ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

19 32 13	CC-H	If you guys could look almost straight up right now, you're directly under the ATS.
	ACDR	How about that.
	CC-H	Can you see 22 000 miles?
	ACDR	Not an object that small. That satellite's been doing a fantastic job for us.
19 32 33	CC-H	It certainly has. That - it's really been super. That would have made this mission a heck of a lot more complex and not nearly as successful if we'd not have had it.
	ACDR	Right. We're all anxious to see those TV pictures that the wives are seeing right now, after we get back, to see how they turned out.
	CC-H	Yeah, they're - they're all super. What the guys did here, was to take them and put them together in sort of a scenario of your mission, and - made a nice - nice little clip for them. And the girls are all departing the area now, so they'll - they'll see you when you get back here on Saturday.
19 33 13	CMP	Okay. Tell them we'll see them shortly.
	CC-H	Roger.
19 36 39	ACDR	Okay, Crip, just to review one thing. You said that the mapping to pass M10 was nominal for times? Over.
	CC-H	That is affirmative.
	CC-H	Apollo, Houston. I'm sorry my last - to you apparently didn't get - Tom, yes. Your time on M10 is nominal.
	ACDR	Yeah, I got it. We just did a recheck on it.
	CC-H	Okay.
19 38 01	CC-H	How's the temp doing up there now? It's kind of - kind of difficult to judge sometime, looking here at suit temp and cabin temp, just how comfortable you guys are.

	CMP	Not bad.
	CMP	Seemed to me it got the warmest - from late last night and early this morning. And now it's getting better.
	CC-H	Rog. And we kind of thought that after you guys had been quiet down there that it would - would not have gotten so warm, but - -
19 38 48	ACDR	Well, the - one thing, the VTR was on all last night.
	CC-H	Yeah, that - -
	ACDR	That's really a heat source.
	CC-H	Yeah, that's what - what must have driven it up.
	CMP	That seems to be the biggest factor, for some reason.
	CC-H	Rog.
	CMP	Or the biggest factor that we can vary.
19 39 08	CC-H	Rog. Wonder if I could talk to Deke a little bit about - about his upcoming OBS exercise. We got a couple items here that we'd like to at least review with him.
	ACDR	He's off his headset now. We'll get him on in just a - -
	CC-H	Okay, there's no big rush. We got about - oh, another 8 minutes or so through the ATS here, and I'm going to have you a couple other places, too.
	DMP	I'm back on here, Crip. What was that?
19 39 46	CC-H	Okay, Deke. Due to some of the problems that we've been running to on this OBS, had a couple of notes that we'd like to get to you. One of the things is that we're going to recommend, if you don't mind doing it, is to use that disc tape to go over the electrodes. We think that that might hold them down a little bit better when you're exercising. That - there's some of that tape located in R-13 in the med kit.

DMP Okay. That's the same kind of stuff they launched us with, huh?

CC-H That's affirm. The stuff that feels so good when you pull it off.

DMP Yeah.

19 40 26 CC-H The other item was that after you get it all hooked up we're going - we'd like to - we'd like to look at you for about 5 minutes at rest before you - before you do the exercise, and then we'll work it looking at you here from the ground. Then give you a GO when to start the exercise and so forth. That way we won't do any for naught.

DMP Okay. No problem. We need the exercise anyway, ... don't object to that.

19 40 55 CC-H Rog. Understand.

19 41 07 DMP I'm not optimistic at this stage, but I'll do - we'll do it all right. But I guess it was my feeling when we started in with this thing it was going to be very difficult to combine exercise with the biomedical data just because of the configuration of that exerciser relative to the belt and the sensors.

CC-H Yeah, we understand. And we appreciate all the cooperation you're giving us on - on trying to help get it. Also, after - after you do your exercise, they're going to want you to sit there about 5 minutes of postexercise, too. And we'd like - and we'll be telling you from time to time, probably, to press against the electrodes. When you work up a good sweat, sometimes they tend to come loose a little bit.

DMP Okay.

19 42 43 CC-H For the DP. Deke, can you help us out? We're not showing the furnace operating, and it was called out for at about 174:40. Did we ever get that - that sample in?

DMP Yeah, we got the sample in.

CC-H Did you ever go ahead and - -

	DMP	Better check in the Flight Plan here, quick. Don't think we ever activated it.
	CC-H	Oh, so that's - -
	DMP	- - just check here. ...
19 43 06	CC-H	Okay, that's - I think, the problem. Appreciate it if you'd get that on for us.
	DMP	Okay. We must have missed a block there. I'll go back and pick it up.
	CC-H	Thank you.
	DMP	Okay. I guess I got too enthused looking out the window there. I went right by it. I'll get with it.
	CC-H	Okay, thank you, sir.
19 44 09	DMP	Before we go off the air, got just a data point for the guys. I did grease the plugs - those last - -
	CC-H	I'm sorry, Deke, you were cutting out. Could you say again?
	DMP	Yeah. A data point for the furnace guys. I greased the plugs before I put the last sample in. They were beginning to feel pretty sticky, and I was getting concerned that we might have trouble getting them out.
19 44 34	CC-H	Okay, real fine. Appreciate that info.
19 44 57	CC-H	And we may lose you here in a few minutes. Our next station contact is going to be in 15 minutes through Orroral.
	ACDR	Roger, Crip.
19 59 58	CC-H	Apollo, Houston. We're AOS at Orroral, and we have you about - about a minute here.
20 04 50	ACDR	Hello, Houston; Apollo.
	CC-H	We're with you, Tom. Through the Vanguard for 7 minutes.

ACDR Roger. Understand. Looking ahead for the EUV X-ray that's scheduled at 176:30. Is that - is there going to be any update to that? Rev 108, EUV pad. Over.

20 05 10 CC-H Negative. We're - to do something different, we're going to do that one nominal.

ACDR (Laughter) How about that!

CC-H Stand by for the next one.

ACDR Okay. What about the start time? That couldn't be nominal.

CC-H Yeah. Start time is nominal also.

ACDR Absolutely unbelievable.

CC-H We figured we wanted to do one that way.

ACDR Okay.

CMP *** CM burn for that, huh?

CC-H You dropped out there, Vance, and I couldn't hear you.

20 05 48 CMP I say, we can thank FDO's ACM burn for that, huh?

CC-H (Laughter)

CMP For something - for being nominal.

CC-H Right. Right. Absolutely. He'll take any credit that he can get. Vance, there's a little note you got coming up at 176:20 regarding some O_2 TANK HEATER configurations changes, and you've already done those, of course. You don't have to go down and mess with them again.

CMP Okay. Very good.

20 06 20 CC-H One item I was going to talk to Deke about here. We were looking ahead in the Flight Plan and we know, of course, we're running a little bit behind on that ETE. And we were considering that we might be able to go ahead and get his donning the OBS and that exercise out of the road. Just pull it up earlier,

and then pull - get the ETE following that, if he doesn't consider that too soon after - after his eat period. Only restriction, of course, on that is that we do need to be in ATS coverage for his OBS data.

20 06 52 DMP — Okay. I don't know how that matches relative to eating. We're still eating, but I'll check it, Crip. We got another conflict here. We got a mapping pass scheduled at the same time we're doing ETE, and that requires the same camera. So I guess we've done a quick drop here and figured we can probably fit the mapping pass in between ETE samples here, the schedule we're under right now. So I'm inclined to hold off on the next ETE until the mapping pass is over.

20 07 19 CC-H — Rog. Let us talk about that here a minute.

DMP — Okay.

20 09 08 CC-H — Apollo, Houston. Deke, regarding the camera conflict you mentioned, there is one - if we look in the - in the pad for that - or in the time line in the book. We want to use, in this case, the silver camera for mapping, and we want to delete the targets that we've got called out for vis obs - at 2 Charlie and 2 Delta. We do not want to do both. So we want to use the silver camera for - for mapping, and we go ahead and we can use the black one for the ETE.

20 09 42 DMP — I think we could do both, Crip, if they really want it. We'll try to work that in.

CC-H — Okay. That - what I just called up to you was the original way we had intended it to go, though, and - but you guys can see what's happening better than we can.

20 11 00 CC-H — Apollo, Houston. We are 1 minute from LOS. Our next station contact in 16 minutes at Goldstone; that's at 176:05. And, in case it wasn't clear on my last call regarding those vis obs sites, 2 Charlie and 2 Delta, those are visual only, and we don't have to use the camera. So that - that would relieve any camera conflict that we had. Silver camera for mapping, and the black one would be free for - for use with the ETE.

20 11 27	ACDR	Okay. We copied that.
20 26 53	CC-H	Apollo, Houston. We're AOS Goldstone, 6 minutes.
	ACDR	Roger. ...
20 31 55	CC-H	Apollo, Houston. We are 1 minute from LOS. Our next station contact through Newfoundland in 6 minutes. I want to remind you not to configure - not to forget to configure the DSE by going to LOW BIT RATE, and also UP TELEMETRY to RELAY, as called out in the Flight Plan there, after you finish your mapping pass. Also, if Deke can, I'd like to get an estimate as to whether he wants to try to go ahead and get that OBS exercise in early, or is he going to go ahead as called out in the Flight Plan?
20 38 35	CC-H	Apollo, Houston. We're AOS Newfoundland. Should be with you for 50 minutes.
20 41 28	CC-H	Apollo, Houston through Newfoundland. Might notice that your ATS angles here are kind of - are hid in your pad there. So, to lock up, we need a pitch of minus 30 and a yaw of 290.
	ACDR	Roger, Dick. Set in.
	CC-H	Okay.
20 42 13	CC-H	Apollo, Houston. Tom, just so that nobody could say that we did anything completely normal, we are going to want to cycle that X-ray instrument on and off a couple of times through this pad. If we get the ATS locked up, it would probably be easier for me just to go ahead and call you when we - when we want it on and off.
	ACDR	All right.
	CMP	And, Crip, you'll have TM on that mapping pass only for the last minute of it, or a little less - about 40 seconds.
20 43 08	CC-H	Okay. We'd gone to - we'd gone and commanded HIGH BIT RATE from here, so we assumed we had it. You're saying we didn't have the - cable hooked up? Is that correct?

	CMP	I meant PLAYBACK.
	CC-H	I'm sorry, Vance. You were - you were cut out there, and I didn't get it. I'd like to verify that we are getting - going to get the ATS locked up. Are you guys in attitude, and you set the - set the angles in for us? We got about 2 more minutes here through Newfoundland.
20 43 56	ACDR	Roger. We're in the attitude of 103.70, 113.4, and 000.
	CC-H	That's affirm. And have we tried - tried locking up yet? Pitch of minus 30 and yaw of 290.
	ACDR	Set in. It's all set up.
	CC-H	Okay. And you're getting no - no signal. Is that affirm?
20 44 26	CMP	We didn't - ... any signal strength yet.
	CC-H	Okay. Let me tell you quickly before we go. If you'd jot it down then, that - I don't know if it's going to do if we aren't going - we aren't going to get any data if we ain't got ATS.
20 44 40	CMP	Okay. We can ask the computer where it thinks ATS is.
	ACDR	Our computer says minus 16 183, Crip.
	CC-H	Minus 16 183. Go ahead and try that.
	ACDR	Okay.
	CMP	Okay.
20 45 33	CC-H	Knew that EMP was going to come in handy.
20 47 00	CC-H	In the blind. We'd like to get UP TELEMETRY to RELAY on panel 230.
	CMP	Okay.
	CC-H	That didn't sound blind at all.
20 47 30	CMP	Okay. You got it to RELAY, Crip.

CC-H Okay. Thank you.

ACDR ... turned on the ... the Flight Plan?

20 48 04 CC-H Okay. We're back with you now on the ATS. And, Tom, it sounded like you were asking a question, and I didn't get it.

ACDR Roger. We got the - we're turning on the EUV and the helium glow right now. And the X-ray 1 and - Did you want that on? Or should we just wait for your commands on that one?

CC-H Why don't you go ahead, and you can turn it ON with the exception of the HIGH VOLTAGE POWER. And you can hold up on that, and I'll tell you when I want it. And - and right now, if you're down there, we'll also take the UP TELEMETRY switch to UP TELEMETRY once more.

20 48 38 ACDR Okay. Vance is there working.

CC-H Okay. Fine. Just as a little free warning, I'm going to - at the DET times of 1:15, 10:40, 26:35, and 34:32 is when I'm going to be requesting to get the HIGH VOLTAGE POWER on the X-ray turned to number 2. And we'll be leaving it ON about 2 minutes and then turning it back OFF.

ACDR Okay. To review. At 1:15, - -

CC-H To repeat once more, Tom. And don't let me foul up any of these maneuvers here. At 1:15, at 10:40, 26:35, 34:32 - each of those are called out DET times - we'll be turning the HIGH VOLTAGE to number 2. We'll leave it on from between 2 to 3 minutes and turn it OFF. And I'll call you on - as a reminder on each one of those.

20 49 50 ACDR Okay. And I'm marking it in, too.

CC-H Okay. Fine.

CC-H And also, if I could kind of get an update as to where - where Deke is as far as donning the OBS, and whenever he's going to be ready to - ready for us, he can just give us a holler.

	CMP	He's - he's going up there to do it right now - -
	CC-H	Okay. Fine.
	CMP	- - so we'll let you know.
20 53 15	ACDR	And the HIGH VOLTAGE was ON on time.
	CC-H	Okay. Fine.
	CC-H	Apollo, Houston. Okay; you can go ahead and turn that HIGH VOLTAGE OFF anytime now.
20 55 27	ACDR	Roger. HIGH VOLTAGE 2, OFF.

END OF TAPE

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21 02 36	CC-H	Okay. You can go ahead and give us that X-RAY HIGH VOLTAGE to 2 again.
	CMP	In you go.
	ACDR	Hello, Houston; Apollo.
	CC-H	Go ahead, Tom.
	ACDR	Okay. We've got a big leak here on the electrophoresis.
	CC-H	Copy.
21 03 21	ACDR	As you look down at it - I just happened to notice as I turned around in the seat and looked down at it here, and Deke's not here with me. I had him knock off the - we decided to knock off the OBS because this thing's leaking. Can't tell whether the sample's ruined or not. The fluid is all around the right connector where it connects on, you know, to the sample. Yet, the tubes are on tight, and that rectangular cap with the two buoys that goes down to the sample is flush. It's tight, but there's a huge blob of liquid, probably a cupful, when I first started soaking it up here.
	CC-H	Okay. I understand that was on the right-hand side of the column, is that correct? When you're facing the unit.
	ACDR	You - you got air bubbles to the line on both - got air bubbles to the line, particularly big ones on the right, and a few on the left.
	CC-H	Copy.
	ACDR	Crip, Deke had a suggestion here that the next sample is a - doesn't require the liquids. Why don't we just scrub this sample and go on to that last sample.
	CC-H	Why don't - why don't we evaluate that. I guess we do need to go ahead and see if we can get Deke in that OBS because this is probably going to be about the only time we're going to have to get data on that. We'd recommend that he go ahead and proceed

with that. We'll try to get word with you - back to you on the other sample. And for Vance, he can go ahead and turn HIGH VOLTAGE POWER on X-RAY to OFF now.

21 05 07 CMP Okay; OFF.

ACDR And, Crip, I can see where - it's leaking out of where the right plug goes on the sample. And that rascal is down as flush as you can push it, but you push it a little more, and fluid eases out from it.

CC-H Okay. Just as a kind of an idea down here, can we tell about how long it's been running out now?

ACDR Well, the damn timer malfunctioned, and Deke's got the wristwatch, and he's up for the doctors taking exercise.

CC-H Well, never - Don't worry about it.

ACDR I'll have to go up there and find out.

21 06 28 CC-H No, Tom, Tom, that's not required. Don't - Forget about it. We - we're not set up to get - we're not getting data yet, so we hope Tom's not exercising; we're standing by to hear from him wherever - whenever he gets connected. I hope Deke's not, rather.

ACDR Stand by.

CMP He looks like he's almost there on connection.

CC-H Okay.

ACDR Houston, it's been running - it's been running 15 minutes.

CC-H Okay. Thanks a lot.

ACDR Okay. Houston, I got most of the water mopped up where I can, but I see just a slight flow is slowly collecting down in the bottom again.

CC-H Okay. We understood that you had turned it off. Is that correct?

21 08 08	DMP	That's right. We turned the power - we turned the MODE SELECT switch to OFF.
	CC-H	Okay.
	ACDR	And it's probably not too much - just probably residual stuff that's collecting there.
	ACDR	Did you read me when I said 15 minutes?
	CC-H	Yes, sir. We did. We copied that. Thank you very much. Didn't mean to put you to all that trouble to get it.
21 13 39	DMP	Okay, Dick, how do you read me?
	CC-H	Reading you loud and clear here, Deke. How me?
	DMP	Okay. Okay, well, I'm all plugged into this stuff, but I haven't put the tapes over the top yet because I wanted to see if everybody was happy first. I don't want to have to stick those things on and unstick them.
	CC-H	Well, let us take a look at it here.
	CC-H	Okay, Deke. We are not receiving acceptable data yet. Why don't you try pressing each of the sensors independently for us and see if we can get it - improve it.
21 14 54	DMP	Okay. Start in with - let me see here. Okay; the left one, push it down on. Now I'll do the left chest. And then the right. Right. And the upper chest. And the ...
21 15 54	CC-H	Stand by 1, Deke. Let me get back to you.
	DMP	Okay.
	CC-H	Okay, Deke. We are getting good data here now, and if you can do it without moving around too much, you might go ahead and put the tape covering over them.
21 16 48	DMP	Okay.

	ACDR	Hey, Crip, do you have any idea how soon we're going to get a word back on electrophoresis?
	CC-H	We're trying to get it to you right now. I guess what we're - would like to do is to go ahead and remove that particular column without taking off the ends, and just stick it in a bag some place.
	ACDR	All right. That was just what Deke had suggested.
	CC-H	I - -
	ACDR	You want us to bring it back or throw it away?
21 18 18	CC-H	We're trying to get a reading on that right now. And we can go ahead here coming up on 35, we can have the HIGH VOLTAGE POWER turned back ON, the X-RAYS please, in number 2.
	CC-H	And for Deke, as soon as you got it all squared away there, you can start your exercise there.
	DMP	Okay. How critical on time are you?
	CC-H	Pretty critical. We're about 10 minutes from LOS. We wanted to get - get some exercise and then wanted to get part of your recovery period.
21 18 56	DMP	Well, I tell you. I'd suggest I start in without putting those extra tapes on then, because I had just lost the bag while putting the first one on - -
	CC-H	Okay, forget about the tape and proceed on with the exercise.
	DMP	Okay.
21 19 15	DMP	Can you guys understand how that can happen when - -
	CC-H	I couldn't get all of that. Things - things kind of drift away from you, huh?
	DMP	(Laughter)
21 20 45	DMP	Okay. I believe I am in an exercise mode, if everybody is prepared.

	CC-H	Okay, press away. Pull those muscles. Tote that barge; lift that bale. For Vance, you can go ahead and turn OFF the HIGH VOLTAGE, if you would please.
	CMP	Okay, it's OFF.
	CC-H	Okay. And for Tom, what we're going to do now, as soon as everybody gets squared away and can press on with it, we're going to go ahead and use the isotacho sample - the next sample that goes in the ETE.
	ACDR	Okay.
21 21 17	CC-H	Main thing we just want to make sure is that you've managed to mop up all of the - all of the liquid around the electrodes as best you can.
	ACDR	The best I can with the towel since we're out of tissues.
	CC-H	Yeah, I understand.
	CC-H	Don't want to sacrifice that last box.
21 21 40	DMP	Man, if you do that, you're going to get a bowel movement on EKG here.
	CC-H	I'm sorry Deke; I could not read you.
	ACDR	Okay, Crip. I still got moisture down in the right electrodes. I'm trying to dry it out as much as I can.
	CC-H	Okay. Copy that, Tom.
21 23 55	CC-H	For the DP. Deke, we have a satisfactory amount of exercise now. If you'd just lay back and relax a little bit and let us look at you, we'd appreciate it.
	DMP	Okay. Nobody's going to object if I get some exercise today ...
	CC-H	No, we'd love to get you - get your exercise in here. Between running back and forth berween the ETE, and the furnace and the OBS. Thought you were getting quite a bit.

	DMP	It isn't too easy doing a lot up here.
	DMP	On the ground it would kill you.
21 25 02	DMP	Hey, Dick. Did the sensors look all right on this one, incidentally, during exercise.
	CC-H	That's affirm. It looked - locked great. Body's - everybody's just happy as a lark.
	DMP	Okay. Well, it's not surprising if it doesn't because I was just kind of checking as I was doing it. The natural position for exercise is with your elbows right on those darn left and right sensors. I keep working on it ...
	CC-H	Whatever you say.
21 25 36	DMP	If you're all happy, I'm not going to complain.
	CC-H	That's affirmative.
21 26 24	DMP	Tell those guys I've got myself clocked at 64 revs here. Like to see if they got anything any different.
	CC-H	I'm sorry, Deke. I was having trouble reading you. For Vance, could I go ahead and have the HIGH VOLTAGE ON, please? To 2.
21 26 39	CMP	Okay.
	CC-H	Did I understand - Dick was helping me - sit here and translate it. (Laughter) Did you say 64 beats per minute you got all the way up to?
	DMP	I might have got to 72. That's the best I've been able to do.
	CC-H	Well, for you, that's - -
	DMP	... going to have to get it after I ...
	CC-H	- - that's a pretty high heart rate, isn't it?
	DMP	No, not on some days. You can tell them I check it once in a while up here; I'm running 48 to 52 any time I check it.

	CC-H	I'm envious.
	DMP	Clean living.
21 28 15	CMP	You want that HIGH VOLTAGE OFF while we're maneuvering here, Dick, or for a short time? I mean - Crip.
	CC-H	Oh, hey, we saw that - we think you got the ARM SAFE switch down there instead of HIGH VOLTAGE. Would you check that for us, please? That should be in ARM, and wanted the HIGH VOLTAGE to 2.
	CC-H	And I guess it doesn't make any difference now on the HIGH VOLTAGE. You can go ahead and turn it OFF.
21 28 55	CC-H	Okay, we're about to go over the hill on the - the ATS here. And for you, Vance, I'll need to come - this vis obs attitude, we need to update that R2 on your NOUN 78's to the 6000 that we've been using instead of the 9000. We'll see you at Orroral in about 2-1/2 minutes.
21 32 00	CC-H	Apollo, Houston. We are AOS through Orroral for 3-1/2 minutes.
	DMP	Okay.
	CC-H	Hey, Deke - all the - our medic folks would - really appreciated all the efforts you went through to get that data. It all came out nice and clean here. It looked real good.
	DMP	Okay, fine. You got everything you want?
	CC-H	Yes, sir; everything was super.
	DMP	Okay, I'm going to go ahead and exercise awhile then - and get some.
	CC-H	Okay, fine.
21 32 43	CC-H	And, Apollo, Houston. I got one item I guess I'd like to just get up, in general, anytime anybody's got a moment to take it. There's no rush on it. We can get it later if you're - now's a busy time.

CMP Go, ahead.

CC-H Okay, Vance, we would like to get the camera that we've currently got in 873 back in the docking module - camera only, not the cable - brought in and put on location 606, in order to get all set up and spiffied away for this early morning press conference that we've got scheduled in the morning.

ACDR Okay, is that - -

CMP You want 873 into the command module or docking?

CC-H I want it brought into th - into the command module and placed in location 606.

CMP Okay, got it.

ACDR And is that just the - just the TV and the monitor, or the cables and everything?

CC-H No, we do not need the cable it's connected to. I think we should have a cable still available there in the 606 location somewhere.

ACDR We do. Yeah. Okay.

21 33 52 CC-H Okay, and the only other item I've got - and we probably don't have time to do it here - is that - we have one last pad to do; that's this upcoming one on 109. And about 3 weeks ago, the - we had a satellite discover an E - a new EUV source, and we really could appreciate it if we could make a change in the pad. That will allow us to get it up to cover that particular target. And it's going to be several line entries but not nearly as long as some of the ones we've already made. If somebody is available at Hawaii, which comes up in about 15 minutes, I would certainly appreciate being able to read the modifications to you there. Incidentally, your recovery ship is also going to be active on - on your - VHF, and you might be hearing them when you come across there this time.

CMP Okay, real good. I'm sure somebody will be available to copy. Hope we can find out something about this new UV source here. And, we'll - go ahead and maneuver, okay?

CC-H Okay, fine - press on. And the PI'd really appreciate it. He's pretty excited about this new target.

21 34 58 CMP Okay.

21 50 30 CC-H Apollo, Houston. Hello at Hawaii for 6 minutes.

ACDR Hello, Dick. Coming up to Hawaii.

CC-H Hello, Tom. One thing that I've got to get up here is some changes to this upcoming rev on 109 pad so if somebody could whip it out, I'll give them to you real quick. It won't take but a couple minutes.

ACDR It's all whipped out.

