ASTP (USA) MC518/2
Time: 14:25 CDT, 151:05 GET
7/21/75

CMP Copy.
CC-H Okay. For - we want to delete the x-ray at 58.
CMP Roger.
CC-H Okay. We see an MC&W for a high 02 flow, but at 0 time we want to delete the - configuring the DSE. It will be a real time pass.
CMP Roger. And I guess - of course, delete that 46 write in of high voltage power off -
CC-H I'm sorry. You're - you're correct. Delete that.
CMP Okay. Just keep going, Crip.
CC-H Okay. At 12:07 I've got a new attitude for you. It's 018.00, 159.60, no change. Okay.
CMP Okay. At 12:07, 018.00 and 159.60.
CC-H Okay. That's a good readback. Starting with DET time of 15:43, we want to delete all items following that.
CMP Okay. That's the end of the pad, essentially. Except for power down to - -
CC-H Okay. Now what we're going - I want to tell you what we're going to do. And I can verbally call these. At 16:48, we're going to go ahead and have you do x-ray OPS. And then throughout that pass, what we're - for the remainder of the time, we're going to have you cycling the x-ray high voltage power ON for 2 minutes and then OFF for 2 minutes and back ON for 2 minutes and OFF for 2 minutes and ON for 2 minutes and so forth. Okay. At about - at 38:30, we'll go ahead and do a power down of the EUV and x-ray. And I can call those in real time to you, also.
CMP Okay. Then the attitude that we have at 15:43 will be the attitude that this x-ray OPS is done in. Is that affirm?
CC-H That's affirm. That one that I just called out to you, to enter at 12:07, will be the - be the one. And it will just stay there, pointing at that one particular target.
CMP Right.
CC-H Okay. One other item associated with that is that I need to give you the high gain antenna angles, since those are going to be modified slightly.
CMP Go ahead.
CC-H And you can either put - you can either put them on the pad, or you can go ahead and put them in your flight plan - whichever way you would like to work with it.
CMP Okay. Why don't you just put them in - we'll put them in the pad here.
CC-H Okay. Put them in the pad. At 44 on the DET - put pitch of minus 45 and yaw of 184. And that will differ from what is currently written in your flight plan; but it shouldn't cause any problem.
CMP Okay, that's - 44 at the - near the beginning. Is that right?

ASTP (USA) MC518/3
Time: 14:25 CDT, 151:05 GET
7/21/75

CC-H Yeah, that's affirmative.
CMP Okay. Please repeat the angles again.
CC-H Okay. Minus 4-5 and 1-8-4.
CMP Copy.
CC-H Okay. Probably be worth making a note at the end of this pad. We also want you to go back to - to 2/10 of a degree per second. And we'd have to make a special entry to do that on - at the end of the pad, after the POWER DOWN.
CMP Okay. 6 - DAP entry of 6-1-1-0-1, just after POWER DOWN.
CC-H That's affirm.
CMP Houston, Apollo.
CC-H Go ahead.
CMP A minor thing, but - I was noticing you said that everything after 15:43 was affected by this change, by and large, and at 15:43 time we have an insertion to put in DAP 6-1-1-0-1.
CC-H Okay.
CMP Wasn't your last comment redundant?
CC-H Okay. I had intended for you to delete all items after that. It really doesn't make any difference. Once you're in attitude, you can go ahead and put it in - whichever way you would like to do it.

END OF TAPE

ASTP (USA) MC519/1
Time: 14:35 CDT, 151:15 GET
7/21/75

CC-H - - intended for you to delete all items after that. It really doesn't make any difference once you're in attitude, you can go ahead and put it in. Whichever way you would like to do it.

DMP Okay.

ACDR Houston, Apollo.

CC-H Go ahead.

ACDR Okay, Crip. I noticed for about the last hour or so one of these suit hoses was spitting water out (garble). So I went up to the - just now we started talking about it. I went up to the docking module the other - the docking module is spitting water out a little bit. So I'd assume the one that's going down the VTR is spitting some water on the VTR too.

CC-H Okay. Copy that (garble).

CC-H Okay. Our ENCO friend would like to get that hose out his VTR then.

ACDR Bet that really cooled off all that water evaporating in that thing.

CC-H Well you don't know how long you cried to get it in there.

DMP Can you guys tell whether our squeezer's working or not? It might be coupled with this 02 flow business.

CC-H I'm sorry Deke. Would you say that again please?

DMP Can you guys down there tell whether our water squeezer's working or not? This may be coupled to our 02 high flow business too.

ACDR Hey, Crip. You can tell your ENCO friend we got - I got a couple of table spoons of water out of the entrance to his VTR here.

CC-H Okay. Copy.

CC-H As a - as a matter of information if the AC's still listening. He discovered that he caught us with a small error there on that checklist awhile ago on the ETE that we had you waiting on the wrong - on the wrong temperature. We were supposed to have been using the TE temp versus the column temp and we need to get that noted in the checklist some time. If it's not convenient now, we can do it later.

DMP Well it was - say again. It was supposed to be the TE temp?

CC-H Yeah. That - the checklist was in error down there on the bottom of that page 1-7 where it says "column temp" it should be "TE temp."

DMP Ah hah. TE temp is 11 degrees. Okay.

