



**Aerospace  
Systems Division**

April System Safety Progress Report,  
ALSEP Array "E"

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This ATM documents the progress of the System Safety Program for ALSEP Array E through March 1972.

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6.0 RESIDUAL HAZARD LIST

At this time there are no residual hazards on the ALSEP Array E.

7.0 NARRATIVE

7.1 LSP Timers

A safety analysis was performed of an electromechanical timer which was a possible alternate to the present LSP timer. The study concluded that there are several single point failures which would cause premature arming of the package, premature activation of the thermal battery or both. The electromechanical timer proposed was not considered to be as safe as the present LSP timer.

An analysis is currently being conducted on the proposed Bulova simplified design for LSP timers. The analysis is in the form of comparative fault trees, comparing the previous design to the simplified direct drive design. This analysis will be completed in May.

7.2 LSP Field Test

System Safety support of the LSP field test program has been rescheduled as a result of schedule slippage on the LSP Program. Support will be provided for the prototype field tests at WSTF from 30 July to 30 August 1972 and for the qual field tests from 11 September to 13 October 1972.

7.3 Crew/Mission Operations Hazard Analysis

The Crew/Mission Operations Hazard Analysis has been started. A preliminary outline was coordinated with the MSC Safety Office for review and comment. The analysis will be a study of ALSEP hardware and deployment sequences to determine if there are possible hazardous sequences involved. If hazardous sequences are present, checkpoints and warning will be recommended for inclusion to mission rules and deployment procedures. This analysis will be completed by 15 June.



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1.0 IDENTIFIED HAZARDS

No new hazards inherent to the ALSEP Array E Experiments have been identified since the last progress report.

2.0 DESIGN CHANGES

ALSEP Array E design changes are reviewed prior to their incorporation into the hardware. No safety significant design changes have been presented for review since the last report.

3.0 IDENTIFIED SAFETY DISCREPANCIES

No safety discrepancies have been identified during the reporting period.

4.0 TESTS AND OPERATIONAL PROCEDURES

Since hazardous materials is contained in the ALSEP LSP Experiment, all procedures and changes to procedures involving the LSP Experiment are reviewed for safety impact.

A total of 54 procedures have been reviewed to date, of which 10 contain hazardous sequences. No new procedures containing hazardous sequences have been identified during the reporting period.

In addition, procedures pertinent to other portions of the ALSEP hardware are reviewed regularly. No safety significant sequences have been identified in any procedures other than those for LSP.

5.0 SYSTEM SAFETY DOCUMENTS

The Array E Flight System Ground Safety Plan, ALSEP TM-840, was submitted to NASA for review and approval during this reporting period. This document provides a plan to assure the safety of personnel, flight hardware and facilities during the handling of ALSEP Array E at KSC.