CC-H (Laughter) Okay. If you're ready to copy, the first change is the - up there about three lines down at a time of 46 minutes. Over there in the note, change it to read "Manually roll to 140 degrees."

ACDR Roger. "Manually roll to 140."

CC-H Okay. Down at the time of 0 plus 00, just delete the "X-ray ops."

21 51 23 ACDR Got it.

CC-H Okay. A little further down at a time of 3 plus 30, I want to change all three of those numbers for the VERB 49 maneuver to the following: roll, 104.60; pitch, 078.90; yaw, 305.90. Go ahead.

ACDR Roger. Roll, 104.60; pitch, 078.90; and yaw, 305.90. Over.

CC-H That's right. Okay, right below that at a time of - I want to change the time of 5 plus 50. Delete that and change it to read "4 plus 18."

ACDR "4 plus 18" instead of "5 plus 50." Got it.

CC-H Okay. The next line down, I want to change the time of 6 plus 50 to read "5 plus 18," and then I want to change the roll number to read "107.60."

ACDR Roger. "6:50" changed to "5 plus 18;" roll now new number, "107.60."

21 52 43 CC-H Okay. And, also, over there under the data column under the notes, I want you to write in "X-ray ops." We want you do to an X-ray ops there at 5 plus 18.

ACDR Okay. And I guess that you, basically, will tell us when to turn it off. ... sync this one ...

CC-H It turns - it turns out on this one that we're going to leave it on the rest of the pass - they claim. If we need to turn it off, I will call you. Okay, the next change, Tom, is the next line down. Change the time of 9 plus 05 to read "12 plus 33." And change the roll to read "110.60." Over.

21 53 32 ACDR Roger. Time to "12 plus 33," "110.60."

CC-H Okay. Now, next two lines, the entry for 10 plus 20, I want you to delete that and delete the 135.90, and the next line down, delete the 12 plus 35 and delete the 132 plus 90 - point 90.

ACDR Okay. Let me get that again. It's 12 plus 33; the roll angle is 10.66. Delete the next two lines, which is 135.90 and 132.90. Over.

CC-H Okay. One correction, back - back up there at the time of 12 plus 33, the roll angle is the following: 110.60, 110.6.

ACDR Roger. 110.60, the next two rolls are deleted. Over.

CC-H That's correct. You got it right. Okay, one more change. At a time of 13 plus 50, in the yaw column, change it to read "000.00."

ACDR Roger. The yaw column is now back to 000.00 at 13:50.

CC-H Okay, Tom. Now let me go back up to the manual roll up there at 46 minutes and make - give you a comment about that. The middle gimbal angle you're going

to have to monitor, because it is going to get kind of high, and you will improve your - in other words, if you start your VERB 49 maneuver just as soon as you're through with the Earth obs, the middle gimbal angle will be not more than about 65 degrees. The longer you delay for that VERB 49 maneuver, the higher it will get. But at any rate, watch it closely.

21 55 19 ACDR Roger.

CC-H Okay. We're about 1 minute from LOS Hawaii. That was kind of a busy first pass. We'll be seeing you coming up here at Bermuda in about another 15 minutes and I'll call you there.

ACDR All right. And real good. Are the ATS angles the same, because the last time we used our computer angles to lock on, the book was wrong. Over.

CC-H Stand by just a second. Tom, these ATS angles are correct.

ACDR Real good. Thank you.

CC-H Okay. See you later.

ACDR Say. One thing. Is the nominal time counting up at 177:58:36? Over.

CC-H That's affirmative. It was less than 1 second off, Tom, and we've decided not to change it.

ACDR Oh, real good. Thank you.

21 56 14 CC-H See you later.

22 15 39 CC-H Apollo, Houston. We think we can get locked up on ATS if you go to REACQ and NARROW.

ACDR Hello, Houston; Apollo.

CC-H Hello, Tom. Loud and clear.

22 17 45 CC-H Apollo, Houston through the satellite. How do you read?

ACDR Reading you loud and clear, and the helium glow and the EUV ops are coming on.

	CC-H	Okay. Real fine, Tom. It took us a second to get locked up there, but I'm reading you loud and clear. Looks like you're doing fine.
22 19 04	ACDR	We want to trim our attitude a little bit. It's drifted out since we got there.
	CC-H	Tom, we think this one is okay. There's one of the later ones that's going to be real critical, and it's - that one down at 4 plus 18, but we'll be watching it with you down there.
	ACDR	Okay.
	CC-H	No harm done.
	ACDR	I was just trying to get it right on.
	CC-H	Rog. We appreciate it.
22 26 31	ACDR	Houston, Apollo.
	CC-H	Go ahead, Tom.
	ACDR	Okay. Looking down in the checklist here, for the next roll angle, I have 110.6 degrees. I copied that down at 10 plus 33. Is that right?
	CC-H	It's - the correct time is 12 plus 33 - 12 plus 33, and I thought you read that back to me, but maybe not. At any rate, whether you did or not, it's 12 plus 33.
	ACDR	Okay. Got it. Yeah, I couldn't read my writing there. I was writing rather fast. I got it now.
	CC-H	Okay. Incidentally, while we've got a second, a breather here in the pad, there is no update to the light flash pad on the next page. That time is nominal.
	ACDR	In other words, the light flash is nominal.
22 27 16	CC-H	Okay.

END OF TAPE

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22 41 48	ACDR	Houston, Apollo.
	CC-H	Go ahead, Tom.
	ACDR	Yeah, just wondering how everything's going.
	CC-H	It couldn't be going better. We've been following you going through this pad, and it's going real fine. And that new star that we - or that new target that we stuck in the middle there - we got good X-ray data and good EUV data on it.
	ACDR	Hey, that sounds great. Thank you.
	ACDR	Sounds like the X-ray's working better, then, huh?
	CC-H	Well, it - it ran all the way through that particular target, which was the one they wanted. After that, we started getting poor data and we just decided not to bug you and we would - we're planning on just powering it down at the normal time for the - for the pad. But it did its job for the target we wanted.
	ACDR	Okay.
22 43 57	CC-H	Apollo, Houston. If you would, on panel 230, we'd like to CLOSE the X-RAY COVER, but we want to leave the HIGH VOLTAGE POWER on.
	ACDR	Roger. CLOSE the COVER, but leave the HIGH VOLTAGE POWER on. Okay.
	CC-H	Okay. Thanks, Tom.
22 44 31	ACDR	Okay. She's CLOSED.
	CC-H	Okay. Tom, thank you. The - Turned out the data changed there for a minute, and we wanted to take a look at the background data by leaving the HIGH VOLTAGE on and the COVER CLOSED. So, Experiments Officer's looking at it now.
	ACDR	Okay.

	CC-H	Apollo, Houston. It's possible that we may lose the ATS high gain. If we do, the INCO will be commanding on the DSE to get the data, so you don't have to worry about it. I would like to change one thing, and that is, at the end of the pad, we do not want you to power down the X-ray. We want you to leave it in its present configuration with the HIGH VOLTAGE POWER on and the COVER CLOSED, and we're going to look at that data for a while longer.
22 47 10	ACDR	Roger. Got it. So, I don't have to command that DS - all I do is verify DSE tape motion. You want me to go at the very end, then, to LOW BIT RATE, COMMAND RESET, or forget it? Over.
	CC-H	Stand by. Let me check.
	CC-H	Tom, Houston. Affirmative. Just do exactly as the pad says there at the end - on the DSE.
	ACDR	Okay. The LOW BIT RATE, COMMAND RESET. Thank you.
22 48 08	CC-H	That's affirm.
22 50 07	ACDR	Crip, we don't have any tape motion over there, it looks like.
	CC-H	Okay.
	ACDR	Dick - -
	CC-H	Yeah. Yeah, understand. Yeah. Stand by, please.
22 50 51	CC-H	Tom, Houston. We're about to start it now. We do have a good lockup on the ATS, and that's the reason we were delayed a little bit. But you ought to be able to verify it, here, very shortly.
	ACDR	Okay, real good, Dick.
	CC-H	Apollo, Houston. Looks like we prob - we may very well keep the ATS for the rest of this pass. But just in the event we don't, Bermuda - We've got a good long LOS here. Bermuda comes up at 179 plus 21. And this was the - the last of the complicated experiments pads, and I don't see how it could have gone more perfectly. Looks like a real good show.

ACDR Ah, thank you very much. We'll also thank you guys on the ground, because you really helped to pull us through here on an occasional mistake on a DSKY ... and ... , all this good coordination. Thank you.

22 52 49 CC-H Well, I was looking hard to catch a mistake that time, but I sure didn't see one. Also like to pass to Deke, again from the surgeons - I heard Crip talk about it awhile ago - that they got extremely good data and have an excellent current status, and recommend the same procedure for applying the sensors for reentry. And it was - that's from Peter Whittingham, our Royal Air Force flight surgeon here, and he says, "Good show, chaps."

ACDR Okay, thank you.

22 56 56 CC-H Apollo, Houston. Now that you've started that last maneuver, Tom, I'd like to talk to you a little bit about the - our water level and what we can do on the secondary evaporator.

ACDR Go ahead, Dick.

CC-H Okay, it turns out that we've got a choice, Tom, and we've done a little bit of talking about it here in the last 10 minutes. If you activate the SECONDARY EVAPORATOR, which is in the Flight Plan coming up here right after this pass at 178 plus 50, you can leave it on just about all the way to bedtime and then turn it OFF, and that will allow us to sleep with it OFF. But then it will - we - it will put us in a situation where we can probably turn it on in the morning. And then you'll have cooling just about all the way for the rest of the mission. It'll help us - -

ACDR Okay.

22 57 45 CC-H - - It'll help us in one more way, and that is, we are going to do some SIM bay experiments taking data all night tonight, and it'll help a little bit not to be dumping that water overboard. You do have another choice, though. You can leave the SECONDARY OFF now, and turn it on right at bedtime and let it cool all night. But - but if you do that, we probably will have to turn it OFF first thing in the morning

and spend most of today with it off. I'm not sure - We're not sure exactly what kind of situation we'd be in then at the end of tomorrow afternoon.

22 58 18 ACDR Okay. So you say, basically, if we leave it off now, we can have it from - starting tomorrow morning on, huh?

CC-H No. What I'm saying is now you can turn it on per the Flight Plan. In other words, activate it there where it says, "Activate PRIMARY EVAP," just activate the SECONDARY instead of the PRIMARY. And let it cool down the spacecraft for the rest of this evening, and then we'll deactivate it when you go to bed. And then you'll have - then you'll be all set in the morning to reactivate it and just leave it on.

ACDR Okay, real good, sounds great.

CC-H And - and our data shows that that should cool the spacecraft down real good this afternoon, and about bedtime should be real comfortable.

ACDR Real good. Thank you.

22 58 58 CC-H Okay.

23 01 15 CC-H Apollo, Houston. We're coming up on 2 minutes to ATS LOS. Bermuda comes up at 179:21.

ACDR Roger, Dick. Glad the run went real good for them.

CC-H Boy, that was super, Tom. I assume Vance and Deke didn't go EVA or something. I haven't talked to anybody but you since I got here. They didn't abandon ship, did they?

ACDR No. What we're doing is trying to get ahead of it, and we're already setting up the light flash experiment. Those two been working on it full time.

CC-H Roger. Sounds good.

CMP It's Tom's day to talk.

CC-H Okay.

CC-H Well, we'll see you at Bermuda.

23 01 57	ACDR	Okay.
23 44 16	CC-H	Apollo, Houston. Bermuda for 7 minutes.
23 44 32	DMP	Okay, Dick. Got you.
	DMP	We're now terminating ETE.
23 47 09	CC-H	Apollo, Houston. Not much going on down here. I had a couple of comments for you. One was on film budgeting, and also a minor deletion in the Flight Plan later on at 183 hours or so.
	DMP	Okay. How much time we got here, Dick?
	CC-H	We got about 3 minutes, and neither one of these comments needs to be done for the next several hours, Deke. So if you're busy, I'll be glad to wait. No problem.
	DMP	Okay. Well AC is up for his morning constitutional, and CP's here on some other stuff, and everybody's off ... And I'm terminating ETE here. So if we can hold off, that'd be great; if we can't, I'll get it, though.
	CC-H	No. We can hold off for as long as we need to. No problem.
	DMP	Okay, great. Thank you.
23 49 48	CC-H	Apollo, Houston. We're 1 minute to LOS. Ascension comes up at 179 plus 39. And, Deke, when you get a chance - on panel 230, we'd like X-RAY HIGH VOLTAGE POWER to OFF and leave the LOW VOLTAGE POWER, ON.
23 50 04	DMP	Okay. HIGH VOLTAGE POWER, OFF.
	CC-H	Okay. See you at Ascension.
23 50 08	DMP	Okay. Thank you.

END OF TAPE

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00 01 41	CC-H	Apollo, Houston. Ascension for 4 minutes.
	ACDR	Okay, Dick.
00 03 30	DMP	Okay, Dick. We're kind of in a coasting mode here for a minute; if you have something you wanted to read up, it's probably a good time to do it.
	CC-H	I'm sorry, Deke, you were real low. Say again, please.
	DMP	We're in a coasting mode here and if you got something you want to read up - it's a good time to do it.
	CC-H	Okay. Real fine. One note from - from Farouk and that was - has to do with film usage. If you want us to get into the act on planning film usage, if you would let us - sometime, anytime you have the chance, if you'd go through the - the unused and partially used mags for both the silver and black cameras and tell us how many frames are in vail - are available per mag, we'll be glad to help you. If you think you've got a handle on it, don't worry about that. And, also, if you'll turn in the Flight Plan to 183 hours, I've got a couple of simple updates for you. And incidentally - -
	DMP	Okay. Far as - -
00 04 29	CC-H	I'm sorry. Go ahead.
	DMP	As far as the film, pretty good inventory on that, but I think we know where we're at pretty much on that subject. So, thank you.
	CC-H	Okay, Deke. And we're about 30 seconds to LOS - Guam comes up about 40 minutes from now at 181 - 180 plus 21, in case we don't get these readups here.
	DMP	Okay. We're standing by, 183 - -
	CC-H	Okay. Down in the DP column at 183 plus 20, I want you to delete X-ray from that ops there. And down below that, also delete - "Remove the cabin vent QD and stow it." We're going to need it tomorrow, we are going to do another purge, and we'll be seeing you on the ATS.

	CMP	Okay. Okay, you say you will not do a purge - any more purging today, right?
	CC-H	We - we are going to do it tonight, but we do not want you to remove that vent QD and stow it. We want you to keep it out because we're going to use it tomorrow. And, also, delete the X-ray ops.
	CMP	Got it.
	CC-H	And we'll see you when we get locked up on the ATS.
00 05 48	CMP	Okay.
00 21 24	CC-H	Apollo, Houston through the satellite. How do you read?
00 24 49	CC-H	Apollo, Houston. Do you read?
	CC-H	Apollo, Houston in the blind. If you read, we need to go back to P20 instead of P00 after that P52.
	CC-H	Apollo, Houston in the blind. If you read, we need to go back to P20 instead of P00.
00 27 02	DMP	Houston, Apollo.
	DMP	Houston, Apollo.
	CC-H	Apollo, Houston. Deke, we - I read you now, and we need to reselect P20, Deke, per the Flight Plan there at - following P52.
	DMP	Houston, Apollo. Do you read?
	CC-H	Apollo, Houston. Deke, I read you very weak. I'm not sure I'm getting up.
	CC-H	Apollo, Houston. Deke, do you read?
00 32 59	CC-H	Apollo, Houston. Do you read?
00 44 30	CC-H	Apollo, Houston at Guam for 6 minutes. And on panel 230, we need UP TELEMETRY to DIRECT.
	DMP	I believe we've got everybody in position here for a good old Earth ops.

CC-H Okay, Deke. The reason that we missed that ATS pass, I think, is after the P52, we needed to go back to P20 instead of back to P00. So what I need to ask you to do is go back to the Flight Plan at about 178 hours and 45 minutes and call up and - and do those procedures there that recall P20, and that'll get us back to attitude, and we'll be all set.

DMP Okay, we're in the process of putting back to attitude right now, Dick. After doing the 52.

00 45 30 DMP Still with us, Dick?

CC-H Yes, affirmative; I am with you. We got intermittent data there during the ATS, but we didn't - we never did get it good enough to get voice.

DMP Okay. Well, we're in the process of maneuvering back to attitude here right now.

CC-H Okay. Real fine. And, Deke, anytime you want - to read me down the P52 data, that's fine. If you don't want to do it now - I can get it later.

CMP Okay. We're just trying to get cranking here on this - light flash thing so stand by a minute.

CC-H Okay.

CC-H And, Apollo, Houston. Down on panel 230, we need UP TELEMETRY to DIRECT.

00 47 31 DMP UP TELEMETRY, DIRECT.

CC-H That affirmed, Deke. And, Deke, if you have time before we get this light flash experiment started, we have about 3 more minutes here at Guam. I need to read you a correction to that next VERB 49 maneuver down on the next page at 182 hours and 15 minutes - and that follows the light flash experiment.

DMP Yeah, you're going to have to - We're already into this thing, and I'm having a little trouble doing everything here by myself - crawling over people and et cetera, so stand by 1.

	CC-H	Okay. We got several more passes before it happens. I didn't realize that the guys had started yet; I thought they were dark adapting.
00 49 18	CC-H	Apollo, Houston. One minute until LOS Rosman at 180 plus 52.
	DMP	180:52. Do you have anything critical to give us? I can take it now.
	CC-H	Well, if it's handy, Deke, in the Flight Plan at 182 hours and 15 minutes, I want to change that next VERB 49 maneuver, that's 182 plus 15.
	DMP	Okay, go ahead.
	CC-H	Okay. I want to change the VERB 49 angles to 052, 023, and 312.
00 50 03	CMP	052, 023, and 312.
	CC-H	Okay. While you're right there, down to the left, I want to change the high-gain angles there to pitch of minus 29 and yaw of 279 and - and could you confirm that you got the UP TELEMETRY switch on 230 to DIRECT?
	DMP	Well, I'll have to go and reconfirm it.
	CC-H	Okay.
00 50 36	DMP	We've all blacked out in here, so it's a little difficult to see anything.
00 50 40	CC-H	Roger. Understand. We'll be seeing you at Rosman.
01 14 41	CC-H	Apollo, Houston. Rosman for 4 minutes.
	DMP	Okay, Dick; we're with you.
	CC-H	Okay.
	ACDR	Okay.
	ACDR	MARK it. Got a small star in both - the right, followed by one in the left - in my left eye, right on the centerline in my left eye, horizontal.

	DMP	Incidentally, Dick. We're running with - both left- and right-hand couches here in the VOX mode per checklist. I don't really understand that, but we're doing it anyway.
	CC-H	Okay. It'll probably help us on the ground monitor you, anyway. And, Deke, if you get a chance, on panel 230, we'd like the UP TELEMETRY switch back to UP TELEMETRY, centers.
	DMP	Thank you.
01 15 42	CMP	Okay. I got two events, in the upper right, I got a - comma - -
01 15 58	ACDR	MARK. I've had a long streak at the very top of my left eye, a long streak. There's a little blast of a star in - flat in the center of my left eye.
	DMP	Is that UP TELEMETRY you wanted, Dick?
	CC-H	That's affirm, Deke. UP TELEMETRY, that's center position.
01 16 27	CMP	In the middle.
	CMP	Are there terms other than - hotdog?
	CMP	Okay. Okay. I wonder if it's getting recorded then?
	CMP	Okay. I'll try to hold the mike closer.
	CMP	Okay. Review of some of the terms again, there's - there's streak, long streak, hotdog, star, cloud, double streak; okay -
01 17 52	CMP	Okay, I got a star just then, upper left - tadpole.
01 18 03	ACDR	... in my upper left eye - upper left corner.
	CMP	That's the word I was trying to think of.
01 19 23	CMP	Maybe we ought to boost her to a higher orbit - get more of them.
01 20 04	CC-H	Apollo, Houston. We're 1 minute to LOS, and we'll see you when you get locked up on the ATS, Deke, at 130 - 181 plus 35.

01 21 30	CMP	A streak - over in the right corner.
01 28 43	CC-H	Apollo, Houston. It turns out in this attitude, that we are picking up some low-bit-rate data on the ATS and just wanted to remind you you're on VOX.

END OF TAPE

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02 04 45	DMP	Houston, how do you read through ATS?
	CC-H	Apollo, Houston through the satellite.
	DMP	Houston, Apollo. Go ahead.
	CC-H	Apollo, Houston. I read you but very weak.
02 05 08	CMP	Okay, star, right eye, the lower part.
	DMP	Okay. We read you fine, Dick.
02 05 20	CMP	Very large star, left eye, left - right eye, left side.
	DMP	We heard about 50, 60 percent of the signal there and it never seemed to come up so we tweaked it a little and peaked at 30.
02 05 32	CC-H	Okay, I'm reading you loud and clear now, Deke.
	DMP	Okay.
02 05 39	ACDR	MARK. A comma, center top of right eye.
	DMP	For the PI's info, things were pretty quiet through the old SAA.
02 06 09	CC-H	Roger. Understand things were quiet going through the SAA?
	DMP	Yeah, not many sightings reported.
	CC-H	Roger. Understand.
	CMP	Okay.
	ACDR	Not on VOX. (Laughter)
02 08 38	DMP	Say, Dick, I guess we never gave you that last 52, did we?
02 08 41	CMP	Okay, had a star, upper right eye.

	CC-H	No - Deke, you didn't, but we're not in a big hurry. If you want to, we can just wait until this light flash experiment is over, and we can get it then.
	DMP	Okay.
	CC-H	Incidentally, let me clarify - I understand before what you told me that there were no sightings in the South Atlantic Anomaly - -
	CMP	Hold on.
	CC-H	- - a couple of people thought you said, maybe, it was since the South Atlantic Anomaly.
02 09 09	ACDR	Okay, had a big bright tadpole left - left - lower quadrant, left eye.
	DMP	You heard me right, Dick, it was through what the Flight Plan at least shows as the SAA - very few sightings.
	CC-H	Okay, while we're talking about it, I had one more question here to ask you guys. Did - did they notice any hazy brightening of the background during that South Atlantic Anomaly pass? Or at any time during the start of the experiment?
02 09 41	ACDR	No, I didn't notice any. And I guess I - just a number of sightings. We saw sightings, but I guess we were expecting to have just one after another and we didn't have it.
	CC-H	Roger. Understand.
	CMP	I didn't notice any brightening, either.
	CC-H	Okay. Thanks, Vance.
02 10 07	CMP	Subtract one MARK button just now. I pressed the button to talk. (Laughter)
02 10 20	DMP	God damn O_2.
02 10 33	DMP	There seemed to be a flurry of them, Dick, just coming out of the SAA, just about that time.
	CC-H	Roger. Understand.

	CMP	Now that we're knee deep in Kleenex - -
	DMP	Dick, things are pretty quiet. I can start giving you the 52, and I'll just break on it if they see anything outside.
	CC-H	Okay, suits me fine; go ahead. I'm ready to copy.
02 11 42	CMP	Stars - right eye stars, center.
	DMP	Okay, NOUN 71 is 35.36. NOUN 05, zero. NOUN 93: X, plus 92; Y, minus 79; Z, minus 1. GET, 179:56:55.
02 12 09	CC-H	Okay, Deke; copy. Thanks a lot.
	DMP	Okay.
	CMP	Pretty quiet, huh?
	DMP	Hey, Dick, for whatever it's worth to the PI, it's my recollection that - the most flashes were reported shortly after we started, like right around 180:50 to 181 GET.
	CC-H	Okay, Deke - go ahead.
	DMP	Yeah, I was just guesstimating that we probably were in kind of max latitude there and probably the same when we saw the next flurry in this other hemisphere. But you guys can check that better than we can.
	CC-H	Roger. We'll - thanks for the input, and we'll get it all coordinated to the latitudes when we get the tapes back.
02 16 08	DMP	Sure.
02 17 25	CC-H	Apollo, Houston. We're a couple of minutes from ATS LOS; Goldstone at 182:18.
	DMP	Roger, Dick. 182:18.
02 18 39	CMP	Yeah.
02 40 17	CC-H	Apollo, Houston. Goldstone for 6 minutes.

DMP Okay, Dick, fine. And we just completed the light flash, and we're taking some photos here before we tear it down.

CC-H Okay, Deke. I understand you completed the light flash, and you were very weak; I didn't catch the rest.

DMP Yeah; we're just taking a couple of Nikons of the setup here before we tear it down.

CC-H Oh, okay, fine.

02 40 56 DMP We've sure been getting a rash of O_2 - warnings here.

CC-H Roger. Incidentally, Deke, just for y'all's information, the reason we changed that VERB 49 maneuver that you are in the process of going to now, was to point the EUV, while you sleep, at a particular star. It's - will not change the ATS coverage during the night.

DMP Oh. Okay, thank you. Anything else we can do for you? We're now all available. ...

CC-H Well, why don't you just clean up the light flash and get yourself a good meal.

DMP Yeah, ...

02 43 13 ACDR Let me give them a call on that.

