

Apollo 11 Highlights Day 5

EAGLE Your Eagle's undocked.

CAPCOM Roger. How does it look?

EAGLE The Eagle has wings.

CAPCOM Roger.

EAGLE Looking good.

CAPCOM Roger, Neil. We got a, if you will give 2 and data, we got the loads for you.

PAO We are now coming up on 30 seconds to acquisition of the command module and we'll stand by for that event.

CAPCOM Columbia, Houston. Over.

COLUMBIA Houston, Columbia. Reading you loud and clear. How me?

CAPCOM Roger. 5 by, Mike. How did it go? Over.

COLUMBIA Listen, babe, everything's going just swimmingly. Beautiful.

CAPCOM Great. We're standing by for Eagle.

COLUMBIA Okay, he's coming around.

CAPCOM We copy. Out.

EAGLE Houston, Eagle. How do you read?

CAPCOM 5 by, Eagle. We're standing by for your burn report. Over.

EAGLE Roger. The burn was on time. The residuals before knowing: minus 0.1 minus 0.4 minus 0.1, x and z now to zero.

CAPCOM Eagle, Houston. We (garbled) go for PDI. Over.

EAGLE Roger. Understand.

EAGLE AGS on. (garbled) ...ten percent.

PAO 2 minutes 20 seconds. Everything looking good. We show altitude about 47,000 feet. Good radar data. Altitude now 33,500 feet.

PAO We're still GO. Altitude 27,000 feet.

EAGLE ...alarm. It appears to come up at 16 68 up.

CAPCOM Roger, copy. Eagle, Houston. We'll monitor your Delta-H.

EAGLE Delta-H is looking good now.

CAPCOM Roger, Delta-H is looking good to us. Right on time.

EAGLE Throttle down better than in the simulator.

CAPCOM Rog.

EAGLE AGS and PGNCS look real close. PAO Altitude now 21 thousand feet. Still looking very good. Velocity down now to 12 hundred feet per second.

CAPCOM You're looking great to us, Eagle.

EAGLE Okay, I'm still on slough so we may tend to lose as we gradually pitch over. Let me try auto again now and see what happens.

CAPCOM Roger.

EAGLE Okay, looks like it's holding.

CAPCOM Roger, we got good data.

EAGLE We're go. Hang tight. We're go. 2,000 feet. 2,000 feet into the AGS. 47 degrees.

CAPCOM Roger.

EAGLE 47 degrees.

CAPCOM Eagle looking great. You're go PAO Altitude 1600. 1400 feet. Still looking very good.

CAPCOM Roger. 1202. We copy it.

EAGLE 35 degrees. 35 degrees. 750, coming down at 23,700 feet, 21 down. 33 degrees. 600 feet, down at 19,540 feet, down at 30, down at 15. 400 feet, down at 9. (garbled) forward. 350, down at 4. 330, 3-1/2 down. We're pegged on horizontal velocity. 300 feet, down 3 1/2, 47 forward (garbled) Down 1 a minute. 1 1/2 down. 70. Got the shadow out there. 50, down at 2 1/2. 19 forward. Altitude-velocity lights. 3 1/2 down, 220 feet. 13 forward. 11 forward, coming down nicely. 200 feet, 4 1/2 down. 5 1/2 down. 160, 6 1/2 down, 5 1/2 down, 9 forward. 5 percent. Quantity light. 75 feet, things looking good. Down a half. 6 forward.

CAPCOM 60 seconds.

EAGLE Lights on. Down 2 1/2. Forward. Forward. good. 40 feet, down 2 1/2. Picking up some dust. 30 feet, 2 1/2 down. Faint shadow. 4 forward. 4 forward, drifting to the right a little. 6 (garbled) down a half.

CAPCOM 30 seconds.

EAGLE (Garbled) forward. Drifting right. (garbled) Contact light. Okay, engine stop. ACA out of detent. Modes control both auto, descent engine command override, off. Engine arm, off. 413 is in.

CAPCOM We copy you down, Eagle.

ARMSTRONG Houston, Tranquility Base here. The Eagle has landed.

CAPCOM Roger, Tranquility, we copy you on the ground. You've got a bunch of guys about to turn blue. We're breathing again. Thanks a lot.

TRANQUILITY Thank you.