CC-H Okay. If you get a chance you might - might make a notation here. Say, also, Tom, earlier when you were talking about sample 1 you mentioned a couple of bands we were expected to see 3. Did you - it's not necessary to go dig it out, but can you remember seeing 3 or was it only 2.

CMP Well it looked to me, Crip, like there was a - a leading band that was a narrow one, wouldn't you say Tom? About 5 mililiters?

ACDR Yeah.

ASTP (USA) MC519/2
Time: 14:35 CDT, 151:15 GET
7/21/75

DMP And then the second one was two or three times that wide, or maybe the second one was really a 3, I don't know.

ACDR Okay. I recorded that the - the leading band went from 118 to a hundred say 23, 24 about 6 wide. The second one was about oh, the second was actually wider than the first one. Yeah the second one was - if you looked was nearly 12 milimeter wide, the first one was oh, 5, 6 milimeters wide, the second one was 12.

CC-H Okay. But there were only 2 that you could - could note.

ACDR Yeah. And they were faint paths but you could see them, you know?

CC-H Okay. Real fine. Thank you very much.

DMP Hey Crip, I wonder if you could have your earth ops guys do me a favor.

CC-H Try it. Go ahead.

DMP Rog. Next time we got a pass through the middle of Wisconsin, they give you a little bit of warning. We came over there yesterday, I was evaluating the high power scope that messed up the day. I saw it in time but sitting there with a 300-milimeter lens, so (garble) didn't get much with it.

CC-H Yeah. It looked like we just had a pass over there this last rev around. We'll try to look at that for tomorrow and warn you.

DMP Yeah. We got some pictures with a 300, but that's kind of a lousy lens for the kind of photography we're trying to take.

CC-H Okay. I don't know whether Vance is still listening, but the surgeons are very pleased with that OBS exercise that they got a while ago and it looks like he's in excellent condition as we all knew he was.

ACDR Hey, Crip, I got an idea here just real fast.

CC-H Go ahead.

ACDR For Mr. VTR, what about just leaving a return hose in there so at least is can suck some air around in the VTR keep the inlet hoses away from it, while it's spitting water.

CC-H Okay. The activity we got on the VTR now is very minimal, so we really don't need all that cooling and that's not really necessary, but it sounds like a pretty good idea if we need it later.

ACDR Okay. I'm - all the hoses are out of the VTR.

CC-H Thanks a lot.

END OF TAPE

ASTP (USA) MC520/1
Time: 14:45 CDT, 151:25 GET
Date: 7/21/75

CC-H For the DP, Deke awhile ago you asked about your water squeezer. We're confident that it's working satisfactorily and we have seen water produced like this previously on the Lunar orbit I guess when we were operating without the primary evap on like we got now. I'm afraid its probably just something we're going to have to live with.

DMP Okay, no big deal. Just occurred to me that we were getting all these highflows that they're might be something going on with the squeezer.

CC-H Roger.

CC-H Apollo, Houston. We'll probably have a little bit early LOS here on our ATS and our next station contact is 29 minutes through Orroral.

ACDR Roger.

END OF TAPE

ASTP (USA) MC521/1
Time: 14:55 CDT, 151:35 GET
Date: 7/21/75

ACDR Hello, Houston, Apollo. You still read?
CC-H Rog. We're getting ready to cut you off shortly though. Go ahead.
ACDR Oh. Okay. Good. Go ahead - you know where to contact with you on this data we still go DSC high bit rate, record forward and RESET. Roger.
CC-H That's affirm. We need INCO to get a command in first though.
ACDR Okay.
CC-H Soon as we - we'll go LOS (Garble)
PAO This is Apollo Control, 151:36. Spacecraft communicator, Bob Crippen was somewhat nonpulssed, as in mid sentence, the communications officer sent a command to the spacecraft turning off the power amp to S-band transmitter. We'll have contact through Orroral Valley in about 22 minutes. The spacecraft was approaching the attitude at which lock would be lost through ATS-6 satellite. And we'll have no further communications through ATS-6 until 154:11 which is about 2 and 1/2 hours from now. However, the S-band stations along the ground track through which we can communicate through the om - omni antennas on Apollo will be useful: Vanguard, Goldstone, MILA, Madrid, Orroral Valley. Will return for tracking ship Vanguard in - I beg your pardon - Orroral Valley tracking station at 21 minutes. This is Apollo Control at 151:37.

END OF TAPE

ASTP (USA) MC522/1
Time: 15:22 CDT, 152 02 GET
Date: 7/21/75

PAO Apollo Control, ground elapsed time 151 hours 59 minutes. Acquistion through Orroral Valley.

PAO Apollo Control, ground elapsed time 152 hours 1 minute. A brief pass through Orroral Valley and a briefer conversation between cap comm Bob Crippen and the crew of Apollo. Next acquisition will be through Vanguard. This will be a low elevation pass, in approximately 2 minutes 30 seconds. We'll hold the line up for this Vanguard pass.

CC-H Apollo, Houston. We're AOS through the Vanguard for 6 and 1/2 minutes.

ACDR Okay.

CC-H I don't know if you guys have taken a chance to look at your orbital map or maybe somebody told you earlier but the Vanguard is underway and sailing west at this time and that's why we're picking you up a little bit earlier on it.