CC-H Apollo, Houston. Tom, did you call?

ACDR Yeah; got off VOX there. Look, we've been talking, Dick, about tomorrow morning, the press conference and the wake-up and getting ready. Why don't - why don't you wake us up at least 30 minutes earlier then because there's no way we can get up and get things squared away and shave and get squared away for that press conference in that period of time. Over.

CC-H Okay, Tom, let me - looks like we'll be having an ATS pass during that whole time so it probably would be easy for us to wake you up - Oh, I take it back here. We - there is an Ascension pass that's about 20 minutes early. And, as a matter of fact, there's

a Santiago pass that's about 32 or 33 minutes early. Maybe - it's a real short one, but maybe we could give you a call right there at Santiago, 30 minutes early.

02 44 22 CMP Well, I won't even be awake by - -

ACDR Yeah, why don't you give us a call at Santiago?

CC-H Okay. Okay, Tom, we'll sure do that.

02 45 00 CC-H Apollo, Houston. We're 1 minute from LOS; Quito at 182 plus 31.

02 53 32 CC-H Apollo, Houston at Quito for - for 6 minutes, and we'd like ACCEPT, please.

02 53 41 DMP Okay; you've got it.

CC-H Apollo, Houston. Before we start our uplinks, I wonder if you could clear the DSKY off with a VERB 37. Guidance would feel warmer when he starts his uplinks if you do that. Thank you a lot.

02 57 31 CC-H Apollo, Houston.

ACDR Go ahead, Dick.

CC-H Hey, Tom, in order to keep our water in the right tanks - what we'd suggest is, is that you - while you're eating and drinking water, that you close the inlet to the potable tank, and then when you go to chlorinate it later on, open it, of course. And then after the chlorination is - is finished, about 15 or 20 minutes after that, close it and - we'll sleep with it closed tonight.

ACDR Okay. In other words, go to OPEN now, and then after chlorination, CLOSE it, right?

CC-H No, if it's already closed now, leave it closed until after you eat, and then open it for the chlorination, and then sleep with it closed.

ACDR Okay. Let me check it.

	CC-H	Okay. And we're about 30 seconds from LOS. We'll see you when you get locked up on ATS.
02 58 40	CC-H	And, Apollo, Houston. We're not through with the uplinks, we'll finish them on the ATS.
	CMP	Okay, Dick.
	ACDR	Dick, the POTABLE INLET valve is OPEN at this time. Do you want it CLOSED? Over.
02 58 54	CC-H	That's affirm. Go ahead and CLOSE it, Tom, and we - yes, CLOSE it now.
02 58 58	ACDR	Okay.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

03 08 37 CC-H Apollo, Houston through the satellite. We already have ACCEPT, I believe, and we'll be finishing up our uplinks here.

ACDR Okay.

CC-H And, Apollo, Houston. When you guys settle down, and I don't know where you are, but if - when you settle down, if you would like to hear some news during your eat period, I'll be glad to read you up some.

ACDR Yeah. Okay, wait until Deke gets back on his headset here.

CC-H Okay. Anytime, Tom.

CMP Let her rip, Dick, if you're ready.

03 10 02 CC-H Okay, Vance. Of course, the big news today is still you guys. There have been many stories on the wires and in the papers concerning everything from Earth observations to killifish, and we're looking forward to the - to the entry that will be coming up in a couple days. The Ford Administration Tuesday unveiled its proposed gun control law that includes an FBI check on those who wish to buy hundguns and sets centain strict standards for their manufacture. Attorney General Levi told the Senate Juvenile Delinquency subcommittee that the Administration's bill concentrates on illegal commerce in handguns and centers its new enforcement efforts on 10 large metropolitan areas where the problem of handgun violence has reached crisis proportions. Pushed by higher prices for food, gasoline, and used cars, consumer prices increased 0.8 of 1 percent in June, the biggest monthly rise in inflation this year, the Labor Department said today. The Senate today confirmed Dr. Forrest David Matthews, president of the University of Alabama, to be the new Secretary of Health, Education, and Welfare. Also on Capitol Hill, the House voted to end the so-called Fair Trade Laws that allow manufacturers to set retail prices on their products in many states. The measure, backed by the Ford Administration and consumer groups, was approved by the House 380 to 11 Monday

and sent to the Senate. The Upper House of India's Parliament today approved Prime Minister Indira Gandhi - they approved her declaration of a national emergency, touching off a walkout by members of noncommunist opposition parties. The House today voted to restore Confederate General Robert E. Lee's citizenship, which he lost after the Union victory in the war between the states. The vote was 407 to 10, well over the two-thirds needed for approval under House procedures to speed up action on the measure. The measure now goes to President Ford. The Senate approved the bill unanimously in April. In Los Angeles, California, police tried everything to get City Attorney Burt Pine's stolen official car back, even placing calls to the thief on the car's mobile telephone. No one answered, though, and the police issued an all-points bulletin Monday for the car, which was stolen Friday from a guarded City Hall garage. In sports today, Billy Martin has been fired as the manager of the Texas Rangers. Martin, who was the American League Manager of the Year in 1974, said the front office wanted a winner and a "yes man," and they can't have both. The Houston Astros - excuse me, the Houston Astros beat the New York Mets last night, 6 to 2. But the Astros are still 30 games out of first place in the National League West Division. And I'm just told that they lost the game tonight, 2 to 1. Cincinnati leads the West Division, while Pittsburgh is in the lead in the Eastern Division. When A. J. Foyt won a big auto race near Detroit Sunday, it assured the Houstonian of his sixth U.S. Auto Club Driving Championship. And, finally in sports, President Ford held a brief ceremony at the White House Rose Garden Monday to honor Wimbleton singles champions, Billie Jean King and Arthur Ashe. Deke, here's a story that you might be interested in. Today in Friendswood was Marge Slayton Day. A group of Marge's friends gathered at Brown's Pharmacy, that's Marge's favorite coffee spot, and greeted her this morning with a surprise party. She was presented a gold medallion. On the back it read, "Marge Slayton Day." And, also, a needlepoint commemorating the ASTP mission. When the newsmen asked her how she felt, she said, "I thought Deke was having all the fun up there, and now I feel like I'm having more fun than him." So you better get home.

03 14 16 DMP Hey, thanks a lot, Dick. Congratulations to old Marge.

CC-H Rog.

DMP Nice group of people around friendly ...

CC-H Roger. Well, it sounds like they're taking care of everything cut there and remembering her very well.

DMP Yeah, got a bunch of fine people there; friendly folks in Friendswood.

CC-H Roger. And we're going to be changing ATS modes here. I'll drop out here for a couple of seconds and then I'll be back up. And, Apollo, Houston. You can go to BLOCK; the computer is yours.

03 15 27 CC-H Apollo, Houston. We've changed ATS modes now. How do you read?

ACDR 5 by, Dick. Just fine.

CC-H Okay. And while y'all are eating, here's one more message from the Silver Team.

(Music: "The First Time Ever I Saw Your Face" by Roberta Flack)

03 21 23 CMP Okay, very nice. Thank you, Silver Team.

ACDR Yeah, that was great.

CC-H Roger.

DMP Couldn't find the Glenn Miller album, but it was a great substitute.

03 21 41 CC-H Incidentally, when you guys get through with your meal up there, I've got my normal little list of little things to - to pass up to you. We've still got 35 minutes in this ATS pass so when you get a moment, or - and you get through eating, we might talk a few minutes. But no hurry.

(Music)

DMP Just thought we'd return the favor there, Dick.

03 27 32 CC-H Roger. We enjoyed that. The G&C, Terry Watson, said he wasn't sure that was a fair trade for Roberta Flack, but we - it was still good.

03 40 06 CC-H Apollo, Houston. We still have about 15 minutes left here in this ATS pass, and I wondered if we could take 4 or 5 minutes out and let me read you a couple of changes in the Flight Plan and also get down your - some of the presleep stuff and tell you the things we needed done before you go to bed.

ACDR Sure.

CC-H Okay. One thing while I'm getting ready. I've got a chance in the Flight Plan at 183 hours and 20 minutes or so. And, also, we're standing by to look at the VERB 74.

ACDR Okay, Dick. I've got a pencil.

CC-H Okay, Tom. First thing, I want to change the high gains over there in Deke's column. They should read pitch, minus 7; yaw of 274.

ACDR Roger. That's minus 7 and 274.

03 41 16 CC-H Okay, Tom. And right above that - you see where it says, "EUV to ops per the cue card." One change that we'd like to do tonight is that we would like to use detector 1 instead of detector 2 as it's listed on the cue card. And the reason is is because of the dead ba - band we're sleeping in tonight. That detector has a more proper field of view, so just use - you might just jot it down there to use detector 1 tonight on EUV.

03 41 45 ACDR Okay, on EUV that we leave on all night, detector 1.

CC-H That's correct. And back to the sample number 7 that was leaking today, if you'd - if it's still around and you can find it, we would like to bring that thing home. Our suggestion is - is that you wrap the sample in a towel and then place it in an extra fecal bag that has the germicide pouch removed, and stow it in A-6 for entry.

ACDR ... (chuckling) the instruction says throw it away, so it's in the garbage bag some place and we'll do our best to retrieve it.

DMP You guys, I know where it is. It's in ...

	CC-H	Okay, fine. We'd appreciate it if you can find it. And, also, if we could get the battery readouts for BAT C and PYROs of BAT B and C, we'd appreciate it.
	ACDR	Okay, stand by.
	ACDR	Dick, what's our position right now?
03 43 15	CC-H	You're on an ascending pass and you're just - looking at our big 10 by 20, looks like you're just about very shortly going to be crossing over Thailand, North Vietnam, and China. You're going to cross the Korean peninsula here in a few minutes and then top out up there by the Aleutians.
	ACDR	Okay, we just got some - some good - Deke just got some good targets of opportunity for Farouk there.
	CC-H	Roger.
	ACDR	Okay, go ahead. What did you have next, Dick?
03 43 56	CC-H	Okay, we're ready to - we have data. We're ready to go ahead and shut down the secondary coolant loop evaporator and, also, we want to shut down that loop and get the pump off and we'll be watching you do that.
	ACDR	Okay. Vance has got that in work right now.
03 44 13	CC-H	EVAPORATOR - Yeah, yeah. EVAPORATOR OFF first and then the PUMP.
	ACDR	Roger.
03 44 22	DMP	Dick, you wanted batteries. BAT C is 37, PYROs A is 37, B is 369.
	CC-H	Okay, Deke; thanks a lot. A couple of other clean-up items. Down in the LEB, we'd like to ZERO the OPTICS and get the G/N POWER OPTICS to OFF. And, also, again we're standing by for the VERB 74.
03 44 48	ACDR	You got the VERB 74.
	CC-H	Okay, great.

03 47 01	CC-H	And, Apollo, Houston. One more thing. We're ready to close the waste stowage vent valve. As I said before, do not stow the cabin vent QD as it says in the Flight Plan.
	ACDR	Don't stow it. You mean - in other words, leave it - leave cabin vent to open or shut it, in other words. Put the - take the QD off or on. Sorry, Dick, I didn't understand you.
03 47 28	CC-H	Well, what I was referring to, Tom, in the - there in the Flight Plan, the DP's column, it says," Remove cabin vent QD and stow in the right-hand equipment bay, TSB." We don't want you stow it away because we are - we do expect to be using it tomorrow, but we are ready to close the waste stowage vent value.
	ACDR	Oh, okay.
	ACDR	Okay, Houston. Just to reverify here, you don't want any urine dump tonight. Affirmative?
	CC-H	Let me check on that, Tom. Stand by 1.
03 49 04	CC-H	Tom, Houston. Once we get the covers open, we would appreciate no urine dumps; however, you can go ahead and do urine dumps now, and then just wait 15 minutes to do the - the ops per the Flight Plan there.
	ACDR	In work.
	CC-H	Roger. And let's see. I think we've seen just about everything on data except we - except for the optics zero, and get that off. And a reminder. After you chlorinate the water in the - in the postsleep - in the presleep checklist, we'd like you to wait a little while and then close the potable tank inlet.
03 49 48	ACDR	You got it.
03 52 59	CC-H	Apollo, Houston. You're looking real good. We're 2 minutes to ATS LOS. We have one more pass tonight, it's a short one at Goldstone at 183 plus 52. I'll see you there.
	ACDR	Okay, good. And they got the word to wake us up in the morning at 30 minutes early. Pass that on. I guess Bo will be on then, right?

	CC-H	That's right. Bo will here - be here shortly and I'll be sure and pass it on. Incidentally, Tom, on that - the pass we're planning on trying to wake you up is a real short one there at Santiago, and it doesn't have a VHF backup. But even if we miss that, the next pass is only about 10 minutes down the line. So at any ra - at the worst, it'll be 20 to 30 minutes early.
	ACDR	Sounds good.
03 53 40	CC-H	Okay, fine. And I'll give you a call at Goldstone.
04 14 48	CC-H	Apollo, Houston. Goldstone for 2 minutes.
	CMP	Hello, Dick. How you doing?
	CC-H	Real fine down here.
	ACDR	Okay. We're just working away a little bit here - listening to you on the squawk box.
	CC-H	Roger.
	CC-H	Apollo, Houston. We're at 30 seconds from LOS. We'll see you in the morning. We'll wake you up early, and we do not see that the SIM bays are activated yet. Just be sure and don't forget to activate them and use detector 1 on the EUV.
	CMP	Okay. Understand. We're still venting.
04 16 35	CC-H	Okay. Understand. So we'll see y'all in the morning.

END OF TAPE

Day 204

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

REST PERIOD - NO COMMUNICATIONS

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

10 48 46	CC-H	Apollo, Houston. Good morning.
	CC-H	Apollo, Houston. Good morning through Santiago for about 1 minute more.
	ACDR	Good morning, Bo. How are you?
	CC-H	Good morning. We'll see you again at Ascension at - -
	ACDR	...
	CC-H	We'll see you again at Ascension at 190:40, which is about 12 minutes from now.
10 49 33	ACDR	All right. Real good. Thank you, Bo.
11 02 55	CC-H	Apollo, Houston through Ascension for about a minute and a half.
	ACDR	Hello, Bo. How - how do you read?
	CC-H	Good morning. I can read you. You're a little difficult over the squawk box. If you will maneuver to the attitude called out in the Flight Plan at 191:10, we should be able to get ATS when you dial in 18 and yaw 268.
	ACDR	Okay; and - -
	CC-H	Apollo, Houston. We're showing that you're fairly close to gimbal lock.
	CMP	That's right. ...
11 04 11	CC-H	And, Apollo, we're a little less than 1 minute until LOS at Ascension. We'll see you at ATS when you dial up 18 and 268.
	ACDR	Bo, did we shut down the SIM bay? Over.
	CC-H	Apollo, Houston. We did not read your transmission.
	ACDR	I asked, "Did we shut down the SIM bay?" Over.
	CC-H	Negative. The SIM bay is still open.

	ACDR	Roger. Should we shut it - should we leave it open or shut it down? Over.
11 05 15	CC-H	Leave it open, and close it as called out in the Flight Plan.
11 07 38	CC-H	Apollo, Houston through ATS. How do you read?
	ACDR	Hello, Houston. I'm reading you loud and clear, Bo.
	CC-H	Roger, sir. As usual, unfortunately, I have a couple of Flight Plan changes.
	ACDR	Really?
	CC-H	Surprisingly, yes.
	ACDR	Okay. I'll get a pencil and copy them down. Just a minute.
	CC-H	Okay.
	ACDR	Okay, Bo. Go ahead.
	CC-H	Okay. The first one is at your option, you can activate the secondary evaporator, but we'd appreciate it if you'd do this while we have acquisition.
	CC-H	And - -
	ACDR	How about right now?
	CC-H	That's fine. That's on S/1-18, and you're clear. We're watching.
	ACDR	Okay. But in the System Check - I mean, the Flight Plan, I don't see anything about closing SIM bay doors in that. Are we going to shut those bears?
	CC-H	No. We can now boil water even - even though the SIM bay door's open.
	ACDR	I got you. Okay.
	ACDR	Okay. SECONDARY is ON.

	CC-H	For your information, we're just getting supplemental data, so they'll tolerate the water boiling even while they're collecting data at this time.
	ACDR	Also, we can take a few presents from Myrtle, too. Over.
	CC-H	Apollo, Houston. You're clear to dump through Myrtle, too. Too.
11 11 06	ACDR	All right.
11 22 26	CC-H	Apollo, Houston. We still have a couple more Flight Plan changes when somebody gets a chance.
11 34 12	CMP	Houston, Apollo.
	CC-H	Hello, Vance. Good morning.
	CMP	Hey, good morning, Crip. How are you?
	CC-H	Very good.
	CMP	I was just wondering - -
	CC-H	And you guys?
	CMP	Oh, we're shuffling around, doing just fine. Wondering if it would be wise to make a quick TV check here just to make sure we've got all the switches right and everything's coming down good.
	CC-H	We think that'd be an outstanding idea. We're set up down here that we can take a look at it. We're not going to be able to look at it here, but the site is going to be able to take a look at it and verify it. One item - one item of recommendation we'd have would be to - to put the shades on.
	CMP	Even though we're in the LEB, huh?
	CC-H	That's affirmative. Apparently, from some of the stuff we've seen back in the joint phase, the Sun does apparently shaft down and interfere with it, and if it wouldn't be too much trouble, we'd appreciate it.

CMP Okay; we can do that. Why don't we turn it on first though anyway, just to - because we only have about 10 minutes of ATS here, don't we?

CC-H That's affirm. Well, it's actually about 6 minutes. We can also look at it at Guam, too, which we're going to come across, and we've got about 6 minutes there.

CMP Okay. Well, we'll put the shades on then. Stand by. We'll see if we can get it on now and put the shades on at the same time.

11 39 20 CC-H Apollo, Houston. We're a couple of minutes from LOS here through the ATS, and we're going to have you again at Guam in about 3 minutes. The - we're receiving word from the site that the TV looks - looks good. I guess - I'm not sure whether you got the shades installed or not, but we do want to make sure that they're installed so that we know we've got a - got a stable environment. But everything else is looking good, and we'll have a few minutes before the press conference actually starts there to make sure our comm is squared away and the TV's looking good. If you've had a chance to read your monitor, you might take a look at it yourself and see how it looks. One other item is that any time you guys get a chance, you might go ahead and take the WASTE STOWAGE VENT valve to VENT, and that will let us go ahead and start a cabin purge.

11 40 08 CMP Okay; to VENT. Crip, why do you need a cabin purge?

CC-H Let me get a direct clarification for you. The - Okay; the reason is that we have scheduled a DM O_2 purge, and I guess we didn't call that to you, but we do not want to do that because of - we've used up most of the O_2 in the DM, and we're just going to go ahead and purge it using the WASTE STOWAGE VENT valve.

CMP Okay. And we have the shades on. I noticed there are a few bright spots in the LEB, but we'll get a better chance to look at those when we get through working here.

	CC-H	Okay; fine.
11 42 53	CC-H	Apollo, Houston. We're AOS at Guam, 5 minutes.
	CMP	Okay, Crip.
	ACDR	Good morning, Crip. How are you?
	CC-H	Morning, Tom. Feeling great. How are you guys up there?
	ACDR	Well, 9 days of superclean living and - -
	CC-H	Your comm's cutting out on you there. I didn't get all of that.
	ACDR	I said, "9 days of good, clean living and " - -
	CC-H	All I got was the "good, clean living," which we all need to participate in a little bit, but your comm was cutting in and out.
	ACDR	Roger. How do you read now?
11 44 05	CC-H	I'm reading that good.
	ACDR	Okay - -
	CC-H	There you went again. We're dropping in and out of the site, I've been told, if you're reading.
	CMP	All right.
11 44 30	CC-H	Tom, I understand - your downlink apparently is breaking in and out at the site, but I understand my uplink is okay. For your information, the way we're going to handle this upcoming press conference is that when we initially acquire you on the ATS, we're going to take about 5 or 6 minutes there to make sure we got everything set up and give you a comm check with each of you guys, and then we'll be turning it over to the press, which is going to be assembled over in the auditorium in building 2. And they will be directing questions at each of you individually. And they - we have slipped the thing down so that we have that initial time to set it up, and when we

finish with - I believe what they got there is something like a half hour - I'll go ahead and take it back. And I'll be available to you any time in between there if you need to talk at me.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

11 45 17	ACDR	Sounds good, Crip. Thank you.
	CC-H	Okay; we're going to lose you in 1 minute, and we'll see you again. Even though it's not called for in your Flight Plan, we'll see you at Vanguard in about 9 minutes from now. The reason for that, of course, as I told you the other day, she's underway and going toward Sydney.
	ACDR	Okay. A little bonus communication with you here.
11 47 44	CC-H	Rog. And a little liberty for the guys out at Vanguard.
11 57 38	CC-H	Apollo, Houston. We are AOS Vanguard. Have you for 6 minutes.
	CMP	Okay. We're here.
	CC-H	Didn't think you'd run away. At least, I hoped you hadn't.
	CMP	...
	CC-H	I couldn't copy that. You were kind of - kind of whispering at me there.
	DMP	Still flying in orbit.
	CC-H	Still flying in orbit. Very good.
	CC-H	Getting close, though, you guys. About all the fun's about to come to an end here tomorrow.
	CMP	That's right.
	CC-H	Hey, while I'm standing by here - I don't know whether you got a report or not, but that last pad you guys ran for that special target, we ended up getting 10 good minutes of X-ray data out of that thing, where, you know, we weren't switching it on and off. It worked great and came out real fine. Appreciate all the work you guys did. The PIs are real enthusiastic about it.

ACDR Well, I guess that's good. And you tell them hello. And I hope that all the data comes out and they get some good discoveries.

CC-H Rog. Well, they - they're looking forward to it now - to going ahead and sitting down and going through all this data. But, tentatively, it looks very good.

12 02 23 CC-H Apollo, Houston. We are 1 minute from LOS. And our next station contact will be Santiago in 17 minutes.

CC-H That's about 57 after the hour.

12 19 03 ACDR Hello, Houston, Apollo from Santiago. How do you read?

CC-H Loud and clear, Tom. We're with you for about 5 minutes here.

ACDR Okay. You've got S-band down at Santiago?

CC-H That's affirm. S-band only. No VHF.

ACDR Okay. Well, I think we've got this spacecraft all stowed and cleaned up in a hurry here. Looks like a big, roomy spacecraft compared to what it's been looking like for the last 9 days.

CC-H Well, that's good to hear you guys got up and did a little housekeeping this morning. I assume that's why you wanted to get up a little bit early. Before we get started in the press conference, I might - would like to go ahead and get that WASTE STOWAGE VENT valve, CLOSED, and that way we'll avoid any C&Ws from a high O_2 flow, we hope, during the thing. We'll probably be asking you to open it up again after the conference because we haven't completed the purge.

CMP Okay.

ACDR Okay. You're just going to keep that open, and that's what you're going to call the purge in for a while. Right?

CC-H That's affirm. We're - we're purging by just opening that vent up. That - that allows us to purge through the CM REGs. One item I might mention here, Tom. I

think you guys said hello to the people in Quito the other day. We're now passing over Santiago, of course, and this is the first manned mission that these guys have supported, and they're standing down there listening if you guys might want to say hello to them this morning.

12 20 28 ACDR Sure; glad to. Deke's up in the docking module. In fact, he said he visited, but we would like to say hello to all the good people in Chile and thank you so very much for all your support and help on the mission.

CMP You have a beautiful country down there. Especially - We can see your Andes very well; just white, very rugged, beautiful from this altitude.

DMP Good morning down there, guys. I wish I was back there with you one of these days after seeing all the good work you're doing for us. Really enjoyed the one time I spent with you and hope to get back again some day.

12 21 02 ACDR It really is a beautiful view to come across the Pacific and see your country move into the Andes and on over. We've taken a whole lot of pictures and - of your country - and we hope that we can have some to show you, and maybe visit there someday.

DMP Give the mayor and the fire department my regards.

CC-H Sounds to me like you're trying to work up another trip there, Deke and Tom.

ACDR Very smart, old buddy.

CC-H Why not, why not. I'm sure those guys appreciate hearing from you, but it looks like you're just now coming across the - across the coast. Sounds like a beautiful view.

ACDR Yeah, it is.

ACDR We also hope that we've gotten a lot of pictures there for the people of Chile to help them on their resources and fishing.

CC-H Very good.