CAPCOM You're looking good here.

TRANQUILITY I tell you. We're going to be busy for a minute. Master arm on. Take care of the descent.(garbled) Very smooth touchdown. Looks like we're venting the oxidizer now.

CAPCOM Roger, Eagle. And you are stay for T1. Over. Eagle, you are stay for T1.

CAPCOM Roger, Eagle, and you're stay. Press E 1, over. Eagle, you are stay for T1.

EAGLE Roger, and we're stay for T1.

CAPCOM Roger, and we see you getting the OX.

PAO Neil Armstrong reporting there. No difficulty adapting to the 1/6 gravity of the moon.

EAGLE Window is a relatively level plain crated with a fairly large number of craters of the five to fifty foot rod and from ridges small 20, 30 feet high I would guess and literally thousands of little one and two foot craters around the area. We see some angular blocks out several hundred feet in front of us that are probably 2 feet in size and have angular edges. There is a hill in view, just about on the ground track ahead of us, difficult to estimate but might be a half a mile or a mile.

CAPCOM Roger Tranquility. We copy. Over.

EAGLE Houston, the (garbled) all right.

CAPCOM Houston, Roger. We copy and we're standing by for your TED.

EAGLE Houston, this is Neil. Radio check.

CAPCOM Neil, this is Houston. Loud and clear. Break. Break. Buzz, this is Houston. Radio check and verify TV circuit breaker in.

ALDRIN Roger, TV circuit breaker's in. Receive loud and clear.

CAPCOM Man, we're getting a picture on the TV.

ALDRIN Oh, you got a good picture. Huh?

CAPCOM There's a great deal of contrast in it and currently it's upside-down on our monitor, but we can make out a fair amount of detail.

ALDRIN Okay, will you verify the position, the opening I ought to have on the camera.

CAPCOM Stand by.

CAPCOM Okay, Nell, we can see you coming down the ladder now.

ARMSTRONG Okay, I just checked- getting back up to that first step, Buzz, it's not even collapsed too far, but it's adequate to get back up.

CAPCOM Roger, we copy.

ARMSTRONG It takes a pretty good little jump.

CAPCOM Buzz, this is Houston. F 2 1/160th second for shadow photography on the sequence camera.

ALDRIN Okay.

ARMSTRONG I'm at the foot of the ladder. The LM foot pads are only depressed in the surface about 1 or 2 inches. Although the surface appears to be very, very fine grained, as you get close to it. It's almost like a powder. Now and then, it's very fine.

ARMSTRONG I'm going to step off the LM now.

ARMSTRONG That's one small step for man. One giant leap for mankind.

ARMSTRONG As the, the surface is fine and powdery. I can, I can pick it up loosely with my toe. It does adhere in fine layers like powdered charcoal to the sole and sides of my boots.

ALDRIN ...making sure not to lock it on my way out.

ARMSTRONG Particularly good thought.

ALDRIN That's our home for the next couple of hours and I want to take good care of it. Okay, I'm on the top step and I can look down over the RCU, landing gear pads.
That's a very simple matter to hop down from one step to the next.

ARMSTRONG Yes, I found it to be very comfortable and walking is also very comfortable. You've got three more steps and then a long one.

ALDRIN Okay, I'm going to leave that one foot up there and both hands down to about the fourth rung up.

ARMSTRONG There you go.

ALDRIN Okay. Now I think I'll do the same.

ARMSTRONG A little more. About another inch. There you got it. That's a good step. About a three footer.

ALDRIN Beautiful, beautiful.

ARMSTRONG Isn't that something. Magnificent sight down there.

ALDRING Magnificent definition.

ARMSTRONG For those who haven't read the plaque, we'll read the plaque that's on the front landing gear of this LM. First there's two hemispheres, one showing each of the two hemispheres of the Earth. Underneath it says, " Here Man from the planet Earth

first set foot upon the Moon, July 1969 A.D. We came in peace for all mankind." It has the crew members' signatures and the signature of the President of the United States.

CAPCOM Tranquility Base, this is Houston. Could we get both of you on the camera for a minute, please?

ARMSTRONG Say again, Houston.

CAPCOM Roger. We'd like to get both of you in the field of the view of the camera for a minute.