ACDR Okay. Guess we kind of expected that.

USA (Music)

CC-H I'd almost swear Pete Conrad was up there.

CMP Got all kinds of Western up here.

CC-H Rog. Rog.

CMP Even Colorado Mountain High.

CC-H Right.

CC-H Apollo, if we could, we'd like to get an update on the furnace. According to our flight plan it should have been shut down and we show it still powered UP. Are we running a little bit behind there?

ACDR Deke's up there working on it now.

CC-H Okay, fine.

END OF TAPE

ASTP (USA) MC 523/1
Time: 15:32 CDT, 152:12 GET
7/21/75

CC-H Apollo, Houston. We are 1 minute from LOS. Next station contact will be through Goldstone. That's about 15 minutes away and it'll be at 152:25, 152:25.

ACDR Okay. Real good. Thank you, Crip.

CMP Hey, Crip. Deke says the furnace is off now and he's doing prep for MA060.

CC-H Rog. In looking how we got here I guess we look like we were just dominoing down from the fact that we had the problem on the ETE with the temperature and I think everything's just running a few minutes late. We understand it.

PAO Apollo Control. Ground elapsed time 152 hours and 12 minutes. Loss of signal through the Vanguard tracking ship which is presently steaming west in the Pacific Ocean in support of the Viking launch. However Vanguard will still play a vital role in the ASTP mission. Next acquisition through Goldstone in 12 minutes and 35 seconds. At ground elapsed time of 152 hours and 12 minutes, this is Apollo Control.

END OF TAPE

ASTP (USA) MC524/1
Time: 15:46 CDT, 152:24 GET
7/21/75

PAO Apollo Control. Ground elapsed time 152 hours 24 minutes. Acquisition coming through Goldstone in 45 seconds. We will have a change-of-shift briefing at the main auditorium, building 2, at 5 P.M., with flight director Frank Littleton. We'll bring the line up for CAPCOM Bob Crippen.

CC-H Apollo, Houston. We're AOS at Goldstone for 6 minutes.

ACDR Roger.

CC-H Apollo, Houston. For the AC, while you're sitting here waiting for loading your next P20 - got one more item I might discuss with you briefly.

ACDR Go ahead, Crip.

CC-H Okay, Tom. You guys have probably been doing it already - but a request here is that, if you haven't, you might get some DAC footage, using 24 frames per second, of each of you guys doing - any, you know, any kind of task around the spacecraft there, to use for a postflight film. If you haven't, we suggest you might could use the CI-01, which should be in F-2.

ACDR CI-01 in F-2. Okay. (Garble.)

CC-H Okay. And a 10 millimeter lens would be good for that. And we do want to get it at 24, cause it works out much better.

ACDR Roger.

CC-H Apollo, Houston. We're about a minute from LOS. And our next station contact in 7 minutes through Newfoundland, at 1-5-2-37. 1:52:37.

ACDR Roger. Newfoundland. 1:52:37.

END OF TAPE

ASTP (USA) MC525/1
Time: 15:56 CDT, 152:33 GET
7/21/75

CC-H Apollo, Houston. We're AOS through Newfoundland for 7 minutes.
ACDR Roger. And I understand, we don't have the accurate - new latitude.
CC-H That is correct.
ACDR - - Apollo.
CC-H Apollo, go ahead.
ACDR What do, Crip? Are you down there looking good on us?
CC-H We're looking at you through Newfoundland right now and - which means we're only talking and not looking VHF only. So we don't have that. Up until this time, it had been looking good.
ACDR Okay. Everything's been going right on schedule.
CC-H Rog. It looks like you're really having fun sitting there punching the DISKY. About to wear out your finger.
ACDR Loose finger tips and this machine's over.
CC-H Roger that. Take care of all finger prints.
ACDR Right.
ACDR Hello, Crip, Apollo.
CC-H Go ahead.
ACDR I was just thinking: If I had a penny for every DISKY stroke, we could have a hell of a splashdown party, couldn't we?
CC-H Well that's (laughter) that's certainly a good idea. I think we should have one anyhow.
ACDR Oh we will.
CC-H A little - a little side information. After I give this mike here to Dick Truly I'm going to go over - we're having a little touchdown party for the - for the Soyuz tonight.
CC-H Oh. Real good. Sorry we can't join you.
ACDR Oh, you can have a little orange juice or whatever you got on board there.
ACDR All righty.
CC-H Tom, you still reading me loud and clear?
ACDR You, Crip?
CC-H Yeah. I want - I wanted to tell you I got some good news and I got some bad news. We don't need you to swing through the trees like Tarzan, but would you believe that due to a little ground error here, we ended up losing all of your OBS exercise data yesterday?
ACDR Okay. Sorry about that. I was working out like mad.
CC-H Well, we were wondering if we could convince you to do it once more for us.
ACDR Yeah. How about the day before yesterday ?
CC-H Well, that looks kind of busy. We're actually looking at one little spot later on this evening or tomorrow and we can talk about that a little bit later.
ACDR All right.
ACDR Well, I didn't think that you figured right onboard for that.