12 26 00	CC-H	Apollo, Houston. How do you read through the ATS?
	ACDR	Roger. Read you loud and clear through the ATS. How us?
	CC-H	Okay. We - pretty good. We've got a little static in the background here we'll try - try to clear up. And we dropped out there due to the anomaly change, apparently. And we've got a good TV picture coming in here now. Let's take a look at it. And why don't you - if you can, I'd like to just get a short count out of each of you, if you can, when you get into position.
	ACDR	Roger. 1, 2, 3, 4, 5.
	CMP	1, 2, 3, 4, 5.
	DMP	1, 2, 3, 4, 5.
	CC-H	Okay; all three of those came in - came in good. And let us work on the TV picture here just a little bit.
	CC-H	Deke, you look awful pretty there upside down to us, but it's disorienting everybody here on the ground. Could we - could we talk you into turning over? Is there - is there enough room for you get straight that way?
12 27 25	DMP	Well, we'll try it. I'm not sure.
	CC-H	Going to give all of us vertigo.
	CC-H	You guys look all cleaned up and spiffy. Could - wouldn't have believed you've been up there for 9 days.
	ACDR	Well, we're bright-eyed and bushy-tailed this morning, Crip. Ready to go.
	CC-H	Very good.
	ACDR	Cleaned the house, and everybody had a shave and what all.
	CC-H	Rog. Twinkle toes there.
	CC-H	Kind of hard to squeeze in there.

DMP Yeah, I'm competing with the hatch cover here.

CC-H Understand.

CC-H No room for your feet.

12 29 23 CC-H Okay, Vance. The - the only - only thing is when - Over in your corner there, it's - the light kind of - there's not very much on your face. I don't know, it's like - Yeah, that's great right there, if you can do that. That's beautiful. Well, if - if you guys are all ready?

ACDR We're ready.

12 30 24 CC-H Okay. You guys look like you're all set up and - and ready, and I'm going to go ahead and turn it over to the gents over in building 2. It's over to the press.

ACDR Sounds good. See you later, Crip.

MCC-H We're ready to begin now. Questions, please. Howard Benedict, AP.

PRESS First, congratulations to all of you on a super mission. And my question is for Commander Stafford. When you splash down tomorrow, it will mark the end of an era in the U.S. manned space program. You, Tom, have been a part of that program for many years. How do you personally feel? Do you have any regrets about the closing of this chapter in space exploration?

ACDR Well, first, good morning, Howard. I think it's great of you guys to get up this early in the morning to say - to come up here and ask questions. (Laughter) Yeah, it's been a - To me, it's been a great number of years here; I enjoyed every bit of it. Certainly there's a lot of nostalgia in seeing Apollo - the end of Apollo; however, I think we are opening a new era, with respect to the Shuttle, where space can have more utility, bring more benefits to man. It's going to be a quiet program for a couple of years, but down the road, I - things are going to be great too, except it's just going to be a couple of years without some manned space flights. Over.

MCC-H Bruce Hicks, UPI.

12 31 44 PRESS Vance Brand. This was your first flight, but you've said very little about your personal feelings. Could you now describe those personal feelings of the mission?

CMP Well, it's - in a nut shell, the greatest experience I ever had. It's just been super. Things up here are - are really thrilling. It started with the launch. I'll never forget that. And seeing the Earth - seeing the Earth from up here at this altitude, just a fantastic thing. The experiences of zero-g and, of course, the prime things in the mission have all been a lot of fun, and - but that includes docking, getting together with the Russians for 2 days, and everything else we've been doing ever since. It's just been super.

MCC-H Jules Bergman, ABC.

PRESS For Tom Stafford. Tom, do you feel the mission was worth the 225-million-dollar cost? And if so, if the NASA budget allowed, would another such joint mission with existing hardware be worth the cost?

12 32 53 ACDR Good morning, Jules. Well, I think we actually - keeping under our budget by about 20 million dollars, so I think it was about 230. The - Was the mission worth the cost? Yes. I think definitely so. It did put together a new mechanism for both the countries, and they both contributed equally to it as far as rendezvous for rescue. And the main item it can show that, in spite of great political differences, that if people meet commitments, that a lot of effort can be achieved. So I would say, yes, it was certainly worth the effort on both sides. And as far as Glynn Lunney and a lot of us can see, it cost them as much or more than it did us, as far as actual funds. As far as another mission, I think we'll have to review how - all the impacts of this one, and just look at that in the future, Jules. Over.

MCC-H Shepard, NBC.

12 33 47 PRESS This question is for Slayton from the pilot of MR3. Now that you've had a chance actually to fly in the spacecraft after 16 years of waiting on the ground, was it really worth it? And tell me, how does it feel to fly without rudder pedals?

DMP Really didn't, Al, I had them there. Now to answer your question, it feels great. The only thing that upsets me is having to miss all this fun for the last 16 years. You've known for that long how much fun it was, and all I've done is sit back and listen to you guys talk about it. Never believed it was quite as great as it really is. I don't think there's any way you can really express it, Al, as you well know. I think Vance covered it pretty well. Everything from the lift-off up to this point has just been super. And we know we have to come back tomorrow, and I'm not sure I'm looking forward to it.

MCC-H Nelson Benton, CBS.

PRESS This is for General Stafford. Tom, did the time taken for the ceremonial parts for docked activity - had that time been spent otherwise, would more have been accomplished during the docked phase of the flight?

12 34 57 ACDR If the ceremonial time had been - other things - well, actually, we concluded five joint experiments with the Soviet crew and tested out the docking mechanism and modes and also the other efforts. The ceremonial time I think amounted just to a very, very small segment of time. And, as you know, we got a lot of scientific data here in the solo flight. We got a lot while we were there with them in a dual flight. So, I think the time allocation was pretty good.

MCC-H Nick Chriss, LA Times.

PRESS Commander Stafford, you've had a very compressed time line. I wonder if you could describe for us briefly, perhaps the crew's most difficult moments thus far on this flight.

ACDR Well, as far as difficult moment, I don't know. We've had some - we've had some trying moments, in the way we've taken the Apollo spacecraft and all this extra scientific apparatus onboard, and then try to make it into a little bit of an effort of a minor TV studio, so we could show the world what it was like in space when the Russian crew was over here. I think really one of the - I heard Vance

and Deke comment on too - was to get this little bitty spacecraft stowed away with all this gear onboard so it looked halfway decent. I mean, it was, as you say, a real bundle of snakes here. Deke?

12 36 20 DMP Yeah, I think probably the - there's no one thing that was any great difficulty. The one overall thing that is the perpetual problem, as Tom said, is the housekeeping problems. And that's again the thing we've heard about from everybody that's ever flown, but, again, you can't appreciate it until you're here. And everything that you drop floats off somewhere, and you got to chase it. Then it seems to find the most hidden cranny to deposit itself in. And meals, which are a really mundane thing on Earth with the same equipment up here, just take about three times as long to prepare, eat, and dispose of. Other than that, it's been super.

CMP Plus we need a traffic cop up here to direct who's going to go through which way, when. It seems like we're always bumping into each other and trying to get into the same locker, and it's really a pretty small volume up here. So that - that all works together to sometimes give minor frustration.

ACDR And we've had some long 16-hour days, one after another. Maybe 16 plus quite a few hours, but everything is going off great, and we feel in good shape. But I'm - Working around in this little place with all this gear on has really been a bear.

DMP I think the flight planners did a super job to get this thing laid out as well as they did. There's really no way you can do any better, except to just get up here and work it out in real time.

12 37 44 MCC-H John Wilford, New York Times.

PRESS For Vance Brand. For the last couple of days, you've been busy with scientific experiments. Could you tell us, are you up to date on everything? Are you behind on some of the experiments? Just what is the status of your experiments?

CMP Well, we've been going right down the Flight Plan. And we have most of them out of the way. Still remaining, of course, is the Doppler experiment,

which - mainly the work today. It involves kicking off the docking module this afternoon, sometime around 2:30, Houston time, I believe, and, after that, performing two engine burns to get spacing on the docking module. And after that, we will be measuring relative velocity between the docking module and our vehicle to, basically, get a better feel for the minor gravity fields around the Earth and find out where the big heavy land masses are - where the heavy things are that are equivalent to mascons on the Moon. So, that's the main thing. After that, it's medical tests back on the ground.

12 39 04 MCC-H Albert Bobikov, Tass.

PRESS (For some sakes, I'll repeat it. All of us saw a good job together with the Soyuz cosmonauts in space. How did the preparation between the two countries - between the specialists here in the U.S. and the U.S.S.R. help you in joint - in joint preparations in space?)

ACDR (We have had more of it on the Earth. Yes, I think we had 2 nice years. We started working together - engineers, cosmonauts, engineers, and technicians; everything went so very well, though sometimes it was very difficult.)

DMP (Yes, I think that the cooperation in space is the best cooperation in the world.)

ACDR (Roger. We worked with the cosmonauts and we performed five joint experiments and now we have become good friends. I think that our cooperation is very good. We have had an excellent relationship and a good experience.)

CMP (Most important, we accomplished the docking. The docking was successful, and the rendezvous was successful. We have worked together 2 days. This was also successful.)

MCC-H We'll get a transcript of that in English. Next, Mary Bobb, Reuters.

12 41 35 PRESS All of you three have done an absolutely super job. For Tom: How does this compare with your other missions? For Deke: Is it tougher or easier than

you thought? And for Vance: Will you have any words of wisdom to the pilots of the Shuttle?

ACDR Good morning, Mary. What kind of a hat are you wearing this morning? Well, compared to our other three missions, this one was completely different, in one sense, you know, working for the period of time. And that's a lot of the fun of a mission is working on it before you fly with the Soviets. The rendezvous was somewhat similar, but the actual docking, the new mechanism, was different. The transfer back and forth was different, and all that, and the training. So, it was one heck of a lot of fun, and there's a lot of trying efforts, but a lot of fun. And it was a different type of mission in a way. Yes. Deke.

DMP Well, Mary, to answer your question about how tough or easy it was from a physical point of view, I haven't done anything my 91-year-old aunt up in Wisconsin couldn't have done equally well. I think as far as the flight's concerned, it was probably easier than the training, mostly because we had a very nominal flight. The spacecraft hardware's all performed superbly; we had absolutely no problems of consequence. And we never run a simulation, of course, without having a barrel of problems, so it's been a very easy flight, all in all, and a very enjoyable one.

12 43 08 CMP And I believe your question, Mary, to me was what would I - what words would I say to the Shuttle pilots coming up as a result of my experience on this flight. Well, I would say when you - I would direct my comment mainly in the area of spacecraft design, because right now they are designing a spacecraft and having it built. They're near the design phase, but I think that this vehicle has given us so much confidence just because it purrs right along, and it seems to be a vehicle that we can - we can fly. Actually, it's - it's like riding a bicycle. We can fly this thing like you ride a bicycle; the man is part of the machine. And I hope that the pilots of Shuttle will do all they can to make the Shuttle the same sort of a vehicle - that is, one that uses the best of machinery and the best of man, puts them together to come up with a vehicle that they can have a lot of confidence in, just like we have confidence in this one.

MCC-H Peter Reich, Chicago Tribune.

PRESS Good morning, gentlemen. General Stafford. 15 years ago, no man had been in space. Now 12 Americans have walked on the Moon, and a Russian and American spaceship have linked up in orbit. What will the next 15 years hold, sir?

12 44 37 ACDR Well, we're predicting, and I think everybody that - has been, worked in the business, like Deke and Vance and I have - that space is going to become more and more a medium to work - and it can benefit the people on Earth. It won't be like an airline - probably ever, for a long time to come. But we hope, with the future technology we're developing now, that a lot of great things can be accomplished. It'll cost us far less per pound to go into space - that we can bring bring back some great benefits, as far as Earth resources, manufacturing, and all those types of data. So after, say, a quiet period - for say, 4 to 5 years - then you're going to see space become a more and more - a somewhat routine-type operation. Where we'll be at the end of 15 years, would be very difficult to say, though.

MCC-H Lydia Dotto, Toronto Globe.

PRESS Question for Commander Stafford. I would like you to comment on how well you thought you handled Russian during the mission, and whether you think this would be a practical way of doing things in the future, or whether you think there will eventually be a single official language used in space, as it is in aviation - when people from various countries around the world start flying.

12 45 53 ACDR Well, I guess - I think, the whole crew handled the Russian language very well during the mission. I know, at least, all our commands were understoood. And I think that the Soviets did a good job with English. And a couple of times, things would come from the Control Center that - relay over. We'd tell them - what - that their Control Center wanted to talk to them, and instantly, they'd take care of it. So, everything went off beautiful. And I think all our thoughts that we wanted to get over to them were conveyed. As far as a universal language, and this has been kicked around for a while, but I can't see it on the horizon. I don't know, Deke, or Vance?

DMP Well, there's been discussion over the years about Esperanto. In fact, it came up here recently in this mission. But I think, if you're talking about a multinational program, where you have a number of languages involved, probably something like that would be desirable. I think, however, for a mission like we just - are in the process of completing, where there are only two countries and two languages, this is probably the way to go. Although, I have to admit, we surely spent a lot of man-hours on language training. Probably at least a third of our total training was on language. I can understand it.

MMC-H Al Slagle, New York Daily News.

12 47 08 PRESS Stafford, what do you consider the single most important accomplishment, for both countries, of this mission?

ACDR Well, I guess the single most important accomplishment is the fact that - it shows that the people of both countries - that we've worked together on a very difficult and a tedious task over a prolonged period of time; that we've ac - successfully accomplished this task; that if the same dedication, the same commitment, to meet outlined goals and commitments, is carried forth - there's probably considerable other efforts that can be carried forward, that can benefit a lot of people. But both the commitment and the actual deeds have to be there. But that, to me, is probably as significant as - even more significant that actually proving out the new docking mechanism.

12 48 02 MCC-H Reg Turnill, BBC.

PRESS Oh - for Deke Slayton. After 16 years experience of American doctors, Deke, did you find it reassuring to have a Royal Air Force doctor in Mission Control?

DMP Yes, sir. He's a very fine doctor, too. We appreciated all the support we've gotten from your folks.

MCC-H Craig Covalt.

CMP He's only been with us for a short time, but we sure think he's a great guy.

MCC-H Craig Covalt, Av[iation] Week.

12 48 37 PRESS For Tom Stafford. From a piloting standpoint, the crew has done some very precise flying in the last few days, on the dockings and, especially, with Deke's UVA maneuvers. As pilots, how difficult has this mission been to fly, with Apollo's maneuvering capability, compared to how difficult y'all thought it'd be, prior to lift-off?

ACDR Well, the - We had some great simulations, Craig. But we found that - actual flying it - it was actually, in some ways - the handling characteristics of the vehicle - was a little bit better than the simulator, because of the - some of the visual presentations. You do - you do have a lot more cues in orbit like, the night time - the way the stars move, even. You know we had that in the simulator, but - the night horizon and all that. So, I thought the actual flying task itself was a little easier in flight than what we experienced in simulation. Needless to say, all three of us have a test pilot background, flight test experience, and it's always great fun to fly. Deke?

DMP Yeah. I think Tom said it on the head. Our simulator visuals have never been the greatest. It's almost impossible to make them good, you know, perfect. And, so your visual cues are great, however comparatively. And, of course, the vehicle dynamics are always pure, which they are not always in the simulation. So I think, generally, it is easier and straightforward, and never any doubt at all about where you're going and what you're doing. We got into a couple of problems on the UVA with switch configurations trying to get cranked up to go. But other than that, everything was perfect in terms of the flying part of it. It was comparatively easy.

MCC-H Laszlo Dosa, USIA.

12 50 20 PRESS General Stafford, has this mission improved the chances for a future international manned flight to Mars?

ACDR Well, that's a difficult question. I'll say definately that it has. But the - the main thing, as far as any future flight to a distant planet like

that - that's going to - The big problem there is funding. We know how to do it, as far as going to Mars and what we developed on the Apollo. Our country certainly has the techniques. As far as - I would think that probably either - any flight like that would probably be of an international nature. The one thing we have - like onboard the Apollo spacecraft, just besides, you know, the joint mission of docking with the Soviets, we have two German biomedical experiments, and over the past period of time we've we've always cooperated with other countries as far as helping them take their payloads into space, and it's going to be bigger in the future.

MCC-H Jacques Tizlott.

12 51 23 PRESS This is a question for Vance, since - since he has spent 2 years in Europe. Vance, how do you foresee a form of space cooperation between the United States, the Soviet Union, and Western Europe?

CMP Jacques, you say, have I thought of that particular thought? Or idea? I'm not sure I got the question completely.

MCC-H Jacques, would you repeat the question, please?

PRESS Vance, how do you foresee some form of space cooperation that would involve the Soviet Union, the United States, and Western Europe?

12 52 07 CMP Well, I would guess that, that's certainly a possibility but I'm not in a very good position to think that one out. It's - I think it's desirable that the - the whole world tends toward cooperation in space, really. And I guess we've had the first step here with the U.S. and the Soviet Union.

MCC-H Harry Pease, Milwaukee Journal.

PRESS Cris Kraft - this is for Deke. Cris Kraft is quoted today as saying that you'll be offered an opportunity to direct the horizontal test of the Shuttle, and that you'll be considered as a pilot for it. What's your reaction to that?

12 52 51 DMP Good morning, Harry. How are you doing? We saw Milwaukee for you yesterday. Yeah, to answer to

your question - I'm looking forward to working on the Shuttle, or anything else that NASA management wants me to do. And, of course, that's the next program. I look forward to it as being a challenge, and I like to fly anything and everything. And if - if I get a chance to fly that beauty, I'll certainly be happy.

MCC-H The gentleman here.

PRESS Roger Norum with the United Press International Audio Network. A question to Vance Brand. You've been in space more than a week now. Would you encourage the idea of having women astronauts on future long space trips? Is so, why? If not, why?

12 53 40 CMP We were laughing because I think we've heard the question before. Well, I'll try to give a fresh viewpoint on it. I certainly think that in the years to come that we'll have women in space. It should - it should work great, as long as everything is designed properly to have women in space. By that, I mean, this particular cabin with a mixed crew wouldn't work; it's too small and it doesn't have the proper facilities, or even any kind of separation. But - I think - the first good chance for women in space would be in the Shuttle area - era. And probably in the - in the experiments area, but we'll have to wait and see what happens.

MCC-H Angus Macpherson.

PRESS General Stafford. Short of Mars, which everyone seems to agree is a long way off, do you have any specific thoughts on specific undertakings, which your two nations might get together on in space? And have you - did you discuss this at all with Colonel Leonov?

12 54 53 ACDR No. The main thing on - on this mission; we had to put all our efforts and our thoughts and everything just to concentrate on - on getting this one done perfectly, which I think has been pretty much accomplished. The future thoughts, we are having negotiations with the Soviet Union. Dr. Fletcher has been over there; George Low talking with the Academy of Science. As far as with other countries, our - as you know, the nine European countries are

building the ESRO Spacelab and that will fly in the Shuttle. And in that one - there will be a whole series of European "astronauts" that'll be flying in the Shuttle working on the lab and that should take place in the early 1980's. Over.

MCC-H Harriet Shelare.

12 53 46 PRESS For Deke Slayton. Last month in a press conference here in Houston, you made some remarks that were critical of the Soviet Government. Was there any reaction by the cosmonauts or discussion of these remarks during the flight?

DMP No. I don't know what else to say about that question. I didn't mean to give you a smart answer, but no, there's not been any discussion on the part of the cosmonauts. As a matter of fact, on the part of anybody else since I made those comments, other than the following day's press conferences.

MCC-H Gentleman in the first row.

PRESS Deke, have you seen Salyut?

DMP Negative.

MCC-H Gentleman back here in the blue sports jacket.

PRESS Can you tell me if any one of you, or all of you could answer this, plan to do any work for increased funding for NASA?

12 56 53 DMP Certainly. We've been doing that for about 15 years and I would expect to continue to doing that.

CC-H I believe there's - -

ACDR Well, we're not officially lobbyists, but I think basically all of us are - believe that the increase in science and technology is going to help all the people, so how you get - how you apply that actually takes fundings.

CMP You better believe we'll - I'll try to do my best. I believe in it.

MCC-H Everly Driscoll.

PRESS For Deke Slayton. We realize you haven't had much time for a philosophical reflection, so off the top of you head, what sight, sound, or feeling has made the most vivid impression on you during the mission?

12 57 44 DMP Good morning, Everly. Well, that's kind of difficult to answer. It's been a very complex situation. I guess to start with - with, the launch was super. I - I was expecting something a little different, I guess. It was just like a real fantastic super-powered airplane taking off into a big Immelmann. And of course, when we shot off into orbit, we didn't have much of a chance to look around, but that first view out the window was unbelievable. In fact, every time I look out the window it's kind of hard to believe; it's just - just fantastic scenery in every direction anytime we're in daylight. Flying around the Soyuz, of course, was also very interesting. And, to kind of philosophize about any of this, I guess we've been too busy to play the philosophical game yet. We may sit back and think, when we get on the ground, a little bit more.

MCC-H Vic McElheny, New York Times.

PRESS General Stafford. Is there anything unusual or tricky about getting rid of the docking module this afternoon; anything that's bothering you about it?

12 58 49 ACDR Well, no, we're not anticipating any problems. The crew - we have simulated in our simulator quite a few times and that's - we'll use an explosive device after we've had a rate going like this to spin it off. If that doesn't work, we also have a backup mechanism, using the probe and drogue we can release it. But we're not anticipating any problems. It's a - it's a precise flying maneuver, but I don't think there'll be any problems with it. In fact, we were - I think all of us are going to hate to see the docking module go. It's been a real friend to us. It's - it's - we use it as a bedroom, a transfer tunnel, as an airlock, an exercise room, and a few other things.

CMP And a store room and an attic, right now.

ACDR We'll hate to see it go.

MCC-H Gentlemen, here.

PRESS Nigel Wade, with the London Telegraph. For Deke Slayton. If you do get to fly the Shuttle, would you be willing to take up a group of the press?

12 59 45 DMP Certainly, I'd be happy to. I think that'd be great to get all you folks up here. This - cause there's no way we can sit up here and tell you about it, or come back down there and tell you about it. And I think it'd be beautiful to bring you up here and show you.

MCC-H Now this may be the last question. Hans Meier.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

13 00 03 PRESS Hans Meier from RIAS; West Berlin. Deke Slayton, you are right now a senior pilot in space. What can you say about the prospects, the future prospects, of elderly people in space, according to your personal experience right now, in space as pilots and as passengers. Would it be perhaps the same age limit as in aviation?

DMP Well, yes. In my opinion, as far as flightcrews in space are concerned, I see no reason to use any different criteria to speak of than we use for commerical airline people. As long as people are technically qualified and can pass the physical, that should be the only criteria. I think as far as passengers are concerned, I see no reason why esentially anybody down there that wants to come to space can't come to space, especially in the Shuttle. The g-loadings are very low on both launch and reentry. And - and I wasn't kidding when I said earlier that I thought my 91-year-old aunt in Wisconsin could come up and do this job physically. I believe - I really believe she can. And I believe anybody else down there can.

MCC-H Final question, and a short one, please, Bergman, ABC.

PRESS Tom, the Soyuz portion of the flight has come and gone. How do you feel now about the charges by a certain U.S. Senator that Soyuz was a deathtrap, that your flight had no scientific value, that the Russians couldn't control two spacecraft at once?

13 01 34 ACDR Well, remember we discussed that, Jules, in the press conference before, and having worked in detail with the - those people for 2 years, they certainly have a great capability. They're putting a lot of their resources into space exploration in the Soviet Union, and we'd been all through Soyuz, and also we'd ask them for a safety analysis. And they - They'd shown us their systems and all that and we actually had no problems. It sounded like, possibly that - no doubt,

Apollo-Soyuz was great headlines. Maybe somebody wanted to grab ahold of some action there, but the Soyuz looked solid as a rock just like we said it would be - like we inspected it at Baykonur, at the launch site. And it performed as they said it would. And as far as the - commanding control, they had absolutely no problems. So it's like you and I discussed earlier, Jules. Everything was right there and there was no problem.

13 02 27 MCC-H Tom, Deke, Vance, thank you very much. We'll look forward to seeing you at the postmission press conference. Thank you, ladies and gentlemen.

ACDR Real good.

DMP Thank you.

ACDR Thank all of you.

DMP (We'll see each other back on Earth.)

ACDR Maybe next time we can have it upstairs in space.

CC-H Hey, you guys did a great job there. Professional as always.

ACDR Thank you, Crip. And now, back to work ...

CC-H Rog.

ACDR Where were we?

CC-H Imagine it's time for a little breakfast.

ACDR And we'll get this thing reconfigured here.

13 02 59 CC-H Okay. We could also take that WASTE STOWAGE VENT valve back to VENT now and - and continue the venting. Incidentally, Mary was wearing an ASTP ballcap.

ACDR Oh, good. I knew Mary would have to be wearing some kind of a cap there, so tell her "Hi," again.

13 03 17 CMP Okay, Crip. And we performed the action of OVERBOARD DRAIN to DUMP.

CC-H Okay.

DMP Hey, Crip, is there any reason I can't continue with this furnace? I meant to ask you over Santiago, but it's all ended out. And we'd just as soon get ahead on that one a little bit, if we can.

13 03 36 CC-H No. You - you - you're GO to go ahead and continue that. Incidentally, Deke, I mentioned earlier to Vance with that - in doing the vent valve open for me, it's - we're deleting your DM/CM O_2 purge that was scheduled later due to the quantity of O_2 that we got left in the DM.

DMP Okay.

