking system of checks and balances to assure safety. Table 1.1 identifies the individual processes and "maps" each process into the NPG7120.5A risk management elements. It is evident that LM safety and risk management practices and discipline penetrate all areas critical to achieving mission success.

Brief summaries are provided below for several representative "macro processes": the Hazard Analysis process, the Design Safety Checklist Process and the Operational Readiness Review process. Michoud Space Systems' systematic approach to safety and risk management provides visibility and confidence that safety considerations have been incorporated into all phases of the product life cycle. The constraints of time, cost, and

technical requirements to attain program objectives required progressive application of systematic methods, through an iterative process, to achieve mission success. The LM-MAF risk management concept is graphically depicted in Figure 1.2 which strongly reinforces the notion that risk management is a recurrent activity.

Mapping of SLWT Risk Management Processes

Risk Management Process (7120.5A)

MSFC / LM: Process / Practice or System	Preliminary Risk ID	Specific Risk Evaluation	Risk Mitigation Activity	Mitigation Effectiveness Verification	Mitigation Implementation Validation	Documentation & Tracking
P1 - Requirements Documentation & Flowdown Process			**X**			
P2 - Mission Success Communication Process			**X**			
P3 - Program Review Processes	**X**	**X**	**X**	**X**	**X**	**X**
P4 - Program Control Processes				**X**	**X**	**X**
P5 - Personnel Certification Process			**X**			**X**
P6 - Hazard Analysis Process	**X**	**X**				**X**
P7 - FMEA-CIL Process	**X**	**X**				**X**
P8 - Technology Development & Verification Process (Macro-Process)				**X**	**X**	
P9 - Technology Development & Verification: Parent Material Acceptance Process				**X**	**X**	**X**

Table 1.1

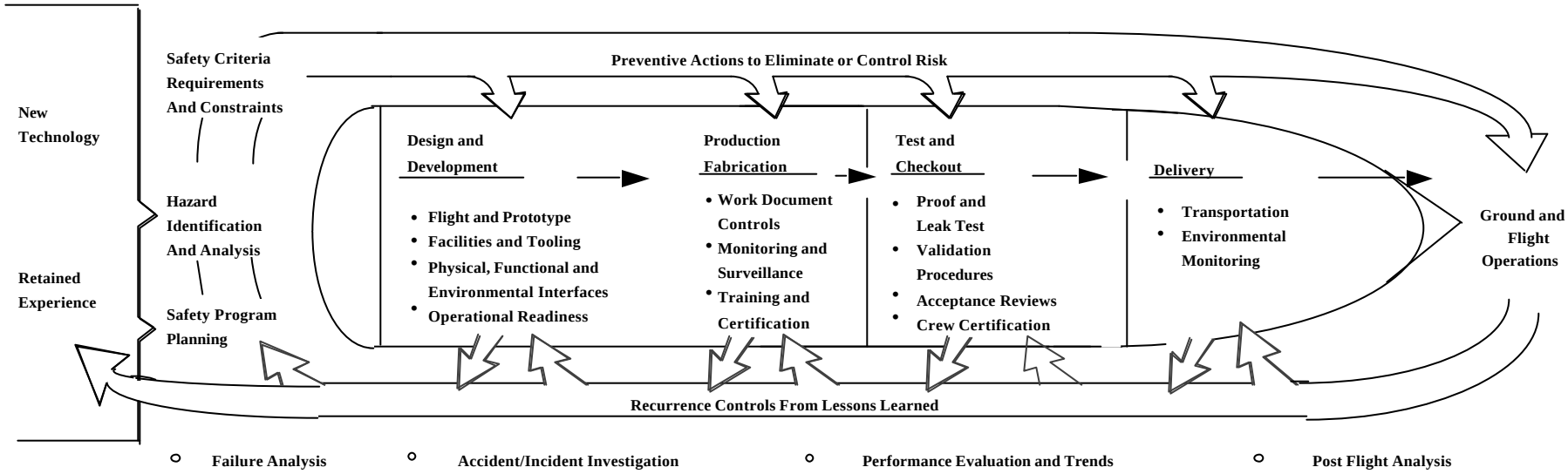
Mapping of SLWT Risk Management Processes

Risk Management Process (7120.5A)

MSFC / LM: Process / Practice or System	Preliminary Risk ID	Specific Risk Evaluation	Risk Mitigation Activity	Mitigation Effectiveness Verification	Mitigation Implementation Validation	Documentation & Tracking
P10 - Technology Development & Verification: Welding Process				**X**	**X**	**X**
P11 - Technology Development & Verification: Weld Repair Process				**X**	**X**	**X**
P12 - Material Review Board Process				**X**	**X**	**X**
P13 - Test & Verification Processes			**X**	**X**		**X**
P14 - Inspection & Surveillance Processes				**X**	**X**	**X**
P15 - Supply Chain Quality Management Process			**X**	**X**	**X**	
P16 - MSFC Special Analysis & Review Assurance Processes		**X**	**X**	**X**	**X**	
P17 - LM Special Analysis & Review Assurance Processes		**X**	**X**	**X**	**X**	
P18 - Independent Assessment Processes		**X**	**X**	**X**	**X**	**X**
P19 - Flight Readiness Review and COFR Process		**X**		**X**	**X**	**X**

Table 1.1 (continued)

LM Michoud Assembly Facility Safety and Risk Management



The flow in Figure 1.2 depicts the safety and risk management process as an ongoing and embedded behavior rather than a “single event” or one time activity. The arrows reinforce the notion of documentation and tracking of mitigation measures over the program life-cycle . The LM-Michoud safety and risk management approach is “institutional” in nature, identifying and addressing historic risk drivers and using knowledge gleaned from lessons learned.

Figure 1.2