ASTP (USA) MC525/2
Time: 15:56 CDT, 152:33 GET
7/21/75

CC-H Yeah. It - it was a problem we had here - down here. We know it was not onboard.

CC-H Apollo, Houston. We're 1 minute from LOS. Next station contact in about 4 minutes through Madrid. Call you there.

ACDR Roger.

END OF TAPE

ASTP (USA) MC526/1
Time: 16:06 CDT, 152:44 GET
7/21/75

CC-H Apollo, Houston. We're AOS from Madrid for about 2 and 1/2 minutes, correction on that - for about 1 minute and 1/2.

ACDR Okay.

CC-H Apollo, Houston. We are 1 minute from LOS, nice long one here. Next station contact will be Orroral in about 40 minutes. And that's at 153:30, 153:50. Correction 30.

ACDR Roger. 153:30.

CC-H Tom, just one thing we're working on down here is the caution and warning tone when you - now since you've had some caution and warnings without a tone. Have you had any subsequent ones that you've had the tone with?

ACDR No, not a bit. That's the only time.

CC-H Okay. That concerns us somewhat that the tone warning's not working.

CC-H We'll go ahead and say good evening to you and be turning you over to the silver team.

ACDR Okay. Real good. Thank a lot for all the Crip. Needless to say, we've been busier than the proverbial left-handed paperhanger up here.

CC-H Rog. Sounds like you're having fun.

ACDR Yep.

CC-H If you want to look at system, checklist 1-33, you might run through a C and W check.

ACDR Say again.

CC-H Checklist 1-33.

ACDR Roger.

CC-H That's to allow you to check it out if you like.

PAO Apollo Control, ground elapsed time 152 hours 51 minutes LOS of signal through Madrid. Next acquisition will be through Orroral Valley tracking station in 38 minutes and 30 seconds. The ATS-6 satellite not providing support during this revolution. The next acquisition will be ground elapsed time of 154 hours and 11 minutes. This is due to the fact that spacecraft is oriented - its attitude is supporting the helium glow experiment and the x-ray and e - extreme ultraviolet experiments. Next acquisition through the Orroral Valley tracking station at ground elapsed time of 152 hours and 52 minutes. This is Skylab Control (sic).

END OF TAPE

ASTP (USA) MC527/1
Time: 16:34 CDT, 153:11 GET
7/21/75

PAO - Apollo Control. Ground elapsed time 153 hours 11 minutes. We will have acquisition in 18 minutes and 15 seconds through the Orroral Valley tracking station in Australia. A change of shift briefing with the flight director Frank Littleton and CAPCOM Bob Crippen will be held in the Building 2 main auditorium at 5 P.M. Apollo now in revolution 93, approximately 4200 miles away from the Russian spacecraft Salyut 4, still in orbit. Apollo is crossing the tip of South America - South Africa right now, whereas Salyut 4 is just crossing the Black Sea - 4200 miles apart, approximately, at this time. And Apollo is 50 miles below the orbit of Salyut 4. Change of shift briefing at 5 P.M. with flight director Frank Littleton and CAPCOM Bob Crippen. Here at the Mission Control Center we've had a change of flight directors: Neil Hutchinson, head of the Silver Team. His CAPCOM is astronaut Dick Truly. Next acquisition in 17 minutes. At ground elapsed time of 153 hours and 13 minutes, this is Apollo Control.

END OF TAPE

ASTP (USA) MC528/1
Time: 16:51 CDT, 153:29 GET
7/21/75

PAO This is Mission Control. There will be an Apollo announcement in 1 minute.

ACDR (Garble)

ACDR Hello. Houston, Apollo.

CC-H Apollo, Houston. Tom, I read you. Go ahead.

ACDR Okay. Loud and clear. Deke is doing the fish experiment. I'm still working the helium glow scan, rev 92/93.

CC-H Okay. Fine.

ACDR And Vance is working in between, on both things.

CC-H Roger.

ACDR We're all set to go to that con - new contingency pad for the x-ray. Then we'll start that - in fact, we'll get busy on that, starting about 154:00. One thing - we did check the caution and warning. Everything checks okay. The only thing is that the warning tone in our headset - we can barely hear it when it's turned up, but it's real low - it's dropped considerably, compared to when we first - first couple of days in the spacecraft when that 02 warning use to keep us wide awake - you know, all the time.

CC-H Sure. Yeah. I remember.

ACDR As your warning goes on, the red light goes on. But you can just barely hear it. That's the only difference. And we haven't had any more funnies, where the warning light would go on with no other warning of it. Over.

CC-H Okay. Fine, Tom. Let us talk about that just a minute, and we'll be back to you. Thanks for letting us know, though.

ACDR Okay.

CC-H Apollo, Houston. We're 1 minute from LOS. Hawaii comes up at 153:48.

ACDR Roger.

CC-H And Tom, one of the things that we also want to check about the loudness of the tone on the caution and warning is how loud it is with the speaker box turned on, cause that's the sleep configuration.

ACDR Okay. We can check that. And we'll have an answer for you by the time you get to Hawaii.

CC-H Okay. Real fine. Thanks.