CMP Okay, Crip. We're going to have to start moving some things around, so I'll turn off the TV about now and start packing up a little bit, if that's okay with you.

CC-H That's fine. We're all through with it. Appreciate all - -

CMP ... on, Deke. I'll get it right here.

CC-H - - appreciate all the efforts you guys got - went to to make that come off so well. It really looked **good** from down here.

ACDR ... - -

CMP It was a lot of fun.

ACDR - - thank you for helping coordinate the whole thing, Crip, and all the guys down on the ground.

13 04 51 CC-H Vance, awhile ago you said you were opening up the DUMP DRAIN valve and some - if that's the case, then you're still dumping urine. If - when you finish with that, we can have the WASTE STOWAGE VENT valve to open so we can tell you the cabin purge.

ACDR And, again, you said we are venting the DM/CM O_2 purge.

	CMP	Okay. Correct that.
	CC-H	We are not doing the CM/DM O_2 purge. That is - that is scrubbed.
	ACDR	Roger.
	DMP	Hey, Crip, could you check our furnace samples? I'm not sure we went through all of these. Seems to me like we've missed one. We've got 044 in there now.
	CC-H	Okay. Guys, we're still on - we're on hot mike, apparently.
	DMP	Okay.
13 05 53	CC-H	And for Vance's information, we're getting through all the furnace samples, we think, except the symbolic sample, which we don't have time to do.
	CMP	Okay, we'll pass that to Deke.
	DMP	I'm on the line here. I can hear you.
	CC-H	Okeydoke.
13 17 44	CC-H	Apollo, Houston. We're about ready to lose you on the ATS and we have you again in, oh, a little over 7 minutes at Orroral. And it'd probably be easier just to go ahead and pick up the - the morning report over the next ATS pass; that's the next long duration. We'll try to get it somewhere in there.
	ACDR	Okay.
13 18 06	CC-H	Before I'm going over the hill, let me tell you some - some great news. I was just informed that yesterday Alexey made General.
13 25 53	CC-H	Apollo, Houston. With you through Orroral for 3 minutes.
	ACDR	You cut out - just as you went over the hill before. Would you repeat that last transmission?

CC-H Okay. I was just telling you, I don't - don't think that news had been passed up yet, that - just informed that yesterday Alexey made General.

ACDR Well, real good. You can tell him "Congratulations."

DMP Yeah, congratulate him for us.

CC-H Rog.

CMP Really glad to hear it. Guess everybody thought that might be a possibility.

CC-H Roger.

13 27 11 CC-H Been looking ahead here at the - the time line today. It - you guys may be trying to - to get ahead on a few things. So want to warn you about a couple of items. I was going to ask, Tom, for you to modify slightly how you were going to take the picture of the fish. In - in addition to what you normally take, we were going to ask that the portable light be placed off about 45 degrees from - on either side, to get some pictures like that to see if the - if the fish try to reorient to follow the light a little bit. We can talk about that a little bit further when you do it. Also, we're going to make a stowage modification to bring back a couple of the LiOH canisters that were installed at the time that you guys - with that funny odor up there - just before the initial docking. And I can get that to you a little bit later. Just wanted to tell you, in case you were trying to get ahead of me, there.

ACDR Okay.

DMP You might pass on to the Granola experts down there that they taste as good up here as they do down there.

CC-H Couldn't copy that, Deke. What tastes as good?

DMP Granolies.

CC-H Granolies! Very good. We're about a minute from LOS and next station contact will be through Quito in 28 minutes. See you there.

	ACDR	Okay.
13 28 54	CC-H	Have a long rest period for both of us to get some breakfast.
13 57 31	CC-H	Apollo, Houston. We're AOS at Quito for a minute and a half.
	CMP	Okay, Crip. Got you loud and clear.
	CC-H	Okay. I'm informed that I should call it "Key-to" and not "Kwe-to," as I've been doing.
	CMP	Okay. Hey, and just wanted to make one comment before I forgot. You might tell the food people that these food trays really are neat. They really are just the thing we need up here to keep our meals on. They're designed very well.
	CC-H	Well, that's a good comment. I'm sure they'd - be good to hear it. Where y'all are, sort of putting them up on the main display console?
	CMP	That's right. Uh-huh.
13 58 13	CC-H	Great. Incidentally, we had a waste water dump scheduled for Tom upcoming here, and we want to delete that since we are running the secondary evap and using the water.
13 58 25	CMP	Yeah, looked like we were down somewhere around 60 now on our fluctuating gage.
	CC-H	Okay.
13 59 39	CC-H	Okay, we're going over the hill here, and I'll pick you up on the ATS shortly.
14 05 06	CC-H	Apollo, Houston. We're AOS through the ATS. Got you for 51 minutes.
	CC-H	Apollo, Houston. We're AOS through the ATS. Got you for about 50 minutes.
	DMP	Okay, Crip. Got you.

CC-H Okay, Deke.

DMP Okay, did you have some special instructions for us on the fish? We missed it there, I guess.

14 06 09 CC-H No, all I wanted to do was to warn you that I did have some instructions. Basically, when Tom or whoever takes the - takes the pictures of them today, we would like to - in addition to the normal pictures we get, we would like to remove the portable light from the camera and hold it off at about a 45-degree angle on either side and get some photos that way to see if we can get the fish reorienting to the light.

ACDR Okay.

CC-H Okay.

ACDR You said you want *** on either side, huh?

CC-H Yes, sir, if we could. It's probably going to require two guys to do that, of course.

14 06 49 ACDR Yeah, Deke and I will. I don't know whether I ever told those guys down there or not, Crip, but all of those fish were orientating to the bottom of the package, what would be the colored side, I guess is the best way to explain it; there isn't any bottom.

CC-H Very good. I guess then they would be interested to know if moving the light over from an angle like that makes any difference to them.

ACDR I've been doing a lot of that. It doesn't seem to, but we'll get some pictures of it, anyway.

14 07 28 CC-H Okay. That'd be very interesting because I think, you know that that is one of the sensory mechanisms of the fish to - to reorient in that manner. Not being a - -

ACDR Copy.

CC-H - - being a - being a fish expert, of course.

ACDR I hate to admit it, but neither am I.

CC-H Oh, now, I know better than that. I've seen you bring too many in.

CC-H Apollo, Houston. When somebody gets a chance, if we could have ACCEPT, we'll go ahead and update your state vector.

14 09 21 ACDR Okay. You got it.

CC-H Coming at you.

CC-H Deke, wonder if this might be a good place to give this modification I was talking to you about on the LiOH cans, so you can get it noted down in your book and work it. We'll need the DM Checklist to do that.

DMP Okay. You need a DM Checklist. Stand by. I'll tell you if I could - I'll write it down in the Flight Plan here and then transfer it. How's that?

CC-H That's fine or we can hold up until you're working, as far as I'm concerned. It's no big deal.

DMP Okay.

14 11 55 CC-H Okay. The update's complete, and you guys can have the DSKY back and go back to BLOCK.

ACDR Okay.

CC-H Apollo, Houston. We see that we haven't powered down the experiments - SIM bay experiments yet. Like to go ahead and do this now, if we could.

ACDR Okay. Stand by, Crip. We're kind of milling around here between the DM ... everybody getting things sorted out.

CC-H Okay. We see them coming down. Appreciate it.

ACDR And do you want that X-ray purged at all?

CC-H Negative. We do not.

14 13 11 CC-H What we're bringing them down for now is this fuel-cell purge, and you might note down there a little bit later, about 194:25, we ask you to bring them back up again. One little mod we're going to ask there - When we bring them back up, we're going to take the EUV on detector 1 vice 2. And I'll remind you of it there.

ACDR Okay.

ACDR Okay, Crip. I'm ready to copy on the Docking Module Checklist.

CC-H Okay. If you'll flip over to page 13-1.

ACDR Okay. We're there.

14 18 48 CC-H Okay. Just two items. Anywhere under that first part there when you first start, let me tell you what we're doing to do and you can note it however you want to. We've currently got LiOH cans number 15 and 16 in B-6. And we have number - cans number 5 and 6 in D-4. What we want to do is exchange those so that we end up coming back with 5 and 6 in B-6. And we throw away 15 and 16 in D-4 with the docking module. Is that clear?

ACDR Yeah, I think so. 15 and 16 are now in B-6. You want those transferred to D-4 and replace them with numbers 5 and number 6, which is currently in D-4.

CC-H That's affirm.

ACDR Okay.

CC-H Okay. And the other item is over in the right-hand column there, I guess, under the load jettison stowage bag and stuff that Vance is going to do. In the TSB in the right-hand equipment bay, it tells him to put the cabin vent QD. We're going to leave that on due to this extra venting that we're having to do and we're just - unless it gets in you guys' road, we're just going to leave it on for entry. No need to remove it, so we're not planning on throwing that away.

ACDR Okay.

14 20 13	CC-H	Okay. That's really - really all I needed to modify. To understand - to help us understand what we're doing a little bit better on the purging, we would like to under - to know whether you're currently running with two suit hoses or one suit hose into the DM?
	ACDR	Just one.
	CC-H	Just one. Oh - okay, fine.
14 24 07	CC-H	Apollo, Houston. Whenever somebody can get around to it, we're also standing by for the morning report down here.
	DMP	Okay. Stand by. We haven't quite gotten around to working that up yet.
	CC-H	Okay.
	CC-H	Talking about morning report and food and everything, Rita's down here in the - the MOCR today. I'm sure she appreciates all those good words about the food table.
	ACDR	Yeah. All in all, it's been mighty fine; and the few problems we've had has been just the zero-g problem, which is nothing new, and we don't have any magic solution to either.
	CC-H	Rog.
	ACDR	You can tell Rita that I bet we've all three gained weight on this one.
	CC-H	Okay. We'll blame it on her.
	DMP	I did get an orange too sour this morning; we had a bag ..., but that's the first time I've had that happen.
	CC-H	Well, did that - that match the strawberry you'd had earlier in the mission?
	ACDR	Yeah, that makes a beautiful view over the window here.

CC-H Rog. Helps out the vis obs stuff, too.

ACDR Right. Like looking at the world through rose-colored glasses.

ACDR Okay, Crip. We've got Li[OH] canisters 5 and 6 in here in the B-6.

14 25 39 CC-H Okay. Real fine. Appreciate that, Tom. They're just interested in analyzing them to see if we can try to figure out what that odor was that you guys smelled a little bit earlier.

ACDR That's a good idea.

CC-H You mentioned the color or the hues on the window there; we're going to ask you to try a little bit more of the red tide when we come over it today. I was going to give you a update on that a little bit later; think we might be able to get some - get some photos of that area again.

ACDR Okay. They all look red today.

CC-H Understand.

14 26 23 ACDR Crip, looking ahead in the Flight Plan, have we got to close the overboard drain, the urine - these urine dumps and water dumps when we turn on the stuff again?

CC-H That's - that's affirm. The intent there is to turn the experiments back on when you finish the - the dumps.

14 26 52 CC-H If you started that urine dump about as - on time there - assuming it's going on, and it should be cleaned out pretty good by the time that we've got called out to start powering the experiments up.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

14 47 18	CC-H	Apollo, Houston. We're getting down to about the time where you should be getting ready to turn on your SIM bay experiments, and we would like - on this time, instead of using detector 2 on the EUV, we would like to use detector 1.
	ACDR	Okay.
	CMP	Okay, Crip, how do you read?
	CC-H	Loud and clear, Vance.
14 47 46	CC-H	And, Apollo, we've been sitting here considering - while we're sitting in tight deadband, and doesn't appear to be any real requirement to save us a little propellant; we recommend you go ahead and change your DAP to 5 degrees for deadband.
14 48 01	CMP	Okay. Will do.
	CMP	Houston, Apollo.
	CC-H	Go ahead, Vance.
	CMP	Okay. I'm not in a position to see that light. What was it?
	CC-H	It was O_2 FLOW. It - it's still due to those - We were trying to find out if we could - -
	CMP	Okay.
	CC-H	- - if we could get a way to - around going ahead and getting this purge out without getting those - those FLOWs. And we're still looking at that. Hate - hate to put you all to the trouble for the C&Ws.
	CMP	Yeah. The only problem with that is, is when it goes so much, we tend to get careless, and it's like the guy that cried wolf too many times.
	CC-H	I sympathize with that, wholly. I - you know, as long as we've got you through the ATS here, I can certainly come up and tell you each time what it is, because we're looking at it, if you'd like that.

	CMP	Why don't you do it right during this period, because we *** the guys packing things, and stuff.
	CC-H	Sure. We'll do it. And we're assuming you're going to get the SIM bay stuff there pretty soon. Is that correct?
	CMP	I'm looking at it right now.
14 51 58	CC-H	Rog. Okay. And also, whenever somebody gets a chance to work it up, we're still standing by for that morning status report.
	CMP	Okay. And - so we're going to the ops on the X-ray helium glow and EUV per Flight Plan. Right?
	CC-H	That's affirmative. Only modification is that on EUV, we want to use detector 1.
	CMP	Okay.
	CC-H	Vance, I'd like to mod my mod. We want - with looking at that 5-degree deadband we just went to, EUV would like to use detector 2 a nominal on the Flight - on the cue card.
14 52 45	CMP	Roger. Back to detector 2.
	CC-H	Just shows, you got to be flexible.
	CMP	That's right (laughter). Okay. And do you want HIGH VOLTAGE POWER ON, I guess, on the X-RAY? You still want it ON, or not?
	CC-H	That's affirm. We want it - we want to turn it ON and leave it.
14 53 31	CMP	Okay. That should take care of SIM bay, and now we'll get you a P52.
	CC-H	Okay. Looking great here, and if we can watch at all, well, we'll do so. Otherwise, we'll pick up the report, probably over Orroral. We're - we got you for about 3 more minutes here.
	CMP	Rog.

	CC-H	Okay. We're going to be losing you shortly on the - on the ATS, and I'm going to have you VHF at Orroral here in about a minute and a half. And we're watching the 52. If we don't get it all, we'll holler at you later.
14 55 36	CMP	Okay, Crip.
14 58 01	CC-H	Apollo, Houston. We're with you on VHF for about 5 minutes here.
14 58 17	CMP	Okay, Crip.
	CC-H	And, Vance, you know - no need to acknowledge if you're working on 52 there. We did not see detector 2 selected on the EUV when we went over the hill. Just a reminder.
	CMP	I couldn't hear you, Crip. You're too weak. Please repeat loud***
	CC-H	Roger. We're saying, did not see detector 2 on the EUV. If you get a chance, you might reselect that for us.
14 58 49	CMP	Okay. Now we're reselecting detector 2.
	CC-H	Thank you.
	CMP	Okay. Did you see her?
	CC-H	We're VHF and don't have data right now.
	CMP	Okay. Well, we can try it again.
	CC-H	Apollo, Houston. We're 1 minute from LOS; going to see you in about 30 minutes at Quito.
14 59 58	CMP	See you at Quito.
15 29 48	ACDR	Hello, Houston; Apollo.
	CC-H	We're with you, Tom. Talking to you through Quito for 4 minutes.
	CC-H	Apollo, Houston. How do you read?
	ACDR	Hello, Houston; Apollo.

CC-H Apollo, Houston. We're with you, Tom. Sometimes it takes us a few minutes to get locked up on uplink.

DMP Hey, Crip - I want to check a quick thing with you, on this Doppler transmitter.

CC-H Go ahead.

DMP Guess we're about 50 minutes from going to TRANSMITTER to OPERATE. But about 10 minutes ago, here, when we were trying to get your 45-degree lights on the fish, we turned all the lights off in here and I fumbled around and I tipped the DOPPLER from WARMUP mode to OPERATE. And then I discovered my mistake and when back to OFF. So it was OFF for about 10 minutes before we discovered the problem, here. And I went back to WARMUP.

15 31 01 CC-H Okay.

DMP So we can go with the system on that and see if it's any problem.

CC-H Okay. Understand it. That's fine. Thank you.

CC-H Hey, Deke, while I got you here, could - you know, we're doing this purge, and we're trying to understand what our PPO_2 reading, that we're getting out of the docking module, is. And we need to - need to verify what our configuration is, because it doesn't seem like the PPO_2 is coming up as rapidly as we thought it was going to be. Can you tell us whether you ever installed that DM duct into the command module? And is it installed there now?

15 31 35 ACDR No, we didn't.

CC-H Okay, fine. And do we still have the DM fan running?

DMP Yeah, the fan's running.

CC-H Okay, fine. And we are only operating with one suit hose into the docking module. Is that correct?

DMP That's affirmative.

CC-H Okay. Real -

	DMP	We're getting regular MASTER ALARMS on our O_2 FLOW, so -
	CC-H	Yeah. We're - we're - we know we're purging through it - I guess we'd done some preflight judgment on how fast that PPO_2 was going to be coming up. And it doesn't seem to be quite as fast. Probably, part of that is explainable by only running with one suit hose.
15 32 10	DMP	Okay. And I'm reading about 200 on both A and B, up here in the DM.
15 32 22	CC-H	Rog. We're getting there. It's just taking a little bit longer than we had anticipated.
	ACDR	Yeah, Crip. Isn't 200 plenty? I wonder - I can't understand why people are in a sweat about it. Over.
	CC-H	No, Tom, it's not really a sweat. I guess - we had predicted the rate at which it was going to come up. It just seemed to be a little bit slower than what we had anticipated. No problem.
	ACDR	Okay.
	CMP	Is the consideration of - purely - us working up there, or what? I - I *** why you'd require a high PPO_2, Crip.
	CC-H	Oh, they're just looking at worst case, after we shut off the docking module for this cryo freezer, on the nitrogen - if it was worst case putting - putting out nitrogen, they want to make sure we keep the PPO_2 fine. It's got lots of balances for safety, there.
	CMP	Okay.
15 33 09	ACDR	Okay, Crip. I got the DOPPLER RECEIVE OPERATE on, exactly on time, at 195:03:00.
15 33 17	CC-H	Okay. We're going to go over the hill here shortly. Pick you up again at MILA in about 2 minutes.

15 36 08	CC-H	Apollo, Houston. AOS through MILA. Should - be with you about 55 minutes here.
	ACDR	Okay. And why don't you check with the Doppler experimenter, Crip. How long does it take for - how fast do these Doppler reels rotate? Over.
	CC-H	Okay. What - if you're looking at that tape recorder, the reels - when they're going - you can - it's obvious to you. They're really spinning around. But - there - there's a long period of time they're on and off. But we can get some more details for you.
15 36 38	ACDR	Okay. Well, they're not recording now.
	CC-H	Okay.
	CC-H	What you do is when you - when you look at it a little bit later, then you can just verify that the position has changed.
	ACDR	Okay.
	CC-H	And my Surgeon is anxiously standing by, any time you guys have managed to put together your morning report.
	ACDR	He can just stand by for a while. We've got snakes all over this place.
	CC-H	Roger that.
15 39 05	CC-H	Apollo, Houston. We show that the furnace is still operating, and still got those samples in it, we assume, so don't want to - don't want to forget and leave those there.
15 39 21	CMP	Right. Deke's turning it OFF now.
	CC-H	Okeydoke.
15 40 36	CC-H	And that was a HIGH O_2 FLOW on your C&W.
15 40 47	ACDR	Crip, I'll get these - these angles set in for you, for the ATS.
	CC-H	Okay. Appreciate it.

	CC-H	And, Vance - whenever you get a chance, we'll take the P52 results.
15 41 55	ACDR	Okay. If you're still through MILA, ATS is trying to lock on, but it's got lots of static.
	CC-H	Okay. How do you read me now?
15 42 46	CC-H	Okay. We should be back with you, now, through the ATS.
	ACDR	Crip, what would - can we do to get ATS locked on? Over.
	CC-H	Okay. Might try a VERB 30 and look at your EMP if you haven't got the angles.
	CC-H	How about trying minus 25 and 221?
15 43 57	CC-H	Okay. I've got VHF through Newfoundland talking at you until you get ATS locked up, Tom.
15 44 40	ACDR	Should do it.
	CC-H	How do you read me now?
	ACDR	Loud and clear.
	ACDR	Hey, Crip - the one thing where they greatly missed on the time line is the amount of time it takes to stow all this and transfer this equipment. That's why I'm glad we started early.
	CC-H	Rog. How you doing now? You think you're going to make it all with no problem?
	MS	Yeah, we will - -
	ACDR	- - but we started about 40 minutes early, that's how we're going to make it.
15 45 09	CC-H	Roger.
15 48 28	ACDR	Crip, how do you read?
	CC-H	Loud and clear. How me?

ACDR Okay. Just to review, you want up in the docking module that DM - on the DOPPLER from WARMUP to OPERATE there on time in the Flight Plan which shows about - DOPPLER's transferred to OPERATED about 195:55?

CC-H That is affirmative.

ACDR All right.

15 50 29 CC-H That's another HIGH O_2 FLOW.

ACDR Thank you.

15 59 11 ACDR Houston, Apollo.

CC-H Go ahead. Apollo, Houston. Go ahead.

ACDR Stand by, Crip.

CC-H Okay.

DMP Hey, Crip. The question is page 13-2 DM check - prep, paragraph 5 says, "Remove from E-2 the alternate Contingency Flight Plan and stow it in E-3." And Tom's questioning, why do you want it?

CC-H Stand by 1.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

16 00 08 CC-H The reason that we put that in there is if perchance that we should lose the ATS between now and - and entry, that has a no-ATS plan in there and that would just minimize the callups that we would have to - have to make to you. And that's the only reason we have it there.

DMP Okay. We'll pull it out and keep it.

CC-H And that's another HIGH O_2 FLOW you got.

CMP Okay.

16 04 03 CC-H Apollo, Houston for the AC. Tom, when you have had a chance to go back and check the Doppler or tape recorder, we would appreciate verification that it was operating.

ACDR I'll recheck it again. I - I recorded it when I hooked the thing up a couple of days ago - you know, to WARMUP. I went to - went to OPERATE, and those reels didn't move from the time - from when I first checked it in that WARMUP. I'll check it again.

CC-H Yeah. They - they - you wouldn't expect them to. They should've changed now after a period of 30 minutes have elapsed, they should have at least ran sometime -

ACDR Stand by.

CC-H Okeydoke.

16 06 11 ACDR Hello, Crip?

CC-H Go ahead, Tom.

ACDR These reels haven't moved.

CC-H Roger. Understand have not moved. And we can verify that everything as far as you can tell is hooked up properly. Is that correct?

16 06 24 ACDR Yeah. Roger. The other day I put - we had the DOPPLER - UVA/DOPPLER MNA circuit breaker IN. I

went to WARMUP, you know, exactly on time. And I went to OPERATE, and it's been in OPERATE ever - exactly at the call on time 95:03:00. And I recorded these reels when I first hooked it up, and I recorded when we went to OPERATE, and these babies haven't changed one bit.

16 06 50 CC-H Okay. Is that true on both sides of the units, all four of them?

ACDR That's right; all four reels. I recorded A, B, C, and D.

CC-H Okay. Thank you.

ACDR I've rechecked all the connections. I've got the orange band on each connector and everything.

16 08 16 CC-H Apollo, Houston. I - I could use the DP if he's got a minute there; I'm afraid we're going to have to interrupt his work there to have him run a small procedure.

ACDR Okay. Maybe I can run it for him unless he's up there; he's getting the probe squared away.

CC-H Okay, Tom. Let me - let me tell you what it is. Regarding this PPO_2 purge that we've been trying to raise up, we would like to go ahead and get - get all the O_2 in there that we can. And what we would like to do is to run through this DM/CM O_2 purge and take advantage of the last 6 pounds of O_2 that we've got left in the DM tanks. That's going to require performing that procedure that's on 15-1. The only small thing is that we anticipate running the tanks dry, so we're going to not be able to get the PPO_2 up to the 250 millimeters called out for in the procedure. We're just going to have to run it until we get the O_2 quantity down to zero or the - you - you feel the O_2 stop coming out that little nozzle.

ACDR Is that in the Systems Book?

CC-H No, sir. That's in the DM Checklist.

ACDR Okay. Deke's on the headset; he's reading you.

CC-H Okay, Deke.

ACDR ...

CC-H Did you - did you copy what I was telling Tom about we wanted to run that DM/CM O_2 purge?

DMP Yeah. I did, Dick.

16 09 33 CC-H Okay. Again, a caution about the - the tanks are going to run out and your - before you get to PPO_2 up to what it's called for, the 250 millimeters. And so you can go ahead and stop it as soon as you feel the tanks are empty. One other item addition in there, you might as well go ahead and open up the SUPPLEMENTAL O_2 FLOW also to get all of the flow you can out.

DMP Good idea. Okay. We'll do her.

CC-H Okay. And before you initiate that, if you can get somebody in the command module to go ahead and CLOSE the WASTE STOWAGE VENT valve, we'll stop that purge through there.

ACDR Okay. I'm talking the waste stowage vent QD off.

16 11 04 CC-H Okay. Tom, if you want - it's purely your option, but we would like to keep that vent on there in case we need to put in a little bit later. You can just go ahead and turn the valve to - to off and leave the QD on. It's okay to go ahead and enter with it there. We are going to probably be doing some more purges later because we don't have enough O_2 - -

DMP Okay.