CAPCOM Neil and Buzz, the President of the United States is in his office now and would like to say a few words to you. Over.

ARMSTRONG That would be an honor.

CAPCOM Go ahead Mr. President, this is Houston. Out.

PRES NIXON Neil and Buzz, I am talking to you by telephone from the Oval Room at the White House. And this certainly has to be the most historic telephone call ever made. I just can't tell you how proud we all are of what you have done. For every American, this has to be the proudest day of our lives. And for people all over the world, I am sure they, too, join with Americans, in recognizing what a feat this is. Because of what you have done, the heavens have become a part of man's world. And as you talk to us from the Sea of Tranquility, it inspires us to double our efforts to bring peace and tranquility to earth. For one priceless moment, in the whole history of man, all the people on this earth are truly one, one in their pride in what you have done. And one in our prayers, that you will return safely to Earth.

ARMSTRONG Thank you, Mr. President. It's a great honor and privilege for us to be here representing not only the United States but men of peace of all nations. And with interest and a curiosity and a vision for the future. It's an honor for us to be able to participate here today.

PRES NIXON And thank you very much and I look forward, all of us look forward to seeing you on the Hornet on Thursday.

ARMSTRONG Thank you.

ALDRIN I look forward to that very much, Sir.

ARMSTRONG Thank you. I'm open now.

ALDRIN Now you're clear. You're rubbing up against me a little bit.

ARMSTRONG Okay?

ALDRIN Allright. That's right. Next the left. You want to move your foot and I'll get the hatch.

ARMSTRONG Okay.

ALDRIN Okay, the hatch is closed and latched. And we're up by it secure.

CAPCOM Columbia, Columbia, this is Houston. Over.

COLUMBIA Roger, Columbia to Charlie. How do you read?

CAPCOM Roger, Columbia. This is Houston. We're reading you loud and clear on OMNI Charlie. The crew of Tranquillity Base is back inside their base, repressurized and they're in the process of dopping the PLSS's. Everything went beautifully. Over.

COLUMBIA Hallelujah.

CAPCOM And we'd like to get POO and accept from you. We have a state rector up light. And, after that, we'd like you to realign your platform to the new F marker we sent up a rev or two ago. Over.

ARMSTRONG Alright. Understand. You want an option 1, 82 option 1.

PAO This is Apollo Control. Dr. Charles Berry reports that heart rates during this EVA period ranged from a low of 90 for both crewmen to a high of about 125 for Buzz Aldrin for 2 periods. And, a high of 160 for Nell Armstrong at 3 periods. That top reading coming during the time he was transferring the rock boxes into the LM. Dr. Berry says the data they got indicates Nell Armstrong was working very hard at that time.

CAPCOM Columbia, this is Houston. Over.

TRANQUILITY Houston, Tranquility Base. Go ahead.

CAPCOM Roger. When you all have a free moment I have your P8 through P12 flight data. Over.

TRANQUILITY Houston, Tranquility Base. Ready to copy.

CAPCOM Roger, Tranquility. P8, 114, 30, 57. P9, 116, 29, 10. P10, 118, 27, 23. P11, 120, 25, 36. P12, 122, 23, 49. Read back. Over.

TRANQUILITY Roger. PS, 114, 30, 57. P9, 116, 29, 10. P10, 118, 27, 23. P11, 120, 25, 36. P12, 122, 23, 49. Over.

CAPCOM Readback correct. Houston out.

COLUMBIA Houston. Columbia.

TRANQUILITY Houston, Tranquility base.

CAPCOM Columbia. Columbia. This is Houston. Over.

COLUMBIA Coming into high gain.

CAPCOM Roger. Reading you loud and clear on the high gain, Columbia.

COLUMBIA Roger. Going into P52 attitude. Do you want a crew status report?
(garbled)

CAPCOM Say again, Columbia.

ALDRIN I say again, I am maneuvering to the P52 attitude and do you want
a crew status report?

CAPCOM Roger and go ahead with your crew status report.

ALDRIN Roger. No medication. Radiation 100.16.

CAPCOM Houston, we copy.

ALDRIN Houston, Tranquility Base.

CAPCOM Go ahead, Tranquility.

ALDRIN Roger. The weight of the RCU was 12 ounces by itself without the
bag and the weight of the water from the CDR's PLSS was 12 1/2 ounces. That's
reading zero with the bag on.