PAO Apollo Control. Ground elapsed time 153 minutes - 153 hours and 34 minutes. Loss of signal through the Orroral Valley tracking station. Next acquisition, in 13 minutes, will be through Hawaii. We will have a change of shift briefing. Off-going flight director Frank Littleton and CAP COMM Bob Crippen will be at the main auditorium in Building 2 in approximately 4 minutes, to begin the change of shift briefing. During the change of shift briefing we will record any live air-to-ground and play it back at the close of the briefing. At ground elapsed time of 153 hours and 34 minutes, this is Apollo Control.

END OF TAPE

ASTP (USA) MC529/1
17:26 CDT, 154:04 GET
7/21/75

PAO This is mission control. There will be an Apollo announcement in 1 minute.

PAO Apollo Control, ground elapsed time 154 hours, 4 minutes. We have a two minutes of tape recorded during the Hawaii pass. We'll play that tape now and bring the line up live for the Newfoundland and ATS-6 trans - communications.

CC-H Apollo, Houston. Hawaii for seven minutes.

DMP Roger, read you loud and clear. (Garble)

CC-H Okay, Deke -- -

ACDR We've checked the caution and warning and it'll blast you right out of the spacecraft. There's no problem with the speaker box, as far as the speaker box goes, it's just in the headsets. (Garble)

CC-H Okay, one question, Tom. Do you have the same problem with the low tone from all three audio centers, on the headsets?

ACDR Roger, all three.

CC-H Okay, I understand. Copy. Thank you much.

CC-H Apollo, Houston. One comment on your jet selects.

ACDR Go ahead. Well stand by. Sounds like we may be going in the keyhole, hang on a second.

CC-H Okay, you read me loud and clear, Tom?

ACDR Roger.

CC-H Okay, you know yesterday, we turned off one of the roll jets, Bravo 2 and turned on delta 2. That balance worked well and the quads are more balanced then they were. The next time you come to a jet select - it's in the flight plan about an hour from now, and it's printed there and we want you to go back to the nominal configuration there, at 155 plus 07 and then just follow the flight plan after that.

ACDR Roger. Nominal jet select on auto RCS at 155:07. Roger.

CC-H That's right and then after that just do what the flight plan tells you whenever you come up on it. Thanks a lot.

ACDR Okay, Deke. From jet 155 on we do exactly what's written in the flight plan.

CC-H That's affirm and we're about a minute from LOS Hawaii. Newfoundland comes up at 154 plus 10 and I'll see you there.

ACDR Thank you.

PAO That concludes the recorded pass through Hawaii. Next accqusition in 2 minutes through Newfoundland and Bermuda and then we pick up the ATS-6 satellite.

CC-H Apollo, Houston. Newfoundland for 7 minutes.

ACDR Roger, how do you read?

CC-H Loud and clear, Tom.

ASTP (USA) MC529/2
Time: 17:26 CDT, 154:04 GET
7/21/75

ACDR We read you loud and clear, now.
CC-H Okay.
ACDR Houston, how do you read through ATS?
CC-H Apollo, Houston. I read you loud and clear. Let me make sure that I heard that through the ATS or through Newfoundland. Stand by.
ACDR Okay.
CC-H That's affirm, Tom. We're locked up on ATS.
ACDR Okay and we're all set, we're counting down in the EUV pad, rev 88 and rerun (garble)
CC-H Okay, Tom. Since I handed over to Crip, I wonder if I could review with you just so you and I both understand how we're going to run this pass.
ACDR Okay, go ahead.
CC-H Okay, I've got the pad here that is marked up per Crip's markup. As I understand it at -- we're going to go right through the pad down to the time where it says 12 plus 07 and then - -
ACDR That's Right.
CC-H - - down at 16 plus 48, I'm going to give you a call and we're going to do an x-ray ops. And then from there to the end of pass, we're going to be cycling the high voltage on and off on 2 minute -- on 2 minute intervals. And we - if the PI- -
ACDR Roger.
CC-H Okay, and if the PI desires by looking at the data in realtime to change that 2 minutes, I'll give you a call.
ACDR Okay, good. Now we're talking high voltage only 2 minutes ON, 2 minutes OFF, 2 minutes ON, 2 minutes OFF.
CC-H That's affirm, Tom. And then at the end of the pass and I'll give you a reminder on this also, we'll fix up the DAP.
ACDR Okay.
CC-H Okay, real fine. I think we're understanding and I'm standing by.
ACDR All right, good. And, yeah, and there's also some new angles here that they called up to us at 12:07. It's 01800 and 15960, over.
CC-H That's affirm. You've cop - you've read them down correctly, Tom. And down on panel 231, if you'd help us out and go UP TELEMETRY switch to UP TELEMETRY that's center position.
ACDR Okay.
ACDR Dick, Deke wants to talk to you for just a minute here. He'll be coming on the headset.
CC-H Okay, fine. I'd love to speak to him.
DMP Hello there, Dick. How you doing?
CC-H Great Deke, and you?
DMP Well, I'm not sure I've got a question here. We're doing ETE ops. and we're suppose to be on the shutdown on the third sample

ASTP (USA) MC529/3
Time: 17:26 CDT, 154:04 GET
7/21/75

our little old kitchen timer got away from us so we're kind of doing it by stopwatch or, you know, good old Earth watch.

CC-H Roger.

