

Crew

August 10, 1972

SMEAT DAILY REPORT

Number 13

This report covers from 0800 August 9, 1972 through 0800 August 10, 1972 (test day 15).

I. Significant Accomplishments - The overall SMEAT test program continues to progress satisfactorily and it would appear both hardware and procedural problems are leveling off. Three M092/093 VCG tests were successfully completed. The crew microsamples were obtained and passed out of the chamber as scheduled. The carbon monoxide sensor was airlocked into the crew and will be used per the timeline requirements for the balance of the test. A special TV food conference is scheduled with the SMEAT crew and the cognizant food specialists to review overall food system operation and problems. The trace gas levels in the chamber remain well below acceptable tolerance levels. The modified vacuum brush has been transferred into the crew to permit further evaluation of the Skylab vacuum cleaner.

II. Problems

A. Hardware

1. The CO₂ dewpoint sensor continues to read higher than the chamber CO₂ levels and it has been determined that the unit should be transferred out of the chamber for additional lab calibration.

2. The crew has experienced problems in the application of the VCG electrodes. This problem has been previously encountered and is attributed to poor impedance match between the electrode and the skin.

B. Facility Problems

One of the experiment vacuum system pumps overheated necessitating a change to a backup system. This problem is being worked and does not have any impact on the test program.

*already connected
dirty oil*

C. Procedural Problems

The M092 waist seal had to be adjusted during one crew run because of excessive leakage.

D. Chamber Environment

All atmospheric parameters were controlled within specification levels during the last 24 hours. Consideration is currently being given

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to the comfort evaluation of projected Skylab thermal profiles*. The MSC Skylab Program office is providing a projected thermal curve for use by the SMEAT test team. These tests will not be implemented before the first part of next week.

III. Medical Summary

The crew remains in good medical condition and no medical problems have been encountered.

IV. Misc. Comments

During the TOMC summary meeting, major DFO's were reviewed and can be summarized as follows:

* 1. The major medical experiment trend data was discussed in a special meeting and it would appear that there are no shifts in trend data for any of the medical experiments. In summary, no physiological changes have been detected as a result of the exposure to the Skylab atmosphere. *

2. CO₂ dewpoint measurement - a total of nine measurement periods have been made to date. As previously reported, the CO₂ data is running one to two mm higher than facility measurements.

3. Toxicology - in the first two weeks of the test we have identified 10 contaminants in the SMEAT atmosphere. Seven of these are less than one part per million (actually they are in the 50 to 100 pph range). A new contaminant (methyl cyclopentane) started to appear about a week ago, but in the 100 pph range. The methane level increased from approximately 10 ppm (July 26 stl to 82 ppm as of 8/8/72). Ethanol and carbon monoxide have been in the 1 to 5 ppm range since the test started. Gas analyses on grab samples are performed every day and cryotrap samples approximately once per week. No problems have been encountered with this effort.

4. Food System - the food system evaluation has been discussed continually in the daily reports and all failures have been documented. A short film on the SMEAT food problems was reviewed by the TOMC.

5. Shower - The Skylab shower has been evaluated twice by the crewmen. During the first evaluation, the crew felt that the temperature of the shower water was too low and during the second test, the temperature of the water at the shower outlet was maintained at 120° at the shower nozzle. This water temperature appeared satisfactory to the crew. The crew appeared to be quite satisfied with the operation of the shower.

6. Microbiology - the detailed analysis of both air and surface microbiological samples is continuing. Most significant finding to date is that we have not found any of the 20 medically important microorganisms which are being followed for clinical evaluation.

7. Environmental Noise - we have obtained all scheduled data with no significant difficulties. All data collected thus far has been of good quality. Ambient noise data collected from six locations in the chamber indicates an average low of 69 db SPL (Exp. Area) and an average high of 73.5 db SPL (Ward Room). Overall chamber average noise level is 71 db. Skylab spec is 74 db SPL. No changes have been noted in crewmen's hearing thresholds or speech intelligibility. Noise questionnaire has revealed no significant findings.

8. Sleep Restraint - the commander's evaluation of the sleep restraint has basically indicated that the equipment is acceptable. He has, however, noted that the neck area may be too small for larger astronauts and may interfere with donning.

9. Habitability - the PI on the M487 Habitability has reported no significant findings to date on the SMEAT test.

10. T003 aerosol analysis - this device has been used as scheduled for the SMEAT test, however, data analysis has not been accomplished by the PI. This support has been requested.

Richard S. Johnston
Manager, Test Operations
Management Committee

* Below is skylab profile - would take air 30 days to simulate unless cutoff after upturn. However, it is felt that the profile suggested (being passed on also) will allow for better data re comfort - at elevated temps.

Glenn