CAPCOM This is Houston. We copy. And for your information the new LM
weight after jettison of equipment including lithium hydroxide canister is 10837. Over.

ALDRIN Okay. 10837.

CAPCOM Tranquility Base, this is Houston. In the flight plan configuration, we
show that the stability control circuit breaker ACCA on Channel 16 should be open at
this time. Over.

ALDRIN Houston, Tranquility. Say again which one should be closed?

CAPCOM Roger. Panel 16 row 2 stab control ACCA that is A-C-C-A. and it should be open at this time. Over.

ALDRIN Roger. Coming open.

CAPCOM Roger. Out.

ALDRIN Houston, Tranquility. Do you have a way of showing a configuration of the engine arm circuit breaker? Over. The reason I am asking is because the end of it appears to be broken off. I think we can push it back in again. I'm not sure we could pull it out if we pushed it in though. Over.

CAPCOM Roger, we copy. Standby please.

CAPCOM Tranquility Base, this is Houston. Our telemetry shows the engine arm circuit breaker in the open position at the present time. We want you to leave it open until it is normally scheduled to be pushed in, which is later on. Over.

ALDRIN Roger. Copy.

TRANQUILITY Houston, Tranquility Base. The CDR's TDR reads 11014.

CAPCOM Roger. 11014 for the CDR.

TRANQUILITY Roger. LMP reads 09018. Over.

CAPCOM Roger. 09018.

PAO This is Apollo Control. Dr. Berry reports those dosimeter readings have not changed since yesterday afternoon indicating that the crew was not subjected to radiation on the surface of the moon or if any a very negligible amount.

COLUMBIA Houston, Columbia. Over.

CAPCOM Columbia, this is Houston. Go ahead.

COLUMBIA Roger, Bruce. When you get a few minutes could you give me some words on tomorrow's activities, when they're going to start?

CAPCOM Roger.

CAPCOM Columbia. Columbia. This is Houston. Over.

CAPCOM Columbia. This is Houston. Over.

COLUMBIA Go ahead.

CAPCOM Roger, Mike. Couple of quick flight plan updates here. First off, we'd like to get an O₂ fuel cell purge at time 113:30. Are you copying? Over.

COLUMBIA Roger. Copy.

CAPCOM Secondly, we will return to the nominal time life with your scheduled wake up of 121 hours and 12 minutes. We sort of slipped by the lithium hydroxide canister change number 9 during the EVA and EVA prep, and we'd like you to accomplish that now. The comm per sleep will be the normal lunar comm configuration. The RCS configuration, we're requesting that you use quad Alpha and Bravo. A data load for R2 should be 01111. Read back. Over.

COLUMBIA Roger. Oxygen in fuel cell purge at 113:30. Return to the nominal time line at 121 hours. Wake up. Lithium hydroxide change number 9 right now. Normal lunar comm sleep configuration, I'm in that n6w. On the RCS I understood before you wanted to move the dap register to 011000 which made sense on (garble) to pitch only on quad A enable all in quad B to C and D off, but you don't want to do that any more, huh?

CAPCOM Columbia. This is Houston. On your dap load in R2, we were requesting 0 and 4 ones. That is 01111. Over.

COLUMBIA Okay.doing it right now.

CAPCOM Roger. And you'll be enabling quads Alpha and Bravo on the LORCS select, which is disable Charlie and Delta.

COLUMBIA Got it.

CAPCOM And we have a little less than 2 minutes to LOS. If you're still up, LOS next time around will be 11404. Over.

COLUMBIA Roger.

CAPCOM And Columbia, if it's agreeable with you, we'd like for you to stay awake until we have one successful acquisition on the high gain antenna, and I guess you can plan on turning in shortly after LOS in this next pass. Over.

COLUMBIA Copy.

CAPCOM Roger. Out.

CAPCOM Tranquility Base. Tranquility Base. This is Houston. Radio check. Over.

TRANQUILITY Go ahead. Houston.

CAPCOM Reading you loud and clear. Just wanted to make sure we had comm.

TRANQUILITY We've just finished up, we're just finishing up our eat period. Be ready to go back into prep for press.

CAPCOM Roger.