DMP And by my watch we've been running here almost 2 hours on this one sample and it still has not shut down. They're suppose to shut down at 75 minutes and the voltage is down to somewhere near zero. I'm still reading about 335 volts in her. And I think my timing's pretty good so I wonder if somebody could tell us if we got a malfunction or whether to just go ahead and shut it down based on our time.

CC-H Okay, Deke. Let us talk about it a second here and I'll get back to you.

DMP Okay.

CC-H Apollo, Houston. Answers to Deke, we'd like to proceed on and do the ETE freeze that's sheduled there. You've got it in front of you, I'm sure. It's page 1-9.

DMP Okay, do the freeze and don't worry about the voltage, right?

CC-H That's affirmative.

DMP Okay, thank you.

ACDR Houston, Apollo.

CC-H Go ahead, Tom.

ACDR Okay, just wondering how the data's coming down there on the ground since we're taking it back through ATS.

CC-H Okay, let me check. We've been - I've been watching you here doing the maneuvers, let me check with experiments. Looking real good Tom. So reports the experiments officer.

ACDR Real good, thank you.

END OF TAPE

ASTP (USA) MC530/1
Time: 17:50 CDT, 154:28 GET
7/21/75

CC-H - - reports the experiments out, sir.
ACDR Real good. Thank you.
ACDR Okay, Dick. If the rate - it doesn't look like we're going to reach that attitude, even with that DAP rate by the time we get to 16:48. Over.
ACDR We may do it.
CC-H Okay. I was watching it too, here. When we get to 50:18, Tom, we can go ahead and do the X-ray power - X-ray OPS, and you might give me a MARK when you put the HIGH VOLTAGE POWER to 1, so I could help you keep up the time. Also, after we get to 50:18, at you convenience, you could go ahead and change the DAP that's listed there at 15 plus 43 in the original printed pad.
ACDR Okay. We're coming up to it now. I'll change the DAP and then start it.
CC-H Okay. I see the 50:18.
ACDR Okay. Dick.
ACDR Okay. You've got the (garble) DAP.
CC-H Okay. Real fine. Thank you much.
DMP Okay, Dick, you guys ready for a SAM CAL?
CC-H Stand by, Deke. Let me see. That's affirm, Deke, we are.
DMP Okay. Coming on in 20 seconds.
ACDR Okay, Crip. I'm down here now.
CC-H Okay.
ACDR You read me okay?
CC-H That's affirm, Tom. Go ahead.
CC-H Okay. We see that you have the high voltage ON, and now we'd like cycle it OFF and ON every 2 minutes. Would you like me to give you a call, or do you want to keep up with it?
CC-H Apollo, Houston. Deke, we never did see a SAM CAL, and I'm assuming you did do that when you said you were, is that right?
ACDR Yes, he did.
CC-H Okay.

END OF TAPE

DMP Yes, he did.
CC-H Okay, fine. Let us check our data. I'll be right back, Deke.
DMP Okay.
DMP He was waiting for you to call back. He went to work on some other stuff.
CC-H Okay. I'll be right back to you.
DMP Okay. In 5 seconds I'm getting a high voltage power OFF.
CC-H Okay.
DMP 2, 1, MARK it. High voltage power, one OFF.
CC-H Okay.
DMP Yea, Dick, I gave you the cal you called up (garble) there for 20 seconds for a checklist - -
CC-H Roger.
DMP - - give you a 230.
CC-H Roger. Deke, stand by a second. We did not see the CAL. We may ask you to be doing another one here. And, Tom, when you turn on the high voltage power this next time, after the 2 minutes has elapsed, leave it on until I call you to turn it off. Those first two times you turned it on our data is looking a lot better.
ACDR All right.
CC-H Deke, Houston. About all we can ask you to do is, is ask you if you see the - verify that the SAM indicator light was on and to recheck the connections - the cable connections and we - we'll have to try to get another SAM CAL.
ACDR Okay. I got the high voltage power back on.
CC-H Okay. Just leave it on until I call you, Tom.
ACDR Okay.
CC-H Apollo, Houston. Tom, would you turn the high voltage power off now, and I'll call you to turn it back on.
CC-H And Apollo, Houston. Deke, did you copy what I said about the SAM. We'd like to check if the light is on and reverify the cable connection.
DMP Yea, I reverified everything. I don't have a light on, and I'm trying to figure out why. Stand by.
CC-H Okay. We understand. And if somebody has a flight plan handy, I've got an update to the SAM start time down there at about 155 plus 45.
DMP Okay. Let's try this CAL and see what happens.
CC-H Okay. Do you have a green light now, Deke?
DMP Yea. If I can ever see (garble)
CC-H Okay. We're GO to try another CAL, Deke. We're watching our data.
DMP Okay.
CMP And Houston, we're ready for a flight plan (garble).
CC-H Okay. And the SAM CAL looked good that time.

Thank you very much.

ACDR Okay.

CC-H And Tom, Houston. We'd like the high voltage back on, please.

DMP Houston, Apollo.

CC-H Apollo, Houston. On panel 230 we'd like to put the x-ray purge switch down to CAL for 10 seconds, and then let it go. The CAL target seems to be stuck partially in front of instrument.

ACDR Okay. Down for 10 seconds. I'll give you a MARK to it. 2, 1, MARK. Holding CAL for 10 seconds.

