SPACE TO GROUND

1
00:00:00,606 --> 00:00:02,986
"HOUSTON, STATION
ON SPACE TO GROUND."

2
00:00:02,986 --> 00:00:05,486
WELCOME TO SPACE TO GROUND,
I'M KATHRYN MCLAURIN.

3
00:00:05,486 --> 00:00:07,946
IN ADDITION TO CONTINUING
RESEARCH,

4
00:00:07,946 --> 00:00:10,600
THE CREW WELCOMED SOME NEW
EQUIPMENT TO STATION THIS WEEK.

5
00:00:11,520 --> 00:00:14,476
THE CREW INSERTED THE
ACE-T-9 MODULE INSIDE

6
00:00:14,476 --> 00:00:17,516
OF THE LIGHT MICROSCOPY MODULE
AUXILIARY FLUIDS CONTAINER,

7
00:00:17,706 --> 00:00:21,566
THE ACE-T-9 EXPERIMENT
INVOLVES THE IMAGING, FOLDING,

8
00:00:21,566 --> 00:00:24,556
AND ASSEMBLY OF COMPLEX
COLLOIDAL MOLECULES

9
00:00:24,636 --> 00:00:25,756
WITHIN A FLUID MEDIUM.

10
00:00:25,846 --> 00:00:28,936
THESE SO-CALLED COLLOIDAL
MOLECULES ARE VITAL

11

00:00:28,936 --> 00:00:31,786
TO THE DESIGN OF NEW AND
MORE STABLE PRODUCT MIXTURES.

12
00:00:33,026 --> 00:00:36,546
SINCE NOVEMBER 2000, WHEN
HUMANS BEGAN CONTINUOUSLY LIVING

13
00:00:36,546 --> 00:00:39,816
IN SPACE, THE TEAM AT NASA
JOHNSON SPACE CENTER MISSION

14
00:00:39,816 --> 00:00:42,426
CONTROL CENTER HAVE
WATCHED OVER EVERY CREW,

15
00:00:42,526 --> 00:00:44,126
TASK AND SYSTEM ON STATION.

16
00:00:44,656 --> 00:00:48,236
A NEW NASA E-BOOK OFFERS
AN INSIDE LOOK AT THE TIME

17
00:00:48,236 --> 00:00:50,856
AND ENERGY THE FLIGHT CONTROL
TEAMS IN HOUSTON DEVOTE

18
00:00:50,956 --> 00:00:53,726
TO DEVELOPMENT, PLANNING AND
INTEGRATION OF A MISSION.

19
00:00:53,876 --> 00:00:57,076
"THE INTERNATIONAL SPACE
STATION: OPERATING AN OUTPOST

20
00:00:57,076 --> 00:01:00,326
IN THE NEW FRONTIER", NOT ONLY
EXPLAINS THE FUNCTIONAL ELEMENTS

21
00:01:00,326 --> 00:01:02,816

OF THE SPACE STATION,
BUT ALSO PROVIDES A DAY

22
00:01:02,816 --> 00:01:03,816
IN THE LIFE VIEWPOINT

23
00:01:03,816 --> 00:01:05,966
TO ILLUSTRATE HOW FLIGHT
CONTROLLERS OPERATE

24
00:01:05,966 --> 00:01:07,296
AT DIFFERENT POINTS
OF A MISSION.

25
00:01:07,296 --> 00:01:10,296
THE BOOK WAS WRITTEN BY
10 ISS FLIGHT DIRECTORS

26
00:01:10,516 --> 00:01:13,506
WITH OVER 45,000 HOURS
OF COMBINED EXPERIENCE

27
00:01:13,506 --> 00:01:14,716
AT THE HELM OF MISSION CONTROL.

28
00:01:15,206 --> 00:01:19,136
THE BOOK IS AVAILABLE AS A FREE
DOWNLOAD AT NASA.GOV/EBOOKS.

29
00:01:19,916 --> 00:01:21,976
. THIS WEEK'S QUESTIONS
COMES FROM SMRUTI.

30
00:01:22,466 --> 00:01:25,316
HE WANTS TO KNOW WHATS THE
PROCESS USED TO CONVERT URINE

31
00:01:25,316 --> 00:01:27,156
INTO REUSEABLE WATER
ON THE SPACE STATION?

32
00:01:27,946 --> 00:01:30,156
UNLIKE THE EARLIER DAYS
OF HUMAN SPACE FLIGHT

33
00:01:30,286 --> 00:01:33,206
WHEN ALL WATER WAS DELIVERED
TO THE CREW AS EXPENSIVE

34
00:01:33,206 --> 00:01:37,086
AND HEAVY CARGO, WE ARE NOW ABLE
TO PROCESS URINE, CREW SWEAT

35
00:01:37,086 --> 00:01:39,026
AND RESPIRATION AND
CONVERT IT TO WATER.

36
00:01:39,596 --> 00:01:42,416
THE WATER RECOVERY SYSTEM
COLLECTS URINE AND PUMPS IT

37
00:01:42,416 --> 00:01:44,186
TO A DISTILLER WHICH THEN SPINS

38
00:01:44,236 --> 00:01:46,036
TO CREATE AN ARTIFICIAL
GRAVITY FIELD.

39
00:01:46,546 --> 00:01:48,146
THE URINE IS PULLED
TO ITS WALLS,

40
00:01:48,316 --> 00:01:50,486
THEN HEATED TO EVAPORATE
THE WATER FROM THE WASTE.

41
00:01:50,796 --> 00:01:54,326
THE STEAM IS THEN PUMPS TO A
TANK, JOINING WATER RECOVERED

42
00:01:54,326 --> 00:01:55,766
FROM CREW SWEAT AND RESPIRATION.

43
00:01:56,206 --> 00:01:58,536
ODOROUS GAS IS REMOVED,
AND THEN IS PUMPED

44
00:01:58,536 --> 00:02:00,776
THROUGH SEVERAL FILTERS
BEFORE IODINE IS ADDED

45
00:02:00,776 --> 00:02:01,846
FOR MICROBIAL CONTROL.