PAO This is Apollo Control at 113 hours, 18 minutes. We have had loss of signal from Columbia. We have asked Mike Collins to stay awake through acquisition on the next rev which will be number 20 so that we can check the automatic acquisition mode of the high gain antenna. Once we've verified that, he will start his rest period. The planned wake up for command module pilot 121 hours.

PAO This is Apollo control. We're estimating the change of shift news briefing for 2:00 A.M. central daylight time. 2:00 A.M. central daylight time for the change of shift briefing.

PAO This is Apollo Control at 113 hours 29 minutes. The change of shift news briefing is about to start. We will tape any air-ground transmissions during this period for playback after the briefing. If the equipment jettison occurs during the briefing, we will come back up and provide that for you live.

CAPCOM (Garbled.) This is Houston. Over.

EAGLE Roger. Go ahead, Houston.

CAPCOM Roger. On your next depressurization, it's acceptable to use the overhead hatch dump valve in addition to or instead of the forward hatch dump valve to speed up the depressurization of the cabin. I have a P-13 update for you and if you could sometime there give us PU and data, we'll uplink you a new CSM space vector. Over.

EAGLE You've got the DSKY.

CAPCOM Roger. Your P-13 time is 124:22:02. Over.

EAGLE Roger. It's P-13 124:22. Is that 0₂? Over.

CAPCOM That's affirmative. That is 0₂. And do you have a time estimate for us until you're ready to start cabin depress? Over.

EAGLE 15 minutes, maybe?

CAPCOM Roger.

CAPCOM Tranquility Base, this is Houston. Uplink complete. The computer's yours, and you can go out of data.

EAGLE Roger.

TRANQUILITY Go ahead. Tranquility Base here.

CAPCOM Roger. I guess you guys know that since you're an hour and a half over the time line, and we're all taking a day off tomorrow, we're going to leave you. See you later.

TRANQUILITY I don't blame you a bit.

CAPCOM It's been a real great day, guys. I really enjoyed it.

TRANQUILITY Thank you. You couldn't have enjoyed it as much as we did.

CAPCOM Roger. It sure was great. Sure wish you'd hurry up and get that trash out of there, though.

TRANQUILITY Well, we're just about to do it.

CAPCOM Okay.

PAO We're live now. The CAPCOM voice on that last transmission was Deke Slayton, the Director of Flight Crew Operations here at MSC.

CAPCOM Tranquility Base, this is Houston. We showed a suit release valve still on the AUTO position. It should be closed. Over.

CAPCOM Columbia, this is Houston. Over.

COLUMBIA Houston, Columbia. Go ahead.

CAPCOM Roger. We've successfully reacquired high gain antenna. Unless you have some other traffic with us, I guess we'll bid you a good night and let you get some sleep, Mike. Over.

COLUMBIA Okay. Sounds fine.

CAPCOM And we're going to power down the voice subcarrier part of our uplink to you, in order that we don't disturb you while we're talking to Tranquility Base. If you need us, just give us a call and we can respond with a time lag of about a minute to a minute and a half and get it reconfigured. Over.

COLUMBIA Okay.

CAPCOM Roger and good night.

COLUMBIA Okay and thanks a lot.

PAO We said good night to Mike Collins and Columbia at 114 hours 6 minutes. And the cabin is coming down now on Tranquility Base. And it's down to about 3 ½ pounds now and holding that.

CAPCOM Columbia, this is Houston. We'd like you to enable the thrusters for BRAVO 1 and BRAVO 2. AUTO RCS Select. Over.

COLUMBIA BRAVO 1 and BRAVO 2 Enable.

CAPCOM Roger. Out.

PAO The Tranquility Base pressure coming on down now, 1 ½ pounds.

TRANQUILITY We read the following dump valve until about 2 psi and we're using the overhead now.

CAPCOM Roger. Out.

TRANQUILITY They're, they're both open now.

PAO Less than half a pound of pressure now.

CAPCOM Tranquility Base, this is Houston. Over.

ALDRIN Roger, go ahead.

CAPCOM Roger, on your mission timer we wanted to pull a circuit breaker and let it cool down for an hour and a half to two hours. I believe the breaker is currently open. It has been off so go ahead and reset the mission timer circuit breaker. Put the timer control to reset and hold it in reset for 30 seconds and then slue it to your desired setting left to right and voice the timer control to start. Over.