CC-H Okay.

ACDR MARK. Back to neutral.

CC-H Okay. Thank you, Tom.

CC-H Also, if somebody's up there by the DSKY, we'd like to get the ATS set switch out of the IMU position. And on panel 230, Tom, we'd like to get the high voltage to OFF now.

ACDR High voltage power coming OFF. MARK it.

CMP Hey, Dick.

CC-H Go ahead, Vance.

CMP Now the standard, standard setting is IMU or is GET, but really - doesn't really matter in a non-dynamic phase of flight like this. Hey, and did you have some updates for me here?

CC-H Yea, I do Vance. Let me read them to you real quick. The SAM start time at 155 plus 45 is 155:44:34. And I've also got a start time on the next phase.

CC-H Vance, Houston. Did you get the SAM start time update?

CMP Roger. I called it back and I was waiting for the next. I guess you didn't hear me, do you hear me now?

CC-H Yea, I hear you loud and clear now, but I never heard you call me. Sorry about that.

CMP Okay. Well, maybe it didn't get through. Anyhow, I copied 155:44:34, and I'm waiting to copy the next.

CC-H Okay. Sorry about that. At 156 plus 10 or about, over there. That time should be updated to read 156:23:22.

CMP Okay. 156:23:22. That's the start time at about 156:10.

CC-H Roger. That's right. Thanks a lot.

CMP Right.

CMP Dick, if nobody told you, you'll be happy to note that we've given birth to five little fish up here.

CC-H You've done the fish experiment, huh? Very good.

CMP Roger.

CMP Yea, they're starting to hatch.

CC-H Hey, great.

ACDR However, also lost one more of our old one. I don't know what happened to it. Must've evaporated away.

CC-H Roger.

ASTP (USA) MC531/3
Time: 18:05 CDT, 154:42 GET
7/21/75

ACDR Vance, those guys thought those poor little fish were there to eat. Maybe they decided to eat each other.
CC-H I think that was what I was getting ready to say. That's most likely.

END OF TAPE

ASTP (USA) MC532/1
Time: 18:16 CDT, 154:54 GET
7/21/75

CMP - - and Houston, Apollo. I presume everywhere where we see activate primary evap to keep crossing it out.

CC-H That's affirmed, that's affirmed Vance. Just keep deleating those steps whenever you see them.

CMP Right.

CMP And Houston, Apollo.

CC-H Go ahead, Vance.

CMP Do you still want us to hold this attitude for the sake of the x-ray or are we clear to go ahead and maneuver it this same attitude?

CC-H What we'd like you to do, Vance is coming up here in just about a minute at a DE time of 38 plus 30, we'd like you to go ahead and do an EUV power down and an x-ray power down on the x-ray all you'll have to do is close the cover. And after you've done that you're clear to go ahead and go to the same attitude.

CMP Okay. Say the time again.

CC-H It's 38 plus 30 and that's 30 seconds from now. I'll give you a MARK if you change the DET.

CMP Okay. We've got it.

CC-H Okay.

CC-H Apollo, Houston. You're clear to go ahead and power down the EUV and close the x-ray door, and proceed with the maneuver.

ACDR Houston, Apollo.

CC-H Go ahead, Tom.

ACDR Roger. On the x-ray power downs you want me to go to purge cal for 30 seconds or -

CC-H Negative. All we want you to do on the x-rays is just close the cover and do a complete EUV power down.

ACDR Roger. In work.

CC-H Okay.

ACDR Okay. Okay, Dick. Both the x-ray and the EUV are powered down.

CC-H Okay. Thank you very much, Tom. Tom, if you're looking at a flight plan or could you look at one real quick at about 157 hours,or so?

ACDR Hang on. I'm in a corner here and helping Deke and doing that and Vance is up there, hang on.

ACDR Okay, go ahead.

CC-H Okay. First of all we're 2 minutes to LOS and from this ATS pass, the next station contact is Newfoundland at 154 plus 09 What we wanted to suggest to you on this exercise business was to see that ATS pass, it starts in about 157 plus 20 or so, we've got a dump about 3 to 5 minutes of DSC data there. We were hoping that you could don the OBS prior to that and then as soon as we've dumped that data we can watch about 10 minutes of exercise and 5 minutes of cooldown in real time and not interfere with the two other guys doing the SIM operation.

ACDR Okay. If we can keep on schedule, we'll do it.

CC-H Okay. Real fine, Tom. Thanks a lot. And we'll see you in Newfoundland.

ACDR Roger.

ASTP (USA) MC532/2
Time : 18:16 CDT, 154:54 GET
7/21/75

PAO Apollo Control. Ground elapsed time 155 hours 2 minutes. We have had loss of signal through the Applied Technology Satellite. Next acquisition will be through the Newfoundland tracking station in 39 minutes and 55 seconds. The crew still troubleshooting the x-ray experiment in an attempt to have it perform properly. Deke Slayton commenting to cap comm Dick Truly concerning the fish experiment, the killifish. He mentioned they are starting to hatch. There were eggs taken up of the killifish and also some small fish that were - and he commented - -

CC-H Houston, we've got a VHF pass here that wasn't originally scheduled, or at least it wasn't on your flight plan there through Honeysuckle VHF. How do you read.