CC-H - - don't have enough O_2 in the DM.

DMP Dick, just one point on this procedure, not that we're ever going to use it again, but I forgot to mention last time, it never tells you to turn on the O_2 REGULATORS and without them on, you can't purge. At least not in this vehicle.

CC-H You're right.

16 12 40 DMP Hey, Crip, there's another point here in this procedure, I don't think we buy anything by going to SUPPLEMENTAL, because we've got to maintain pressure between 250 and 275. Otherwise, we're going to start probably popping the relief valve in the DM, as I understand it.

CC-H Okay. We weren't sure that - that you might not need it just to get it up - get the flow enough to keep that, but you can play that by ear.

DMP Okay.

16 13 12 CMP Purge is underway.

16 13 44 CC-H And for the AC: Tom, the only idea we come up with right now on that Doppler recorder is that there are two connectors on the recorder itself. One is a GSE connector, and the other one is a flight one; the cable will go into either one of them. We want to verify that - if you will, please - that it is connected to the flight connector.

ACDR Okay. I checked that before. Let me check it again. You'd better believe it; it's connected to flight.

CC-H Okay. And the circuit breaker on 274. You reminded us is IN, already, right?

ACDR I've checked that every night and every morning and at every warmup, and then I went exactly to OPERATE on time.

CC-H (Laughter) Roger.

ACDR I can put my hands on the - on this recorder here in the silver box, and it feels like - that there's little vibrations in there, like something's going on.

CC-H Okay; copy that.

ACDR Crip, you don't suppose that when they labeled this flight GSE that they got the things backwards, do you? I'm sure it's all been checked out.

	CC-H	Well, I ran it once at the Cape, and I connected it to the flight one and it ran.
	ACDR	Okay.
16 15 48	ACDR	Crip, when you ran this thing at the Cape, how fast do these reels turn over, can you see motion when those numbers turn?
16 15 54	CC-H	Yes, sir. It's real obvious that it - when it goes - when it starts going around. Problem is, it - it runs like every 12 minutes for only a short period of time. And it only runs about 10 or 11 seconds when it is running.
	ACDR	How many numbers does it go through?
	CC-H	Oh, it spins a whol - it's a little wheel down there, and it goes all the way around them several times.
	ACDR	Yeah?
16 17 00	ACDR	Have you got any other suggestions on this bear?
	CC-H	I'm a - I'm - I'm afraid we haven't right now; we're still scratching our heads.
	ACDR	And I have quadruple rechecked everything. We got the white dot to the white dot on the flight recorder thing and the switches, the breakers, everything.
	CC-H	Okay, Tom. We appreciate all your efforts.
16 18 14	CC-H	Okay, Tom. Right now we're - we're pondering cycling switches and that kind of stuff. You can carry on with your other activities, and we'd like you to come back and take another look at it a little bit later, about 5 minutes or so, to see whether - see whether anything's changed.
	ACDR	Okay.
16 18 54	CC-H	And for Vance: I don't know if he mentioned earlier - heard me earlier rather, but anytime he gets the chance, we'll take his P52.
	CMP	Okay. We'll give you the P52.

	CC-H	The results, that is.
	ACDR	Crip?
	CC-H	Yes, sir.
	ACDR	Crip, our cabin pressure's now below around 5 - 5-1/2, I mean.
	CC-H	That's affirm. We - we watched it here.
	CMP	I'm keeping an eye on it up here so we don't get over 275.
	CC-H	Okeydoke.
16 21 32	CC-H	For the DP: Deke, while you're sitting there playing with your PPO_2, you got time to listen to some words about - about red tide?
	DMP	No, not unless it's time-critical, Crip, because I'm not sitting here; I'm still trying to get things tied down.
	CC-H	Okay. Go ahead.
	DMP	But if it's time-critical - -
	CC-H	Well - -
	DMP	If it's critical, I'll take it.
16 21 52	CC-H	Well, let me go ahead tell you then. You just listen to me, and you go ahead and do your work. The - where the next time we come across the States, we are going to be back in a position to get the - the red tide, basically same area we talked about yesterday. And all we're going to do is just ask you to photograph a strip starting by Cape Cod going up - going up the East Coast, and if you can go ahead and - and do that up to about Nova Scotia, well, that's all we're after. And I can talk to you about it when we get there.
16 22 20	DMP	Sure. Hey, that's easy; we'll do her.
	CC-H	We see - -

	DMP	I think that'll need different lens.
	CC-H	We see - -
	DMP	... for anything that they want.
	CC-H	Deke, we see the cabin pressure coming down now. If you think the tanks are empty, you might as well go ahead and stop it.
16 22 36	DMP	Okay, she's reading, oh, about 8 percent.
	CC-H	Cabin's pressure's coming down now. Why don't we go ahead and terminate it?
	DMP	Okay.
	DMP	Okay, Crip. I closed the dump. And I'll - I'll let her bleed on down here a little bit and keep a close eye on the pressure.
	CC-H	Okay, fine.
	CC-H	And for the AC: Tom, since we were talking to you through that time period, we won't need to verify that we did get the DOPPLER TRANSMITTER to OPERATE.
	ACDR	Deke's working that right now.
16 23 36	CC-H	Okay.
16 23 40	ACDR	Okay.
	CC-H	And when you did that, of course, we - -
	ACDR	96:01:37 was the Doppler OPERATE to ON.
	CC-H	Okay, fine. And we need to get a verification on that - on the systems meter down in the command module, too.
16 24 16	ACDR	195.
	CMP	Okay, Crip, here's your P52 results.
	CC-H	Send it to me.
	CMP	Stars 4 and 34; NOUN 05, all zips; NOUN 93, plus 00.112, minus 00.104, minus 00.036; port - torqued at 194:34:50.

	CC-H	Thank you very much, Vance.
	CMP	Right.
16 26 00	CC-H	Okay. Since we've terminted the DM/CM purge, we'd like to go ahead and open up that WASTE STOWAGE VENT valve, and we'll continue to purge in that manner. Also, X-ray's got a problem, and we'd like to go ahead and turn the HIGH VOLTAGE OFF on the X-RAY instrument down there at 230.
16 26 23	CMP	Okay. You want to go back to waste purge and X-RAY HIGH VOLTAGE, OFF.
	CC-H	Thank you very much.
16 27 49	CMP	And, Crip, you might tell John Boyd that D-3 isn't a whole lot easier to get in in weightlessness than it is in one g.
	CC-H	Didn't think it'd be too much; alinement's kind of a problem there.
	CMP	Yeah.
16 28 59	CC-H	Apollo, Houston. For the AC: Tom, if you've got a chance now, we would appreciate it, to recheck that recorder; we've got a couple of minutes left here on ATS.
	CC-H	Also, Deke, to make everybody feel comfortable here, on - when you pulled out the - the last samples out of the furnace there, can you verify that putting the Krytox on it helped them come out fairly easy?
	DMP	Yeah, they did, Crip - no problem at all.
	CC-H	Okay, fine.
	DMP	Yeah, they're out, and the furnaces are shut down, and the samples are stowed in the CSM.
	CC-H	Roger.
	ACDR	Okay, Crip. These reels haven't moved a bit.
	CC-H	Okay. When we go - go out over the hill here, we're going to have you go ahead and cycle the RECEIVER switch to - to WARMUP for 30 seconds and then put

it back to OPERATE. And then take another look at it about 15 minutes and see what happened.

16 30 08 ACDR All right, good. At what time do you want that?

16 30 10 CC-H You can - you've got a GO to go ahead and do it now, I guess. And we're going to go ahead and go over the hill here, and see you in about 36 minutes at MILA.

ACDR Okay. I'll cycle it back to WARMUP and then back to on and check it in 15 minutes.

CC-H Okay. And when you do cycle that, don't - don't stop at the OFF position. In other words, take it through pretty rapidly to WARMUP.

16 30 47 ACDR Okay, it's done.

CC-H Okay. Thank you.

ACDR And check it 15 minutes. Roger?

CC-H That's affirm.

CC-H And, Apollo, Houston. You've got a GO to go ahead and close up the DM, assuming you've got everything tucked away like it's supposed to be.

ACDR Yeah, we're still working.

16 31 18 CC-H Rog. Well, we're - we assume that you're going to finish that up while we're over the hill.

17 06 34 CC-H Apollo, Houston. We're AOS at MILA, should be with you about an hour.

ACDR Okay. Roger. And we've got tunnel-hatch number 1 in, and we're checking the integrity now.

CC-h Okay, Tom. Did anything - any success with that recorder?

ACDR Yeah, I got some good news on part of it. I just recorded it. A - reels A and B have moved; that worked on A and B. It looked like C and D had not moved or else they may have moved and came back to same place.

CC-H Okay, it's kind of unlikely they would have come back to the same place, but that's certainly good news about A and B.

ACDR So, I'm standing by and see if you want to do the procedure again - just whatever you want to do down there.

CC-H Okay, did you - you - that you saw move after you cycled that switch when we went over the hill awhile ago, right?

17 07 20 ACDR I cycled the switch, and I checked it in 15 minutes, and they'd moved.

CC-H Beautiful.

CMP And, Crip, hatch number 1, is in, and we're venting the tunnel 1 right now.

CC-H Apollo, Houston. If you can give us a readout on the reels, we'd appreciate it.

ACDR Stand by.

CMP Okay, Crip. Originally, the A was 5-1/2; B, 17; C, 11; and D, 12. After that going to WARMUP and back real fast to OPERATE, I checked in 15 minutes: A was 9, B was 13-1/2, C was 11, and D was still - C and D were the same. C was 11, and D was 12. Over.

CC-H Okay, we copy. Thanks a lot, Tom. I guess while we're sitting here a couple of items that we do need to get out of the road is, we see that battery Alfa's still charged, and, Tom, when you get to it, we'd like to terminate that charge. And also we can go ahead and set up for our logic sequencer check. Probably I'll just go ahead and wait on that one until we get tied up with the ATS here in a few more minutes ...

DMP Okay. I can terminate the charge now if you want.

CC-H That's fine. You can go ahead and do that then on battery Alfa.

DMP Okay.

	CC-H	Apollo, Houston. Just a little bit of information: of course, those recorders are redundant so A and B will suffice if it's working properly to - which it sounds like it is - to get data on it. And we are seeing a lock indication here on the transmitter, so we know all that's working properly.
17 10 14	ACDR	Sounds good.
17 10 20	CC-H	I had talked to Deke briefly awhile ago about coming up on the red tide, which we're going to do - do here about this time. And it's kind of - kind of close. I don't know whether you guys are going to be set up for it or try to get the photos or not. Whatever y'all wanted; it'd be - it's out of window 3.
	DMP	Okay, how much time we got?
	CC-H	Oh, you're about - about 3 minutes away from an initiation of it. That's pretty quick.
	ACDR	Okay, you want the 50-millimeter lens? And if they give me a couple of quick settings, we'll get a new mag and try it.
	CC-H	Okay. Recommend a 50-millimeter lens and f-stop of 6.7; speed 1/250. And recommend the orange filter, if you got time to get it on.
17 11 39	ACDR	Okay, ready to go, Crip.
	CC-H	Okay. You should be coming up on it shortly here. If you could - what they'd do is - like you to just photograph coming up along Cape Cod here all the way up to the bay there, coming in on Nova Scotia.
	ACDR	Roger, Crip. Check your windows again. I think window - window 3's looking at the Sun right now.
	CC-H	Well *** How do you read me now?
	DMP	Yeah, the only place I can see the ground at all is out of window 5 right this minute.
	CC-H	Okay. We - we had thought window 3 was going to be down. Whatever one you think looks best.
17 13 00	ACDR	Crip, what time do you want us to start that sequence?

	CC-H	On the - on the photos?
	ACDR	Yeah.
	CC-H	You can go ahead and start it up on the upcoming 52. I told you orange filter awhile ago, that filter's only applicable if we've got - got an IF mag in.
17 13 53	ACDR	Hey, Crip. Do you read me?
	CC-H	Yes, sir; go ahead.
	CC-H	Apollo, Houston. How do you read?
	CC-H	Apollo, Houston. We should be back with you now. How do you read?
	DMP	Yeah, we read, Crip. I'll tell you the problem here; can see it out the bottom of window 3 coming right across Cape Cod, right up the coast there through Boston and the whole works. The problem is that we're so close on top of it that there's no way to get a camera in the window to shoot it.
	CC-H	Rog. Understand.
	DMP	And we're already by it.
	CC-H	Copy.
17 15 27	DMP	As far as visual's concerned, I didn't see anything any different there than yesterday. There's a lot of sediment all along the coastline there. And I'd sure hesitate to call anything red tide in there that I've seen. It looks to me like it's all sediment coming out of those rivers because it's the same color as the flow out of the river.
17 15 51	CC-H	Okay, that's a good comment.
	CC-H	They - some of the support ships that we've got out there that've been sampling have been reporting a high chlorophyll content in the water and maybe that's some - they've been suspecting that's coming out due to heavy rains they've had up there.
	DMP	Rog.
17 16 41	ACDR	Hello, Houston; Apollo.

CC-H Go ahead.

ACDR Can we go ahead and get that EUV powerdown and the X-ray and helium glow, so we can dump some urine overboard before we go ahead with those suits?

CC-H We'll get a quick check on that. Don't see a big problem. One item we would like, though, is that we did want to do a contingency powerdown on the X-ray, which is going to basically just purge all the gas out of that unit so it'll allow us to do sort of an engineering check on it. When you do the powerdown, I would like you to do the X-ray contingency powerdown which is in the Checklist, Experiment Checklist, page 1-24.

ACDR Okay.

CC-H An additional item on that is after we get it powered down, I'll give you a reminder that we do want to go ahead and turn OFF the LOW VOLTAGE POWER when we complete it.

CC-H Apollo, Houston. You've got a GO to go ahead and start securing those experiments in the SIM bay.

ACDR Roger.

17 18 01 CMP And, Crip, hatch 1 passed the leak check, and now we're venting it the rest of the way.

CC-H Okay, fine. Thanks a lot, Vance.

17 19 24 CC-H Apollo, Houston. For the DP: Deke, one item we'd like to verify, when we had you doing that CM/DM O_2 while ago. Did you close the O_2 PURGE valve?

DMP Yes, I did.

CC-H Okay. It makes everybody feel nice and comfortable down here knowing that. Thank you.

ACDR Okay. Crip, did you want - on this contingency purge - did you want the X-RAY low VOLTAGE POWER to stay ON?

CC-H Want it to stay ON for the duration there. When you get right down to the last, you can go ahead and we -

after we close the cover, we'll go ahead and turn it OFF at that point.

ACDR Roger.

17 20 23 CMP Okay. We're on the contingency powerdown. X-RAY PURGE, START, now.

17 20 30 CC-H Okay, Vance. Thank you.

17 21 09 CC-H Apollo, Houston. At - at your convenience, we are standing by for the logic sequencer check.

ACDR Okay. We're waiting 5 minutes on that last - next to the last X-RAY LOW VOLTAGE POWER, ON.

17 21 29 CC-H Roger that.

17 21 37 ACDR Okay. Deke has the day report so your Surgeon won't be nervous anymore.

CC-H Okay. I'm sure the Surgeon would be - he's been waiting down here all morning just to hear it.

DMP Okay. Ready to copy?

CC-H Yes, sir. Shoot it to us.

DMP Okay. AC: meal A, everything except coffee and substitued tea; meal B, everything; meal C, everything. Oh, he had two extra coffee's in there somewhere later. Okay, medical log: PRD is 11013; 6 hours of good; two Lomos; and a full tank of water.

CC-H Okay.

ACDR Deke, why don't you get that off, and then we'll - we'll do the logic sequencer check next.

DMP Okay, CP: meal A is complete as written; meal B, the same except for cookies; meal C, complete. Okay, medical: PRD, 48295; 6 good; no medication; and about 70 seconds.

CC-H I'm sorry, would you say the PRD again. I don't think I got that right.

DMP Okay. It was 48295.

	CC-H	Very good, Thank you.
	DMP	Okay. I have the DP: breakfast, everything; lunch, scratch the macaroni and add a salmon; and in the evening, scratch potatoes and cherry nut cake, add an orange drink. And medical: PRD, 61001; 6 hours for sleep; no medication; 60 to 70 swallows.
	CC-H	Okay. We got all that.
	DMP	Okay.
17 23 56	ACDR	Okay. Now we got the important stuff out of the way, you ready for some minor thing like logic seqencer check.
	CC-H	Okay, we'll take that minor little thing.
17 24 07	ACDR	Okay. We're ready to go. We're down to where it says, "Coordinate next two steps with STDN." We're ready to CLOSE the circuit breaker SECS ARM.
	CC-H	We're GO.
17 24 18	ACDR	SECS ARM 1 and 2 are - were CLOSED. SEC LOGIC now ON and up.
17 24 33	CMP	And we've got them all.
	CC-H	Okay, and we are GO for PYRO ARM as required.
	CMP	Roger.
	CC-H	Okay. And whenever you guys want it, I have got your DM jett pad, which is over on the next page.
	DMP	Stand by, Crip - -
	CC-H	Okay.
	DMP	- - 1 minute.
17 26 10	ACDR	Crip, we have completed the X-ray contingency power-down - -
	CC-H	Okay. Thanks a lot.
	ACDR	- - with the LOW VOLTAGE POWER still ON as per checklist.

	CC-H	Okay, if you've completed and you're already got the cover CLOSED, we'll go ahead and take the LOW VOLTAGE POWER to OFF, please.
17 26 29	ACDR	Coming OFF.
	CC-H	Okay, Tom. I'll get the other two items - before you guys start getting all suited up there, I wanted to get up to your DM jett pad and, also, we would like to get one more look at that Doppler recorder; see what the numbers are reading now.
	ACDR	Okay, give me the jett - give me the jett pad first.
	CC-H	Okay. And you got that out? It's over - should be over on the next page of your Flight Plan - 62B.
	CC-H	I'll come at you when you - when you tell me you're ready to copy.
	ACDR	Okay, ready to copy.
	CC-H	Okay. For time, 199:23:48.00; attitude, 089, 332, 003; jett time is 199:25:00.00. Read this back, please.
	ACDR	Okay. DM jett, 199:23:48.00; 089, 332, 003; 199:25:00.00. Over.
17 28 15	CC-H	Okay. That's a good readback, Tom. And for your information, due to Vanguard being - sailing and us moving it slightly, we now are going to be in ground contact when we do the spin, and we'll be able to watch the jettison here to be of whatever help we can be and, hopefully, no hindrance.
	ACDR	Roger.
17 28 40	CC-H	One - while you've got that page open there, I might point out one - one - we have - our attitude is not exactly what it was when we - were initiating this maneuver - it's - what we thought it was going to be; consequently, to get there on time, it would probably help if you initiated your VERB 49 maneuver at 39 minutes on the DET vice 40. And I can - if that is not clear to you, I can talk about it a little bit later. We drifted off awhile ago when we were doing a P52, we think.

17 29 10	ACDR	Yeah, okay. It's 39 instead of 40. We can go there quite a bit earlier, too. No problem.
17 29 13	CC-H	Yeah, there's no problem on that.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

17 32 51	CC-H	Apollo, Houston. Whenever you get a chance, we're standing by to hear - hear how the recorder looked, to get all the numbers.
	ACDR	We're still trying to work out some other problems here, and we'll get it - -
	CC-H	Okay.
	ACDR	- - get back with you in a minute.
	CC-H	No - no problem. I'll stay out of your hair. I know you got to worry about getting suited up and so forth.
	DMP	Hey, Crip.
	CC-H	Go ahead.
	DMP	Can somebody in experiments ... tell us real quick, do we do any more crystal growth or ZFF photos?
	CC-H	Check that for you.
	DMP	We can look it up ourselves, but I think - -
	CC-H	We - we - we - it's a heck of a lot easier for us to do it.
17 34 13	CC-H	Deke, you've got one more today and one more tomorrow.
	DMP	On both of those. Okay, thank you.
17 34 27	ACDR	Okay, Crip. Reel A now reads 5-1/2, B reads 2-1/4, C reads 11, and D reads 12. C and D have not moved.
	CCH	Rog. Understand.
17 36 53	CC-H	Apollo, Houston. One item before you get in a position with the suits where you can't do it, which I hope you aren't yet. We do want to get the WASTE STOWAGE VENT valve CLOSED. We'd like to keep it - keep the vent going as long as we can, though.

17 38 18	CCH	Apollo, Houston. If you copied my call on the WASTE STOWAGE VENT, appreciate the acknowledgment.
17 38 25	DMP	Yeah. We got that ...
	CCH	Okay. Thank you, Deke.
17 40 20	CMP	Houston, Apollo.
	CCH	Go ahead.
	CMP	Got some good news and some bad news. The good news is that the tunnel's all vented and we're kind of on schedule. The bad news is that I can't find the DAC timing cables in A-6.
	CCH	Let's see if we can help you out.
	ACDR	Okay, Crip. We're back with you. Did you have another call that we missed?
17 42 20	CCH	That's - that's a negative. I was - we're still trying to find the - where the timing cable might have been located. It was supposed to have been in A-6. I don't believe - don't believe you guys have used that particular cable this - this mission yet, have you?
	DMP	No, I'm sure we haven't. And I recollect seeing it in A-6 sometime or another, so I figure -
	CMP	Okay. Just found it. It was in A-6, just a little obscure.
17 42 45	CCH	Yeah. Keep a lot of stuff in there. Well, that's good. Well, at least you - you - you had a flurrying around down here for a minute. Need to give Nygren something to do anyhow.
17 53 05	ACDR	Houston, Apollo.
	CCH	Go ahead, Tom.
	ACDR	Okay. Look in page 129 of the Experiments Checklist, please.
	CCH	Stand by 1.

CC-H Go ahead. We're with you.

17 53 25 DMP Okay. It shows here when I got this - we're supposed to run for 10 seconds with the lens covered and then turn it off. And we do the same thing at the end. Can you find out why they want that done? Because we're running out of magazine here, which we think may or may not last through this whole thing. And we sure hate to waste any film unnecessarily.

CC-H Okay. It's - what - what it is, is just protective film to make sure that - that what we get of the jett is - is good. We would like to go ahead and run it if you can.

ACDR Okay. They'd just as soon get that, and if we run out before we get to the end, they don't care.

CC-H That's - that's my understanding, but let's get a verification on it.

DMP Okay.

17 55 05 CC-H Deke, we see, looking at that, that we're expecting 15 percent. Can you tell us what - what kind of reading we got on the mag now?

17 55 15 DMP Well, number 1, we haven't even got that mag on - -

CC-H Oh.

DMP - - we got a mag CX04. We're scratching around here like mad trying to find film. And we might have 15 percent on this mag, I don't know.

CC-H Understand - -

DMP We hope we have.

CC-H - - you got CX04 in there now.

DMP That's correct. We're just about out of 16 millimeter, and we've been scratching around for magazines that got anything left on them. And this is one of the few we got with anything left.

	CC-H	Okay.
18 00 07	ACDR	Crip, how soon are we going to have the DM1 maneuver - pad?
	CC-H	Well, we're working on the pad right now. We - are you interested in the time of it? Is that correct?
	ACDR	I assume the time is per Flight Plan.
	CC-H	That's affirm. Well, it's going to be about - running about 5 minutes later than what you got in there because we've delayed the jett slightly.
	ACDR	Roger.
18 01 55	CC-H	Apollo, Houston. We're coming up on LOS from the ATS, and we'll see you again at Vanguard in about 9-1/2 minutes. And we're reverifying the settings for that - that camera, since we're using different kind of film in it, for Deke.
18 02 12	DMP	Okay.
18 11 33	CC-H	Apollo, Houston. We're AOS Vanguard for 5-1/2 minutes.
	DMP	Okay.
	CMP	Okay, Crip. We have 1 and - 1-1/2 of the people suited.
	CC-H	Very good. I'm not going to ask who's the half. Or which half.
	CMP	Well - right. Actually, one person suited and one guy half suited.
18 12 05	CC-H	Roger.
18 16 19	CC-H	Apollo, Houston. We are 1 minute from LOS. Next station contact in 19 minutes, through Goldstone, at 198:13. 198:13.
	CMP	Okay, Crip. See you there.
18 16 31	CC-H	Okeydoke.