ALDRIN Okay, we'll try it.

ALDRIN Houston, our mission timer seems to be sloughing okay. You want to give us a time hack or can we get it off the CMP, LGC I mean?

CAPCOM Roger Tranquility. I'll give you a time hack at 114:31:00. It's about 30 seconds from now. Over.

CAPCOM Standby for a mark at 114:31. Standby. Mark.

CAPCOM Tranquility, this is Houston. Did you copy by mark at 114:317?

TRANQUILITY Roger. Thank you, and our mission timer is ready now.

CAPCOM Roger. Very good. And I've got a consumables update for you if you are ready to copy. Over.

TRANQUILITY Okay. Go ahead.

CAPCOM Okay. RCS alpha is 81 percent, RCS bravo 75 percent. Coming up on 115.0 is GET. Descent oxygen is 31.8 pounds or 59 percent. Descent amp hours 858 and ascent amp hours 574. Over.

TRANQUILITY Roger. Copy. Thank you very much.

CAPCOM Roger. Out.

CAPCOM Tranquility, this is Houston. We also have a set of about 10 questions relating to observations you made, things you may have seen during the EVA. We can either discuss a little later on this evening or sometime later in the mission. It's your option. How do you feel? Over.

TRANQUILITY I guess we can pick them up.

CAPCOM Okay, and your friendly green team here is pretty well been relieved by your friendly maroon team, and I'll put Ward on with the questions.

TRANQUILITY Okay. Thank you, Bruce. Go ahead.

CAPCOM Tranquility, Houston. First question here is your best estimate of the yaw on the, of the LM as compared to the nominal of crew flight plan. Over.

TRANQUILITY We got 13 degrees left on the ball, and I think that's probably about right. Looking at the shadow, so we probably, probably about 13 degrees left of the shadow.

CAPCOM Roger, that's 13 degrees left of the shadow. And next question relates to the depth of the bulk sampling that you obtained near the first part of the EVA, and any changes in composition that you might have observed during the bulk sampling interval. Over.

TRANQUILITY I'm not sure I understand that question, but we got a good bit of the ground mass in the bulk sample plus a sizeable number of selective rocks of different types.

CAPCOM Roger, Neil. One of the implications here is the depth from which the bulk sample was selected. Did you manage to get down there several inches or nearer the surface? Over.

TRANQUILITY We got some down from as much as 3 inches in the area where I was looking at (garbled), the variation with depth at, with the bulk sample, that there really was an appreciable difference, and I didn't run into any hard bed. Later on, other types and other areas where I get down just a short distance, an inch or two, and couldn't go any further.

CAPCOM Roger. Believe we understand down as deep as 3 inches, did not hit any hard bed, and no significant changes in composition to that depth. Next question, the second SRC was packed rather hurriedly due to the time limitations and wonder if you would be able to divide any more detailed description of the samples which were included in the second SRC. Over.

TRANQUILITY We got 2 core tubes and a solar wind and about half of a big sample bag full of assorted rocks which I picked hurriedly from around the area, tried to get as many representative types as I could.

CAPCOM Roger, Neil. Next topic here relates to the rays which emanate from the DPS engine burning area. We were wondering if the rays emanating from the, beneath the engine are any darker or lighter than the surrounding surface. Over.

TRANQUILITY The ones that I saw back in the back end of the spacecraft appeared to be a good bit darker, and of course, viewed from the aft end, well, they did have the sun shining directly on them. It seemed as though the material had been baked somewhat and also scattered in a radially outward direction, but in that particular area, this feature didn't extend more than about 2, maybe 3 feet, from the skirt by the engine. Over.

CAPCOM Roger. Understand that near the aft end up to the eve, that the rays did appear to be darker. I understand, Buzz, that these were, this was the appearance of the material which had been uncovered by the rays that appeared darker for 2 or 3 feet extending out. Is that correct?

TRANQUILITY No, I wouldn't say it was necessarily material that had been uncovered. I think some of the material might have been baked or in some way covered to be more cohesive and perhaps go together or something - I don't know. Now, in other areas, before we started traveling around out front, why we could see that small erosion had taken place in a radially outward direction, but it had left no significant mark on the surface other than Just having eroded it away. Now, it was different back in the, right

under the skirt itself. It seems as though the surface had been baked in a streak fashion, and I think a couple of pictures on film will show that. But that didn't extend very far. Over.