ACDR Loud and clear.

CC-H Okay. I got nothing for you here, Tom. I'm just standing by.

ACDR All right.

CC-H Apollo, Houston. We're one minute from LOS Newfoundland at 154 plus 09. See you there.

PAO Apollo control. Ground elapsed time 155 hours, 6 minutes. Unexpected comm through the Honeysuckle VHF station. It was not scheduled and network advised cap comm we did have communication and Dick Truly did call up to the crew. Next acquisition will be through Newfoundland tracking station in 35 minutes and 38 seconds. At 155 hours and 6 minutes, this is Apollo control.

END OF TAPE

ASTP (USA) MC533/1
Time: 19:02 CDT, 155:40 GET
7/21/75

PAO This is Mission Control. There will be an Apollo anouncement in 1 minute.

PAO Apollo Control. Ground elapsed time 155 hours and 50 minutes. Acquisition coming through the Newfoundland tracking station in 59 seconds. CAP COMM is Dick Truly, Flight Director, Chief of the Silver Team is Neil Hutchinson. No it's a picture.

CMP He Dick, hey Dick. You read?

CC-H That's affirmative. Go ahead.

CMP Yeah, we just (garble-echoes) Got about 10 echoes.

CC-H Roger. I can hear the echoes down here. Let me - let's check something here. Stand by.

CC-H Apollo, Houston. How do you read now?

DMP Still got a lot of echo there.

CC-H Okay. Stand by just a second.

CC-H Apollo, Houston. How about now?

ACDR That's better. Much better.

CC-H Okay, Deke. I was getting an echo from you, and it just made what you said unintelligible. Say again, please.

DMP Okay. We - - the only problem is - -

CC-H Apollo, Houston. Stand by.

CC-H Apollo, Houston. I'm sorry. Just as you said that again Deke, we had something happen. A real loud noise came on and I didn't get it. I'm going to have to ask you to say again, please.

DMP Okay. How do you read now?

CC-H I read you loud and clear.

DMP Okay, Dick. Anyway, what happened, we got the run off in fine shape except we didn't get any film shot. You could hear the intervelometer clicking away, and we checked the MAG at the end of the run for numbers, and discovered that we hadn't shot anything. And we're troubleshooting the camera now, but it looks like we may have not got the lens straightened out all the way.

CC-H Okay. Copy, Deke.

DMP I think we better setup to redo that one.

CC-H Okay. We'll crank that one into our planning.

DMP Okay. But everything procedure wise looked great. The calibration was was right in the center of the SAM, so it should have been in good shape as far as what the SAM was seeing.

CC-H Okay. Real fine, Deke. And we'll crank it in. I'm sure it's as much of a dissappointment to you as it is to us, not to catch it, but we'll see if we can reschedule it some other time.

DMP Okay. Well, I just got another pass here shortly, so we'll see how that one goes.

CC-H Roger. Incidentally, Deke, the prime SAM data is on telemetry, and we got it there. So we may be in good shape.

DMP Rog. And we didn't get your pictures, unfortunately.

ASTP (USA) MC533/2
Time: 19:02 CDT, 155:40 GET
7/21/75

CC-H Stand by, please.
CC-H Deke, Houston. How do you read now?
DMP Rog. Five by.
CC-H Okay. I think I may have dropped out a second. It turns out that our prime SAM data is on the telemetry and it looks good down here, and we've got a couple of sunrises and sunsets scheduled. So we think we're doing just fine, even if we did miss that film.
DMP Okay. We'll make sure we get it the next time around.
CC-H Okay.
DMP Couple of comments, Dick, before I forget it on the electrophoresis. It's been going along fine, but both samples 3 and 4 had one small bubble right in the middle - about a 1 millimeter bubble. I was able to get those bubbles out to the far end in both cases, so hopefully it will not influence the sample. But I thought I'd better notify you of that in any case.
CC-H Okay, Deke. We copied, and we'll pass it back to the back room.
DMP Okay.
CC-H Apollo, Houston. We're going to switch modes here, and start a dump. I'll be dropping out for about 30 seconds. I'll give you a call here in a second.
DMP Okay.
CC-H Deke, Houston.
DMP Yeah, Dick.
CC-H Deke, on this sample 4 business, when you think that - we don't want to cut that one short for sure. But in case it doesn't shut down automatically after about 50 minutes, if you're timing it somehow up there, you can go ahead and do the TERMINATE. When you do the TERMINATE, we'd like a column voltage reading prior to doing the TERMINATE. Over.
DMP Okay. The other one was about 335, 334 when we terminated it.
CC-H Okay. And is Vance listening up there, or is he busy?
CMP I'm listening. Go ahead, Dick.
CC-H Vance, I wanted to pass up a comment to you from the G&C about the ATS SET switch. It turns out that there is one thing that causes us to want the ATS SET switch to stay in GDC when you're not doing a GDC aline. And that is, when it's left in IMU, the fact that the presence of the ATS SET equipment or electronics - the presence of the ATS SET equipment in the electronics loop over a period of time creates invalid error in our telemetry readout of the raw(?) resolver errors, and that's the reason that G&C wants you to not leave it in the IMU position. Operationally, it - -