18 35 03	CC-H	Apollo, Houston. We're AOS Goldstone. We have you for 3 minutes.
	CMP	Okay. Loud and clear.
	CC-H	You guys manage to get all tucked away in your suits there?
18 35 42	CMP	Yeah. We're in suits. Sort of - standing by for the integrity check.
	CC-H	Okay; copy that.
	CC-H	Vance, while - while we're standing by, one item I might mention was a - was a late change. I think you were aware of it, but right after you jettison, we used to delay 2 seconds before going to CMC MODE, HOLD, and we're now doing that at 15. That allows you to get back in the retrograde maneuver and should be able to pick the thing up a little bit better.
	CMP	Okay; yeah. I realized that but I appreciate the reminder.
18 36 32	CC-H	We show the SURGE TANK going down and have a HIGH O_2 FLOW now.
	CMP	Yeah, that was because we had the SUIT RETURN valve CLOSED a little bit earlier.
	CC-H	Copy.
	CMP	Checking it out. It's easier to work in zero g than it is in ... suit ...
	CC-H	Certainly couldn't be any harder.
	CMP	That is, I think that's the case if a guy can just get in a good position before the pressure ...
	CC-H	Okay, Vance. Be advised I'm reading you pretty weak. I guess your mouth is a little bit aways from the mike there. Probably kind of hard to do it. We're about a minute from LOS, and see you at Rosman here - correction, see you at Newfoundland in about 8 minutes.

18 37 34	CMP	Roger.
	CC-H	Somewhere along in there, it'd probably be better to wait until you get to Madrid, I'll give you an update on your - your DM1 - well, I'll give you the DM1 pad.
	CMP	Okay.
	CMP	Yeah, if we could get that before we get buttoned up in suits, that'd be great.
	CC-H	Well, I - I've got it whenever you want to - got a convenient time to copy it.
18 39 06	CMP	Okay, ready to copy DM1 pads.
	CC-H	Why don't we - we'd better - we're going over the hill here. We'd better wait until we get to Newfoundland, Vance, I'm afraid. It's 6 minutes from now.
18 39 17	CMP	Okay.
18 45 20	CC-H	Apollo, Houston. We're AOS through Newfoundland. Should be with you a total of about 50 minutes with the ATS.
18 45 51	CC-H	Apollo, Houston. We're with you through Newfoundland, and if you're reading good enough, we can go ahead and try to get this pad up.
	CMP	Stand by.
	CC-H	Okay. No rush.
18 50 10	ACDR	Crip, go ahead.
	CC-H	Okay. Would guys like to - to copy down the pad now. Is that correct?
	CC-H	It's on page 54 - -
	ACDR	That's right.

18 50 19 CC-H - - 64A. For DM1. Starting out with your NOUN 33's. 200:00:00.00; plus 018.5, all balls, minus 025.0; 358, 351, 003; 013.1; 00:01. Delta V_C at ignition and tailoff are not applicable. Your weight is 25450; trim angles, minus 0.09 and minus 0.76. Like you to note that, contrary to your cue card, your tailoff should be 18 feet per second. And if you guys are going to be able to reach them after part of this burn to set them up, your high-gain antenna angles will be minus 58 and 334, which would allow us to see the burn. I don't know whether you can get to them with your - with your suits on and your helmet and gloves off, which is configuration you'll probably be in when you get there.

DMP Yeah. I think we can get them.

CC-H And standing by for a readback when you can gi - give it to me.

18 52 07 ACDR Okay. 200:00:00.00; plus 018.5, all balls, minus 025.0; 358, 351, 003; 013.1; 00:01. Delta-V ignition delta-V tailoff is NA. 25450. Pitch trim, minus 0.09; yaw trim, minus 0.76. Over.

CC-H Okay. That's a good readback, Tom.

ACDR And I got the high-gain angles as pitch is minus 58, and yaw is 334. Yeah, if the suit - if the cabin pressure is good, there'll will be no problem in getting it at all. After - that's after - after the burn - after the burn, right?

CC-H Well, if you could - -

ACDR Or after burn attitude.

18 52 51 CC-H Well, if you could get them - when you get to the burn attitude, if you could set them in, that would help us.

ACDR That'll be no problem.

CC-H Okay, fine. While I've got you on the line. Tom, our friendly flight surgeons are somewhat concerned about the Lomotil, and I guess they would kind of like to know when you took them yesterday, and what the symptoms were.

18 53 12	ACDR	Yesterday evening, prophylactic. And I'll discuss it with them after I get on the ground. Over.
	CC-H	Copy that.
18 53 32	CC-H	Okay. And as soon as we lock up here at Madrid, which is about a minute and a half away, we'll need ACCEPT, and we'll go ahead and give you a target load for this burn.
	ACDR	Roger. You - you said you'd be locked on - on the ATS in a - within a couple of minutes.
18 53 49	CC-H	We've got you on ATS right now. Was - you can go ahead and give us ACCEPT, and when we get at Madrid, we're going to go ahead and ship you a target load.
18 53 58	ACDR	Roger. You've got ACCEPT.
18 54 39	CC-H	Apollo, Houston. We just saw MC&W but we can't correlate it with anything. Can you help us?
	DMP	Well, we assume it's HIGH O_2 again, although we didn't see it.
	CC-H	You did not see it. Okay, we associated it about the time that BMAG came ON back there, but could not correlate it directly.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

19 01 24	CC-H	Apollo, Houston. We've completed our target load, and the computer belongs to you again. You can go back to BLOCK.
	CMP	Okay. And as you can see, we're in the middle of our pressure integrity check.
	CC-H	Roger. EECOM'S down here watching it very intently.
	CMP	Looks like we have a good tight signal.
	CC-H	Roger.
19 03 04	CC-H	Hey, one item, Vance, I might ought to mention to you a little bit ahead of time; I don't think it makes that much difference. But right after you finish up that burn, you're going to go to a vis obs attitude. And we never did update - change your NOUN 78 R2 value from 9000 to 6000. Figured you'd catch that on your own, too.
	CC-H	Okay. We copy. It looks like you've finished your suit integrity check. And, Vance, did you copy what I was talking about for your vis obs attitude, following the burn?
	CMP	Yeah. Tom got it.
	CC-H	Okay. That's fine. Only one other item is that it's probably going to take you pretty close to gimbal lock, and you may have to fly around the ball.
19 04 46	CMP	Okay. Thanks for the warning.
	ACDR	Hello, Houston; Apollo.
	CC-H	Go ahead, Tom.
	ACDR	Okay. Just looking at the event timer. Okay, I - Never mind, we got it squared away.
	CC-H	Okay. We copy. DET is probably coming up on 22:00 right now. You got it set?
19 09 02	ACDR	MARK it. 22:00.

	CC-H	Rog.
	ACDR	How do you read, Crip?
	CC-H	Loud and clear. How me?
	CC-H	Apollo, Houston. Were you trying tc get to me for something?
	CC-H	Apollo, Houston. How do you read?
	CMP	Read you loud and clear.
	CC-H	Okay. I thought - Tom had been trying to call me there and couldn't get back to me.
	ACDR	No, you - I called once, and you came back with the right answer.
19 10 26	CC-H	Okay.
	CC-H	Apollo, Houston. One other comment regarding your DM1 burn. That - there's a note in your Flight Plan, there, about trimming all axes to 0.2 feet per second. And we want to follow that unless, for some reason, we get a residual as large as - like 2 feet per second - and in that case, we do not want to trim it out. Something would have been wrong, and we'll work that.
19 12 12	CMP	Okay. If it's less than 2 feet per second, we trim it out to less than 0.2.
	CC-H	That's affirm.
	CC-H	And I don't know if you noticed, there, but that attitude for that burn is about 180 degrees in roll different from what we had originally planned. And that is to allow us to have ATS coverage here. It's like I talked earlier to Tom, about how - and the angles that we've got will give us that.
	CMP	Okay.
	ACDR	Crip, we're now going through the prejett checklist.
	CC-H	Roger.

19 13 21	ACDR	Okay. And we're up to the point where it says, "Coordinate next two steps with STDN (if possible)." So it looks like it is possible. So circuit breaker SECS ARM, two, coming CLOSED.
19 13 36	ACDR	Okay. SECS LOGIC, two on, up.
	CC-H	And we're GO - -
	ACDR	Gee, I hope everything looks good.
19 13 49	CC-H	It looks good here. We're GO for PYRO ARM, as required.
	ACDR	Sounds good.
	CC-H	Okay. A couple items. We didn't see you put the FDAI scale to 5/5. And, also, we need - we'd like a verify, for panel 227, that the SCIENTIFIC INSTRUMENT POWER is ON - if you can see it.
19 15 10	DMP	Yeah. It's ON.
	CC-H	Okay.
	CC-H	Okay. All looks good here.
19 23 59	CC-H	Apollo, Houston. This will give you a warm feeling. We're GO for DM jett.
	CMP	Super.
	CMP	So are we.
	CC-H	Super.
19 26 04	ACDR	Okay. Crip, we're maneuvering at 39:00 on the DET.
	CC-H	Roger that.
	CC-H	We've still got you for about 9 minutes, and we're watching the data.
	ACDR	Okay.
	CC-H	Yeah. We may lose you a little bit early due to the maneuver here. If I do, I'll have VHF at - through Orroral in about 11 minutes.

19 26 37	ACDR	All right.
19 31 32	CC-H	We're going over the hill; see you at Orroral in 6 minutes.
	CMP	Okay.
	CC-H	Well, maybe we won't; we - look like we done arrived there.
19 31 47	CMP	Goodby and hello.
	CC-H	Well, I hate to leave you. This is the most exciting event we've had in a couple of days. We got the - got the whole - -
	CMP	Right.
	CC-H	- - control room full down here.
19 32 51	CC-H	Check your 79's; they're at 50 000, not 5.
19 33 01	CC-H	Apollo, Houston. You copy, regarding R1 on 7.9?
	CMP	Rog.
19 34 00	CC-H	All that looks super from here.
	ACDR	Okay.
	CMP	Very good.
	CC-H	This time, we really are going to leave you. Call you on VHF next.
	CMP	Okay.
19 34 12	CC-H	Apollo, Houston. AOS Orroral for about 3 minutes.
	CMP	Roger. Loud and clear.
	CC-H	Rog.
19 40 39	CC-H	Going over the hill at Orroral. See you at Vanguard in about 2-1/2 minutes.
	CMP	Rog.

19 43 01	CC-H	Apollo, Houston. AOS Vanguard, 7 minutes.
	ACDR	Roger.
	CMP	Roger, Crip.
	ACDR	You'll be able to monitor the whole sequence. Over.
	CC-H	That's why - that's why we got the Vanguard under way, so we could do that.
19 45 50	CMP	We're maneuvering.
	CC-H	Roger.
19 48 02	CMP	Okay. She went off real good, Crip. We don't see her in the window yet. We went to HOLD at 15 seconds.
	CC-H	Roger that. Nice job.
	CMP	We want to get those pictures though, too.
	CC-H	That's affirm.
19 48 42	ACDR	Okay, Crip. Pressure's looking beautiful here. We're going to pop these suits and helmets and try to look for the bear.
	CC-H	Okeydoke.
19 49 37	CC-H	Okay, we're a minute from LOS. Our next station contact will be Goldstone in 18 minutes. That's at 199:46. Good luck on spotting it.
19 49 46	DMP	Okay. We got it now, Crip.
	CC-H	Very good.
19 50 08	CC-H	A little reminder, when you get to it, to get the SUIT CIRCUIT RETURN, OPEN, but no - no rush.
	DMP	Get the which?
	CC-H	SUIT CIRCUIT RETURN VALVE. We monitor it CLOSED now. That was the reason for the O_2 FLOW.
19 50 21	DMP	Okay.

20 06 02	ACDR	Hello, Houston; Apollo.
20 08 23	CC-H	Apollo, Houston. We are AOS Goldstone, 3-1/2 minutes.
20 08 27	CMP	Okay. We finally caught sight of the DM, below and to the left of us, and got a lot of good movie film of it. It seemed to be tumbling the way everybody wanted it to. With reference to the Earth, it was in a vertical plane when it tumbled.
	CC-H	Okay, Vance. Super job. At least two or three "atta boy's" for that one. It seemed to be quite a bit low, and you said - how much to the left? Very much?
	CMP	Oh, I'd guess - had to get very close to the window to see it, so I'd guess - 20 to 30 degrees. Or - more than that. Maybe 40 - 30 to 40.
	CC-H	To the left.
	CMP	Right. Right. Correct. To the left.
	CC-H	Okay. To the left would've been - I was trying to look at it from your perspective, there. That would've meant that we should've kept going more than the 15 seconds. Is that what you - what you're thinking?
	CMP	Less.
	CC-H	Oh, yeah. Okay. Yeah, it would've been less, okay, because you were yawing around to the right.
	CMP	Right.
	DMP	I timed a 360 rotation on it. Looked like about 6 degrees a second from what I could judge it.
	CC-H	I'm sorry. I couldn't copy that last.
	CMP	I timed a 1 - or a 360 rev on the thing, and it looked like it was doing about 6 degrees a second.
	CMP	That was really pretty.
	CC-H	I'm - I'm sor- - You guys are down so soft, I can't [sic] hardly hear you.

	CMP	It was really a pretty sight, seeing it tumbling off toward the ocean. I might add that - was the - the clouds on the surface of the ocean were so bright that it was impossible to see the - anything in the COAS. So that sort of substantiates the problem that Deke and Tom had with the COAS during docking.
	CC-H	Okay. Understand that. And, Vance, I copied from the way you saw it - it looked - did look like it was turning about the one axis that we had - we had wanted. And that - didn't appear to be any tumble to it.
	CMP	That's right. It looked to be stable and in a - tumbling about one axis. The one we wanted.
20 10 55	CC-H	Okay. Very fine. Super.
20 11 47	CC-H	Apollo, Houston. We're looking at some data down here that shows circuit breakers on panel 274, for the DM FURNACE/CRYSTAL GROWTH are closed. We would like to get those opened, if we could, please. If you can reach them. We're about to go LOS, and then we'll have you again at Newfoundland in 5 minutes.
20 18 04	CC-H	Apollo, Houston. AOS Newfoundland, 7 minutes.
20 18 17	CC-H	And if you gents find a chance to get those ATS angles, a pitch of minus 58 and yaw of 334, we'll be able to get you on the ATS and watch you burn.
	DMP	Yeah. I had them in there. I hope you got it.
	CC-H	Okay, fine. Well, we're not quite there, yet. Thank you, Deke.
20 18 30	DMP	Okay. That 274 breaker I can't get at.
	CC-H	Understand.
	ACDR	Houston, Apollo.
	CC-H	Go ahead.
20 22 47	ACDR	Okay. Burn was on time. And residuals were nulled to 0, minus 1, and 0. The delta-V_C reads minus 18.0.

	CC-H	Roger.
	CC-H	Sounds super.
	CC-H	And, once more, a little warning enroute to this vis obs attitude, again, which I corrected earlier. That R2 for your vis obs is 6000 by 7 - 9000, and watch out for gimbal - -
	ACDR	Roger.
	CC-H	- - lock enroute.
	ACDR	Okay.
20 23 50	CC-H	Okay. And one other item here. You guys are doing such a super job up there. Farouk was real impressed by some of the TV stuff that you got out of the window while we were doing docking scenes earlier. And we don't know if it's going to be possible - depends on how long it takes to get out of your suits, but you've got a vis obs pass upcoming at about 200:50 - 200:52, and if we can, we're going to - we'd like to get the TV set up via prep 2.9. And I could read that to you, or however you want to do it. And - so we can have TV out the window when you're doing it. And that's kind of your option, whether you think it's possible.
20 24 32	DMP	Okay. We'll try her.
	CC-H	Okay. If you think you're going to make it, let me know. There're a couple of modifications we're going to have to make, just minor ones, in that that camera is going to be in MASTER and your prep tells you that it'll be in SLAVE. And we need to get the INTERLEAVER switch ON and a few other things. We'll wait until you get out of the suits, and get squared away, though.
	DMP	Okay.
	DMP	Tell you, I think we've got all of our cameras stowed for entry right now, as a matter of fact.
	CC-H	Okay. Understand.

	DMP	When we cleaned out the DM this morning, we went through that whole exercise. We might be able to dig something out again in time. We'll work on it.
	CC-H	I'm sorry, Deke. I couldn't catch your last.
	DMP	I said we've got it all stored. We may be able to dig something out in time and put it back together. We'll see how it goes here.
	CC-H	Okay.
20 25 36	ACDR	Okay, Crip. Can we go ahead and start maneuvering to the vis obs attitude now? Says by 2 -
	CC-H	That's affirmative. The sooner you get started, the better.
20 25 46	ACDR	I'm on the way.
	CC-H	If we potentially lose lock enroute, we need a small modification on that angle. That's in your Flight Plan; yaw is 116. That's pitch of minus 62 and a yaw of 116, in case we lose locks in the maneuver.
20 26 16	ACDR	Roger. Have 116 in yaw.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

20 33 37	CMP	Houston, Apollo.
	CC-H	Go ahead.
	CMP	Okay. You stayed with us during the maneuver. Just checking.
	CC-H	Yeah. We wouldn't run off and leave you. We weren't positive you heard that was why - wanted to mention the angles to you. But we're still here.
	CMP	Roger.
20 35 26	CMP	Incidentally, we have a minor malfunction in the orb rate apparatus there to report to you. The ball 1 sometimes does not flip to ORB RATE when you move the ORB RATE FDI [sic] 1 ORB RATE switch.
	CC-H	Okay; it's a common intermittent device - malfunction, rather. It works sometimes and does not work at others. Is that correct?
	CMP	Well, it's sort of that way. It generally doesn't work. But once or twice we got it to work correctly; and then once or twice it changed, but it did not change to the right position. And this was not evident on ball 2. So we used ball 2 to get it - the DM off. We just restricted use of ORDEAL on ball 1.
20 36 20	CC-H	Okay. Understand that. That was smooth thinking, moving over to the other ball.
	CMP	We would have reported it sooner, but we were kind of busy just before getting the DM off, and we weren't too worried about it because we had time for a backup.
	CC-H	Yeah, that's good. And appreciate you being busy there. You worked through that nice and smooth.
	CMP	Thank you.
	CMP	Houston, Apollo.
	CC-H	Go ahead, Vance.

20 38 03	CMP	Crip, a little while ago you called for us to - to do something with a circuit breaker on 274, and we were all suited - couldn't get down there. Now Deke's down there and wonder - would like you to have you repeat what you asked him.
	CC-H	Okay. It looks like - it's on 274. It's the DM FURNACE/CRYSTAL GROWTH, the circuit breakers. There are three of them, and they should be OPEN.
	CMP	Okay.
20 45 54	DMP	Crip, how do you read?
	CC-H	Loud and clear, Deke.
	DMP	Okay. I'm out of that old suit. If you got any data for me on this mapping pass, I can take it right now.
	CC-H	Okay. I guess two items. The - if - do you think you've got time to try to find a TV camera to put in the window?
	DMP	Well, I'm going to try to take time to do it. If you can just tell me what you want, I'll do the best I can on it.
20 46 19	CC-H	Okay. We're recommending that if you can find your cue card there, that you use TV prep 2.9, which is one of the ones we used for a tour. And it basically works on 605 there. The only modification to that - that camera does have to be in MASTER, not SLAVE as called for. We're also going to have to get the INTERLEAVER POWER ON, down on 400, for the VTR.
	DMP	Okay.
20 46 55	CC-H	And - and we'll have to take the CM 2 TV STATION POWER to ON also.
	DMP	Okay, got that.
	CC-H	Okay. One item I might also tell you, since this target down there is of the Anzus Eddy. We've had a ship spot it recently, and it's reported that there is a large cumulus cloud just about over the center of the eddy, and it's slightly southwest of where it's indicated in your - your book there.

	DMP	Okay. Thank you.
20 47 37	CC-H	Other than that, might as well get cracking and see if we can get some TV of it. I'll - -
	DMP	Okay.
	CC-H	- - Won't bother you any more.
20 53 38	CC-H	Apollo, Houston. We're about to lose you here through the ATS, and we'll see you again at Orroral in about 18 minutes.
	CMP	Okay, Crip. Looks like we're going to get the TV camera set up and I think we're proceeding very well.
	CC-H	Great. If you do, we're going to also not only look at that eddy area, but when you come across Hawaii, we're going to be looking at that one. I was going to give you some words at Orroral, Vance, regarding eddies. We've had a lot of them reported southwest of Hawaii, and we were going to get you to look at them and try to give us a - size, number, and extent, and that kind of stuff.
20 54 21	CMP	Okay. Pacific Ocean - Ocean's just - -
21 10 34	CC-H	Apollo, Houston. We are AOS through Orroral for 4 minutes.
	DMP	Okay, Crip. And we got the TV camera up and running.
	CC-H	Okay, great. We're talking at you on VHF now. As soon as we lock on with S-band we're going to go ahead and command in that camera ON.
	DMP	Okay.
	DMP	...
	CC-H	Go ahead.
	DMP	...
	CC-H	Sorry you're unreadable, way down in the mud.
21 12 39	DMP	... say we're concerned whether we got the right configuration here to give you the TV you're looking for.

	CC-H	Okay. We've got it. It's - it's coming down. We're not getting to look at it here, we're just dumping it to the site so we can get it later.
	DMP	Oh. I see. Okay. But the site does have it there.
	CC-H	That's affirmative.
	DMP	Okay.
	DMP	Where are we right now, Crip?
21 13 09	CC-H	I'm sorry. You're just over the - the coast of Australia right now.
	DMP	Okay.
	CC-H	Should be getting pretty close to Sydney there.
	DMP	Well, okay, Crip. We're over where we think we ought to be, about Sydney, and we're in solid cloud cover here right now.
	CC-H	Yeah. Kind of hard to pick a cumulus cloud out amongst all the clouds then, huh?
	DMP	Right.
	CC-H	Okay. Copy that.
21 14 54	CC-H	Like to give you this quick blurb regarding the eddies I mentioned earlier south of Hawaii. It's known to have a series of eddies southwest of the Islands due to the current flow being broken by the Islands. And the size, and the number, and the extent of them are unknown. We'd like you to attempt to observe the orientation, the sizes, and how many you can see. You should have a chance to look at them on this upcoming pass across there at about 201:09. And we think it should be visible out of window 1.
21 15 28	CC-H	We're also going to be, again, not beaming down this TV to Hawaii when we - when we come across there. So we can look at it later. We are 1 minute from LOS, and our next station contact will be at Hawaii in 14 minutes.

21 28 55	CC-H	Apollo, Houston. Hello at Hawaii for 6 minutes. How you doing?
	DMP	Okay, Dick.
	CC-H	Hi, Deke.
	DMP	Yeah. We're cruising along here looking for eddies, and we shot a few pictures of some of the same kind we've been seeing right along.
	CC-H	Roger. Is the weather up there any better than it was down around Australia?
21 29 15	DMP	Yeah, it's pretty clear over most of this area, and scattered clouds that just outline the eddies. In fact, we've got a couple super big ones coming up on our right, right now - at 201:07:25.
	CC-H	Roger.
	DMP	Are you guys getting TV of this, incidentally, Dick?
	CC-H	I'm sorry, Deke. Say again?
	DMP	Are you guys getting TV, or are we just putting it on tape?
	CC-H	We're not getting it live, Deke. I think we are dumping it down to the - the Hawaii tracking station, and the station reports that they are receiving it.
	DMP	Okay.
21 30 24	CC-H	And incidentally, this is - you're very close to being right overhead your splashdown point. This is the - just about the same sort of ascending rev that you'll be coming home on, tomorrow.
	DMP	Okay. If the weather's like this tomorrow, it'll be super.
	CC-H	I'm sure it will be. That's the way we scheduled it, anyway.
	DMP	Yeah. You guys have good control of things down there, we've noticed.

	CC-H	Darn right.
21 30 53	CMP	This eddy Deke just called out's about 50 kilometers across.
	CC-H	Roger, Vance.
	DMP	Say, a question for Farouk on the eddies. Do they want stereos of that? We're kind of getting little short on film, but if they need stereos, fine, we'll shoot it up. But if the stereo doesn't do much for them, we might as well save the film.
	CC-H	Let me - let me check real quick. Hang on.
	DMP	Okay.
21 32 45	CC-H	Deke, Houston. We did talk to Farouk in the backroom, and he says he would like some stereo photography of the eddies.
	DMP	Okay. You got a million eddies out here, and - -
	CC-H	Rog. He says, Deke - he gives the advice to pick out one good-looking site and get good stereo of that and not try to document the whole area, Deke.
	DMP	Okay.
21 34 16	DMP	And it looks to us, for Farouk's information, like we're almost running parallel with a large ocean current, here. The cloud banners on both sides and the clouds within it look a good deal like a Gulf Stream type current.
	CC-H	Roger, Deke. Copy.
21 34 31	CC-H	Apollo, Houston. We are 1 minute to LOS. Newfoundland comes up at 201 plus 28. I do have one note for you. Back to that ORDEAL problem that you had, I don't think you're using it anymore, but we would recommend that you select INERTIAL on the ORDEAL FDAI number 1 switch and discontinue trying to use it with FDAI 1. It turns out that there are some potential failure modes caused by contamination in that switch that could cause the loss of that ball. So give up on it and stay on number 2.

