Bendix
Aerospace
Systems Division

JULY SYSTEM SAFETY PROGRESS REPORT ALSEP ARRAY E	ATM 1048
	PAGE 1 OF 4
	DATE 13 August 1971

This ATM documents the progress of the System Safety Progress for ALSEP Array E through July 1971.

Prepared by: W. J. Lavin, Jr.
System Safety Engineer

Approved by: J. P. Jones, Supervisor
ALSEP Support Engineering

B. J. Rusky, Manager
ALSEP System Support

1.0 IDENTIFIED HAZARDS

During the previous report period (ATM 1017), a potential hazard was identified. The hazard was calssified as "Safety Catastrophic" to personnel.

1.1 Description

The potential hazard involved the LSG Experiment that is part of the ALSEP Subpack #1. The LSG sunshield is retained under tension during the stowed position to the LSG by boyd bolts, and the release of the boyd bolts by the astronaut on the lunar surface could create a personnel hazard. When releasing the boyd bolts to deploy the sunshield, the tension creates the possibility of "throwing" the boyd bolts. The velocity and force of the boyd bolts could impact the astronaut EMU or transmit sufficient force through the UHT during the boyd bolt release to create astronaut unbalance.

1.2 Status

Evaluation tests were conducted with the LSG at the A. D. Little Co. on 19 July through 21 July 1971. The tests were conducted by BxA and A. D. Little personnel. The tests were documented by high-speed cameras and the film data will be reduced and evaluated at BxA. Analysis of the film data will involve calculation of the velocity the boyd bolts expell, the distance the bolts/UHT will travel, and the extent of impact on the astronaut. The test report will be completed by 3 September 1971.

2.0 DESIGN CHANGES

Array E design changes are reviewed for potential hazards from the safety viewpoint, prior to initiating the change. During this report period one design change required safety considerations. The change involved the LSP Experiment.

2.1 Description

ECN 2348593-X3 incorporates a Lead Assembly in the LSP Explosive Package. The Lead Assembly contains 150 to 200 smg of HNS explosive and will require surveillance during fabrication and defined handling procedures.

2.2 Status

Extensive investigation was conducted on the Lead Assembly to determine the hazard potential in the event the Lead Assembly was inadvertently detonated. The identified hazard potential was defined to the LSP Experiment Manager, and it was determined that the LSP Safety documents will be revised to include the Lead Assembly by 12 August 1971.

3.0 IDENTIFIED SAFETY DISCREPANCIES

No safety discrepancies have been identified during this report period.

4.0 TESTS AND OPERATIONAL PROCEDURES

A total of four (4) procedures have been reviewed and three (3) of the procedures contained hazardous sequences. No hazardous sequences have been identified since the last report.

5.0 SYSTEM SAFETY DOCUMENTS

No system safety documents have been submitted since the last report.

6.0 RESIDUAL HAZARD LISTS

No residual hazard lists have as yet been identified.

7.0 NARRATIVE

7.1 Special Safety Test

The LSP Detonator Assembly Holding Fixture was tested for structural integrity. Six detonator assemblies were placed in the fixture and one was detonated. No sympathetic detonations of the other detonator assemblies occurred. No particles were ejected and only a trace of smoke. No movement of the fixture was apparent in the high speed film taken during the test. The fixture was approved for manufacturing.

7.2 Detailed Hazard Analysis

The detailed LSP Hazard Analysis will be completed by 16 August 1971. This schedule slippage of two weeks resulted from incomplete data.

7.3 Field Test Safety Plan

The LSP Field Test Safety Plan will be completed by 3 September 1971. This plan will be addressed to the hazardous operational tasks to be performed during the LSP Field Tests at WSTF, White Sands, New Mexico.

7.4 Operational Hazards Analysis

The LSP Operational Hazard Analysis will be completed by 1 September 1971.

7.5 LSP Timer Report

The LSP Timer Overbanking Report (ATM) will be completed by 12 August 1971. The report will contain the necessary data in detail to provide MSC with required information to close out CDR Action Item 128.