CAPCOM Roger, Tranquility. And this baked appearance is great concern that you described, at least the suggestion is that it was due to the heat of the engine at any rate. Next subject, did...

TRANQUILITY I believe so.

CAPCOM Roger. Next subject, did either of the solar panels on the PSE touch the surface of the moon during deployment? Over.

TRANQUILITY I think that two corners did touch just when it was deployed but both of them did come out at the same time. It unfolded a little unevenly and of course the crane that it was on was a little bit, not quite as level as it was, as I would like to have it. I think that two corners did touch to about 1 inch, $3/4$ to $1/2$ an inch deep and maybe along the bottom, it might have been maybe 3 inches leaving a small triangular coating on two of the corners and I think these are on the western ones. Over.

CAPCOM Roger. Understand the description and the next subject on the 2 core tubes which you collected, how did the driving force required to collect the two core tubes which you collected, how did the driving force required to collect these tubes compare? Was there any difference? Over.

TRANQUILITY Not significantly. I could get down to about the first 2 inches without much of a problem and then as I would pound it in about as hard as I could do it and the second one took 2 hands on the handle and I was putting pretty good dents in the top of the extension rod and it just wouldn't go much more than - I think the total depth might have been about 8 or 9 inches. But even there it didn't, for some reason, it didn't seem to want to stand up straight. In other words, I'd keep driving it in and it would dig some sort of a hole but it wouldn't, just penetrate in a way that would support it and I'd keep it from falling over if that makes any sense at all!. It didn't really to me. Over.

CAPCOM Roger, Buzz. I think I've got the picture. You indicate that little difference between the two samples and that in each case you got down about 2 inches without any problems and then had to continuing hammering rather vigorously in order to continue driving it into a total depth of 8 or 9 inches and even at that point the rods did not want to stay vertical, that they'd tend to fall over on you even after pounding in that far. Is that correct?

TRANQUILITY Yeah, that's about it. It wasn't a rapid change in resistive force. And also I noticed when I took the bit off that the material was quite well packed, a good bit darker, and it, the way it adhered to the cord tube gave me the distinct impression of being moist. Over.

CAPCOM Roger. I understand the general impression of being moist as packed in the cord tube. Next question. We did copy your comments prior to the EVA of your general description of the area. We wonder if either of you would have any more lengthy description or more detailed description of the general summary of the geology of the area. Over.

TRANQUILITY We'll postpone our answer to that one until tomorrow, okay?

CAPCOM Yes indeed. That will be fine. Just a couple more here and I think these may not be quite as lengthy as number 7 there. Can you estimate, estimate the strokes of the primary and secondary struts? Over.

TRANQUILITY Well, I could do it like this. Owen. About all the struts are about equally stroked and the height from the ground to the first step is about 3 feet or maybe 3 ½ feet.

CAPCOM Roger. Understand, Nell. Next topic. Just after landing you pointed out that there was a hill to the west along the plus Z axis from the LM. Are there large rocks in that direction that might block the solar array during the sunset. As sunset approaches in your locality - are there any large rocks that might tend to obscure the array. Over.

TRANQUILITY No, I don't believe so. I think that it's about as level as any other area is that we chose.

CAPCOM Roger.

TRANQUILITY There's nothing large anyway that's going to get in the way.

CAPCOM Roger. Copy. That's also the way it appears from the television I think and now the final question. You commented, Nell, that on your flight to the landing spot you had passed over a football field size crater containing rather large blocks of solid rock, perhaps 10 to 15 feet in size. Can you estimate the distance to this football size crater from your present position? Over.

TRANQUILITY I thought we'd be close enough so that when we got outside we could see its rim back there but I couldn't. But I don't think that we're more than a half mile beyond it. That is a half mile west of it.

CAPCOM Roger, so you estimate your present position less than a half mile approximately west of this large crater. Over.

TRANQUILITY That's correct.

CAPCOM Okay, you all. That takes care of the questions from our geologists for tonight and unless you have something else that will be all from us for the evening. Over.

TRANQUILITY Okay, thank you.