21 35 07	CMP	Okay. Understand. From now on, we don't use FDI [sic] 1 for anything, then.
	CC-H	Well, don't use the ORDEAL on FDAI 1. That's what I mean.
	CMP	Oh, okay. Yeah.
	CC-H	Yeah. The ball is okay now.
	CMP	Right.
21 35 19	CC-H	We just don't want to change that. (Laughter)
21 50 27	CC-H	Apollo, Houston. Newfoundland for 7 minutes.
21 52 48	CC-H	Apollo, Houston.
	DMP	Go ahead, Houston.
	CC-H	Roger. It turns out, because of this different pitch attitude on the P20 for this - that we're in for the Earth obs - we are going to be able to acquire the ATS right now, if anybody will give it a try. The angles that are printed over there at a time of 201 plus 45 we think will be good. And we'll lose it, then - maybe 5 minutes earlier than it's printed in the Flight Plan. But we think if somebody has a chance to try, we should be able to lock up.
	DMP	Okay, 201:45, Dick.
	CC-H	Okay.
	DMP	Okay, Dick. ... now on ATS?
21 54 21	CC-H	Roger, Deke. We'll inhibit the Newfoundland VHF and be talking to you through ATS. Thank you a lot.
	DMP	All right.
	ACDR	Houston, Apollo.
	CC-H	Go ahead, Tom.
21 54 46	ACDR	Yeah, hey, if this TV comes out - I was wondering, you know, we - so - we used so much film that you can budget to shoot. As far as what it looks like, you

know, from space, looking down on the Earth - and most of the time, like Skylab, those guys very seldom had, you know, a local horizontal attitude. But if you put on a tape recorder, you get some good passes coming up, like the United States. Why don't we put it on TV, on the VTR, then you can dump it? I think it'd be pretty fantastic what you see. Over. Just something for you to think about.

CC-H Okay, we have - we have been talking about some - some about that on the ground, Tom. And we'll talk about it some more and get back to you.

21 55 23 DMP Yeah, you know, just as a "for instance," we just came off this Pacific pass and kind of all climbed back in the cockpit, and all of a sudden looked out the window, and man, we're dead center over Seattle and the most clear day I've ever seen there. And nothing running. The TV was running, but it didn't go anywhere, I don't think.

CC-H Roger. Understand.

21 56 33 CC-H Apollo, Houston. We have no further scheduled use of the VTR. As far as we're concerned, you can use it for out-the-window passes of the U.S. or other clear-area targets of opportunity, and we'll either dump it, or we'll bring it home full.

DMP Okay. Super.

CC-H Great.

DMP Incidentally, I did - scramble and get a camera and get a few shots of that area. But it wasn't planned very well.

21 57 06 CC-H Okay. Well, I tell you what. Your next couple of revs are going to pass right over that same general area again. So, as you come across it, you probably can get - get another chance. Of course, we may be - -

DMP Yeah, right. We noticed that.

CC-H Okay.

DMP You bet you. Thank you.

	CC-H	Okay.
21 57 09	DMP	Hey, we sure do miss our old utility outhouse up here.
	CC-H	I'm sorry, Deke. Say again.
	DMP	I say, we sure do miss our old utility outhouse up here since we jettisoned it.
	CC-H	Roger.
	DMP	I think I better twist the words; it'd be the back-porch - -
	CC-H	Roger.
	DMP	- - ... it for about everything you can imagine.
21 58 18	CC-H	Rog.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

22 07 25 CC-H Apollo, Houston. For Vance. Vance, if - when you get a chance, if you could get out the Earth Obs Book and look at site number 4, I've got a note here I wanted to pass up to from Farouk about this upcoming Earth obs pass.

DMP He's not on comm right now, Dick.

CC-H Okay. There's no - -

DMP How much time we got?

CC-H Oh, we got lots of time. I got another 35 minutes in this ATS pass, Deke. I've also got a suggestion from Farouk that you ought to take just as that for this TV out the window, ground TV for the VTR. Some times that - -

DMP Okay.

CC-H Okay. If you've got a pencil, Deke, I can give you some on/off times for the VTR, which would get a daylight pass starting at Australia, going up to cover the area where the eddies are, and then turn it off over the clouds over the Pacific, and start it again over the - around Seattle, and then let it run to completion.

DMP Okay. Stand by 1, and I'll copy her.

DMP Okay, Dick. I'm ready.

22 08 47 CC-H Okay. VTR on at time 202 plus 21, VTR off at 202 plus 33, VTR on at 202 plus 47, and then this proposal would just run the VTR until it's out of tape, and turn it off at 203 plus 05.

DMP Okay. Copy that. 202:21, on; 202:33, off; back on at 47, and off at 05, or when we run out.

CC-H Okay. And just take that as a suggestion. If you see a better way to run it, or something out the window you'd rather - rather take, anything would be fine with us.

	DMP	Looks good here. Thank you.
22 19 49	CC-H	Apollo, Houston. We're going to be losing AOS on this pass in about 6 or 7 minutes. I've got one Flight Plan update and also wanted to talk to Vance about this upcoming Earth obs pass.
	CMP	Okay. Go ahead, Dick. I just came *** the headset.
	CC-H	Okay, Vance. I wanted to pass up a note to you from - from Farouk, and it might help if you were looking in the Earth Obs Book at the picture - the site 4 page in there.
	CMP	Stand by 1.
22 20 26	CC-H	Okay. And, also, the - I do have a Flight Plan update for somebody to copy on - at 203 hours and 10 minutes.
	DMP	Okay, Dick. Ready for the Flight Plan change.
	CC-H	Okay. We want to change that VHF A maneuver to the DM attitude to read as - to the following angles: 001, 143, 356. I also want to change the high-gain angles to read plus 35 and yaw 262. Over.
	DMP	Okay. Copy. 001, 143, 356. And AOS through - oops! - plus 35 and a 262.
22 21 45	CC-H	That's right. You'll notice we had the sign wrong on that pitch, and that was the main reason for the change. Also the difference in the VHF A9, slightly. Thanks, Deke.
	DMP	Okay. Thank you.
	CMP	Okay. And I'm ready to copy whatever you've got from Farouk - -
22 22 03	CC-H	Okay, Vance. It turns out that we have another candidate site for sea farming from - from Captain Cousteau. And it's the body of water north of Puget Sound there. And if you look on that little map, it's - it's generally that body of water to the west of Vancouver. And you'll be passing on rev 124 to the north of it. And when looking at site 4A, you'll be looking right down the Sound there and - or right

down the body of water looking at site 4A. It's the water that separates Canada from Vancouver Island, and it should be visible from command module window 1 at the same time as site 4A is visible. And if you have a chance, he'd like to get a color-wheel reading of that water and some photos, if you have the film to do it. The reason it's a good site for farming is that the current there is - runs adjacent to the coastline but does not get - does not run through that inland - inland water there. So the water's fairly still, and the texture of it should be fairly smooth. Over.

CMP Okay. Is that known as the Strait of Georgia?

CC-H I'm not - it - the Strait of Georgia in that area - is in that area but - Yes. That's affirmative, I'm - I'm told, Vance. That - that body of water there is the Strait of Georgia.

22 23 38 CMP Okay, and - more or less along the whole length of it, or would you suggest the south end more than the north, or what?

CC-H I - I think the whole length, because the - because the water generally in there is still and doesn't have a current running through it. I think just about anywhere in there would be good. I think probably your best chance at getting a color-wheel reading, though, might be where you have a little more water down towards the south end. But, at any rate, there won't be much time to look down there; and so, do the best you can.

CMP Okay. So photos, not necessarily stereo, but more or less to cover the Strait of Georgia series, and a color-wheel reading of the water there.

CC-H That's affirm. Real fine. Thanks a lot.

CMP Sure enough.

22 25 33 CC-H Apollo, Houston. We're about 1 minute from LOS. We'll be seeing you again when we -

23 23 27 CC-H Apollo, Houston. Hello at Bermuda. How are you doing?

ACDR Just super, Dick. We're sitting here observing the good old world from a beautiful vantage point.

CC-H Roger. Is the East Coast pretty today? It's been kind of cloudy down here.

ACDR It's been pretty cloudy in most of the area here, but - we're coming into a clear area right now.

CC-H Roger.

DMP Yeah. We can see Long Island.

ACDR In fact, Dick, we just passed over Manhattan.

CC-H Roger.

23 24 06 DMP For Farouk's info, we saw a super circulation pattern off the west coast. Got a kind of panorama. It was so big you - couldn't get it into two camera frames. I wouldn't have any idea of how big an area it covers, but it looks like a super big hurricane, except it wasn't all that dense.

CC-H Roger. Understand.

DMP Yeah.

CMP It was sort of a ring of clouds, I guess you'd say, rather than a hurricane. When we got to Seattle, we were too far north of Seattle to see it. And there were clouds over Canada, but we did pick up some glaciers, see some fern lines on Canadian Rockies - glaciers. And Lake Superior was clouded over completely.

CC-H Roger, Vance. Got it.

23 25 21 CC-H Apollo, Houston. I don't want to stop your view of the United States, but when you get out over the ocean there, or at your convenience, I'd like to get the P52 data. And, also, I'd like to get somebody, when they have a chance, to read the four numbers A, B, C, and D on the Doppler tape recorder assembly. We're still interested if that second recorder has moved.

ACDR Roger, Dick. And we're going to go ahead and get the VTR off and go to VERB 49 for the next maneuver.

	CC-H	Okay. Fine.
	ACDR	Houston, Apollo.
	CC-H	Go ahead, Tom.
	ACDR	Okay. Here's the IMU data. NOUN - first star is 07; second, 04 - -
	CC-H	Break. Tom, Houston. Could you stand by. We're getting a bad echo. Let us reconfigure so I can understand you.
	ACDR	Okay.
	CC-H	Apollo, Houston. Tom, try it again, please.
	ACDR	Roger. How do you read?
	CC-H	Loud and clear. Go ahead.
23 27 38	ACDR	Okay. 07 and 14 were the two stars. NOUN 05, all zeros; plus 05.9; minus 63; plus 23; platform torque, 202:08:45. Over.
	CC-H	Okay, Tom. Copy. Thank you very much.
	ACDR	Okay, Houston. How do you read?
	CC-H	I've got a real loud scratching noise on the down link, Tom, but I can hear you. Go ahead.
	ACDR	All right. ...
23 29 39	CC-H	Apollo, Houston. I'm sorry. I can't understand you at all. We're going to have to clear up this noise on the downlink. Stand by.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

23 30 20	CC-H	Apollo, Houston. We're about 30 seconds from LOS at Bermuda. We'll see you when you get locked up on the ATS. ...
23 31 02	CC-H	Apollo, Houston. How do you read?
	DMP	5 by, Dick.
	CC-H	Okay, Deke. We had a real loud noise when we were going over the hill there at Bermuda, and I didn't copy any of what Tom had passed down to me.
	DMP	Okay. Stand by 1. We'll get it for you.
	CMP	Okay, Dick. Recorder readings we copied down as follows, at 203 hours and 7 minutes. A is 12; B is 13; C is 11; D is 12.
	CC-H	Okay, Vance. Thanks a lot. Appreciate it.
	CMP	Right.
	CMP	And we'd be curious to know if that's a - if those are reasonable readings, if the thing's working.
	CC-H	Well, I think INCO is checking it now. Looking at his past data, it looks like we may still be having problems with that second recorder. However, it doesn't - it doesn't really matter because, as long as one of them is working, we're meeting our objectives.
23 32 15	CMP	Right.
23 35 50	CMP	Houston, Apollo.
	CC-H	Go ahead, Vance.
	CMP	Okay, Dick. Here we are in the Flight Plan at a place where we're doing preliminary stowage. Just curious to know if you want us - to stow this TV camera now, or would like to keep taking advantage of getting some TV of the orbit?

	CC-H	Vance, our plan now - You've just about filled up the VTR, or if you haven't, there's only a few minutes left on it, and we were not planning on dumping it. What we're planning on doing is - is bringing that home. So - so, in order to support that, I guess we can go ahead and stow it.
	CMP	Okay. We'll go ahead and stow it.
	CC-H	Okay.
23 37 50	DMP	Houston, Apollo.
	CC-H	Go ahead, Deke.
	DMP	Yeah, we're taking film inventory here. It appears we're down to one magazine of 16-millimeter stuff. We're supposed to shoot the entry of the drogue deploy, and what we've got is color interior. Can somebody give us some reasonable settings so we can use that for exterior?
	CC-H	Yes. We'll look it up, and I'll get back to you.
	DMP	Thank you.
23 40 37	CC-H	Apollo, Houston. I've got a DM2 final pad for you if somebody would like to copy - in the Flight Plan.
	ACDR	Okay, be right with you in a minute.
	CC-H	Okay.
	CC-H	And, Apollo, Houston. If you'll give us POO and ACCEPT, we'll get you up a target load.
	ACDR	Okay, Dick, go ahead on the DM2 pad.
	CC-H	Okay, Tom. Are you hearing me loud and clear? I heard a - an echo there.
	ACDR	You're loud and clear.
	CC-H	Okay, fine. Starting with NOUN 33: 204:11:42.00; minus 019.7, plus four balls, minus 018.0; 000, 136, 355; 008.7; 00:01; 3.1; 18 - excuse me, that delta-V_C tailoff is 18.0.

ACDR Got it.

CC-H Weight, 25262; trims, minus 0.14, minus 0.76. Go ahead.

23 42 55 ACDR Okay, on the readback. 204:11:42.00; minus 019.7, plus all zeros, minus 018.0; 000, 136, 355; 008.7; 00:01; delta-V ignition, 3.1; tailoff, 18.0; weight, 25262; pitch trim, minus 0.14; yaw trim, minus 0.76. Over.

CC-H Roger, Tom. That's a good readback. And there on that other Flight - that facing Flight Plan page, I have one more thing for you. Right up there at the top of the page at about 204 hours, we want you to change the DAP to a VERB 48, and the two registers are as follows: 10102 and 01111. Go ahead.

ACDR Okay. DAP change at about 204 hours, be 10102, 01111. Over.

CC-H Roger, Tom. That's a good readback and a good pad. Thank you much.

ACDR All righty.

CC-H And, Tom, the computer's yours. You can go back to BLOCK.

23 44 23 ACDR Have it in BLOCK.

CC-H Okay.

23 50 00 CC-H Apollo, Houston.

CMP Go ahead.

CC-H Vance, just a minor point, there. A few minutes before the burn in the Flight Plan, it's printed in there to get the G&N POWER OPTICS on. Since we've had - we've had such a series of real good P52's, we didn't give you a burn attitude check, and that POWER OPTICS on was assuming that you would have one, and that's why it's in there. No problem.

CMP Okay. You're saying, Dick, that's the next DM2 burn that we can leave that switch OFF?

	CC-H	That's affirmative.
	CMP	Because we won't have an optics check, anyway?
	CC-H	That's affirmative.
	CMP	Okay.
	CC-H	Okay.
23 59 54	CMP	Houston, Apollo.
	CC-H	Go ahead, Vance.

00 00 00	CMP	By the way, you know we have a - I don't know if this has been called down or not, but we have in the Flight Plan Supplement that special binder - need to try it out for Shuttle?
	CC-H	Roger.
	CMP	And we had to open it and take pages out and put them in, and had only one comment. It isn't too bad, but it's a little more complicated than the kind of binder you used when you were in high school. The one they used in high school had two tabs that you could press down to open it, which was - which was very handy. This one has a couple of slide devices that have to be pulled out, and it's a little more involved - less simple working it, I'd say. And so, the only comment in our evaluation is they might look at just using the standard high school type.
	CC-H	Roger. Well, the simpler we can get, I'm sure that's what we'll want to do. And we'll pass that comment on, and I'm sure they'll be interested to talk to you guys after you get home. Thanks, Vance.
00 01 06	CMP	Okay.
00 04 49	MCC-H	Go ahead.
00 04 53	MCC-H	475.
00 13 23	CC-H	Apollo, Houston. For your information, we've been watching you load everything, and it looks real good. That - that DAP change that I gave you can be loaded really anytime. I gave you a time of - 204 hours, but if you want to go ahead and load it now, that - that'd be fine.
	DMP	Okay, Dick. We'll put her in.
	CC-H	Okay.
	CC-H	Apollo, Houston. We're about 2 minutes to ATS LOS. You're looking real good. We'll see you at Guam here at 204 plus 01, just 4 minutes from now.
	CMP	Okay, Dick. Very good.

00 19 22	CC-H	Okay, see you there.
00 23 24	CC-H	Apollo, Houston. Guam for 7 minutes.
	CMP	Okay, Dick. Loud and clear.
	CC-H	Roger.
	CMP	We're ready for the burn.
	CC-H	Okay, and we've been watching you here. You look real good to us.
	CMP	Okay. Real good.
00 28 50	CC-H	Apollo, Houston. We're about a minute and a half from LOS. I'll call you at Rosman at 204 plus 32. You got four good gimbal motors; the trims are okay; everything's looking fine. We'll see you after the burn.
	CMP	Okay. Glad to hear it's looking good.
00 29 04	CC-H	Okay.
00 54 21	CC-H	Apollo, Houston. At MILA for 7 minutes. How do you read?
	ACDR	Reading you loud and clear, Dick. Burn went fine. The residuals were 0, minus 1, and plus 1. Over.
	CC-H	Okay. Real fine. And what was the EMS reading, Tom, after the burn?
	ACDR	Minus 18.0.
	CC-H	Okay. Super. Sounds like it was right on. Thank you very much.
	ACDR	Yeah. Roger. We're trying to go ahead and get ahead of things so that when - during nighttime, we'll get the leg measurements and some other - and ZFF and all that. So, when we come out in the daytime, we can do some more vis obs. Over.
	CC-H	Okay. That sounds great, Tom.

00 55 07	CC-H	And, Apollo, Houston. You'd be interested to know that we've got a good lock on the Doppler. Looking real good.
	ACDR	Hey, that's great. And also, the - on A and B, those reels are still turning, but C and D have not moved.
	CC-H	Okay. Thanks, Tom.
	CC-H	Apollo, Houston. We think you need to PRO on the 50 18 to get into the orb-rate attitude P20.
	ACDR	Stand by. Okay, we'll PRO.
00 59 49	CC-H	Okay.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

01 00 07	CC-H	And, Apollo, Houston. We're 1 minute from LOS. We'll see you when you get locked up on the ATS.
01 05 51	CC-H	Apollo, Houston through the ATS. How do you read?
	ACDR	Read you loud and clear, Dick.
	CC-H	Roger, Tom. Me too.
	DMP	Dick, how do you read?
	CC-H	Loud and clear, Deke. Go ahead.
	DMP	Okay. Hey, I owed you a report here the other day on the old crystal growths, and I just got through taking another series of pictures into where I can see them. I would like to report that I don't see any crystals anywhere. We've got - bubbles, and three or four units, fairly good size, size of a pea or so; but I see nothing that I would call a crystal in any of them.
01 07 16	CC-H	Okay, Deke. Thanks a lot for telling us again.
	DMP	Okay.
	ACDR	Okay, Dick. And now that we've got the TV on the VTR, just go ahead and turn the whole thing off; it will be recovered after landing? Over.
	CC-H	That's affirm, Tom. You can go - I was going to wait until presleep to remind you because I wasn't sure where y'all were on the tape. But when you've gotten what you want, just turn all three POWER switches OFF, and we can forget the VTR until we get it on the ground.
	ACDR	Okay.
01 12 31	ACDR	Houston, Apollo.
	CC-H	Go ahead, Tom.
	ACDR	Yeah. Are you reading my DSKY?

CC-H Yeah. Stand by just a second.

CC-H Yeah, Tom. I think I can explain what happened here. When you PROed on the P20, we were out of attitude and the rate was slow. And when you got to the attitude, it slipped out from under you again. What you need to do is PRO again on the P20, and we'll catch up with it. And we see - guidance - I'm sorry, looking at it, it's obvious you already have done that. So this time when we catch up, we should be squared away. And we're still locked up on the - -

ACDR Okay.

CC-H - - we're still locked up on the Doppler, so no harm done.

ACDR Okay. Are you receiving data down there besides getting it on the recorder up here?

CC-H That's affirm, we are. Well - -

ACDR Yeah, that's good.

01 13 41 CC-H Tom, let me - I'm not sure I understood your question. Let me clarify that. We are not receiving science data. We are receiving good spacecraft data and systems status, so we can keep up with you. But - but you've got the science data - data onboard, and we have a couple of parameters that let's us know that we're locked up. So, we're doing okay.

ACDR Real good.

DMP Dick, if things are quiet down there, I can give you a quick film inventory.

CC-H Okay, Deke. Can you stand by just a second. We're getting ready to change dump modes, and I'm going to drop out. I'll call you when we're back up.

DMP Okay.

01 15 49 CC-H Apollo, Houston. We're locked back up on voice. And I'm - Deke, I'm ready to copy on the film.

DMP Okay; just a second. Okay; here it goes. Okay. We got about 320 frames of 35 millimeter left, 140 of 70 for the silver camera, and about 180 for the

black over and above our mapping requirement. We have one mapping pass left, which we figure it will take 90 frames. And we only have one mag of 16 left, and that's an interior. We've already talked to you about that one. And that is it.

CC-H Okay. Let me read them back: 320 frames of 35 millimeter left, 140 frames of the silver 70, 180 mil - frames of the black camera over and above the mapping requirements, and one mag of 16 millimeter.

DMP That's affirm.

CC-H Okay, Deke. Thank you.

01 16 54 DMP And we will try to budget that so we won't run out too early and have to come home with no film.

CC-H Roger. That's the way to do it.

01 25 05 CC-H Apollo, Houston. Is Vance on the phone?

ACDR Yeah.

CMP Yeah, right here.

CC-H Hey, Vance, you know, y'all were talking - or any of you - y'all were talking while ago about the new book binder, and - -

CMP Right.

CC-H - - and it turns out that the principal investigator of that experiment is Dr. Theodore Guillory, who happens to be sitting here next to me, and he had a couple of questions he wanted to pass up.

CMP Okay. Gladly talk to Dr. Guillory.

CC-H Rog. The first one was, "Is the effectiveness of the system degraded when in P20 over the South Atlantic Anomaly or during venting?"

CMP Well, if you're venting waste water, no. Depends on what you're venting.

CC-H Okay.

CC-H He had one more. It says, "Did you notice any crystal redefinition when near the furnace or near Deke?"

CMP Yeah, we didn't think to melt it. We should have done that.

CC-H Roger. Okay; thanks a lot. I think he's got all his data now.

CMP Okay. (Laughter)

DMP That last one sounded like a dirty question, but I haven't quite figured it out yet.

CMP Roger.

01 26 36 CMP The old high school - high school notebook theory.

CC-H Roger. He did say, incidentally, that the reason that they - or one thought on that high school notebook thing was, is that most of the books that you have need to be - or in the past, we've always thought that they needed to be folded back on themselves and be able to be, you know, clipped with any page open. And that was one of the reasons that they had gotten a little more complicated.

DMP If you'd like one very scientific comment on the books, that new cover that's orange, strawberry, and pineapple just looks better than the old ones.

01 27 18 CC-H (Laughter) Okay.

CMP That reminds me. It's about time to clean the salmon oil off the side window - on the left here.

CC-H Roger.

01 29 20 CMP Just a medical comment here, Dick.

CC-H Roger. Go ahead.

CMP The last burn was very short, but very violent, as usual, and - or it seemed that way - and we had a suit bag temporarily stowed in the tunnel and had forgotten about it. And it almost broke both of Tom's legs when it came down.

	CC-H	Roger. Understand. I'm glad it didn't. I remember, during Skylab, Joe Kerwin talking about doing some of those burns standing - standing up down there in the LEB - LEB.
	CMP	That's a new thought - to see if a guy could stand 1-1/2 g after a week of zero g.
	CC-H	Yeah, but we all know what happened to Joe Kerwin, so we'd just as soon you all would sit down for the next burn.
	CMP	(Laughter)
01 44 02	CC-H	Apollo, Houston.
	ACDR	Go ahead.
	CC-H	Yeah. We've had such good luck with the platform and doing the P52's, and seeing how we figure that you're going to be spending most of these daylight passes looking out the window and doing Earth observations, and you might want to spend the night pass during eating. It's your option, but we'd be satisfied if you just skip this next - upcoming P52 here, and we'll get one after you wake up in the morning.
	CMP	Okay. Sounds fine.
01 44 36	CC-H	Okay, Vance. Thanks.
	CMP	That's really a super platform, isn't it? I can hardly believe the small errors it has all the time.
	CC-H	It sure is. And I guess you know this, but that's an Apollo 14 platform. It went to the Moon and back.
	CMP	I guess it was an Apollo 14 probe too, isn't it?
	CC-H	Yes. It was.
	CMP	That worked good.
01 45 00	CC-H	As - as a matter of fact, I - I'm corrected by Terry Watson. The - the probe was Apollo 14. The IMU was - The platform went to the Moon the last time, on Apollo 17.

01 58 01	CC-H	Apollo, Houston. We're 2 minutes from ATS LOS. We'll see you at Goldstone in about 20 minutes. See you there.
	CMP	Okay, Dick. Incidentally, we were just commenting - this is not - this is a sure good attitude for the Doppler experiment, but we kind of need a periscope for Earth obs.
01 58 18	CC-H	Roger. FAO was sitting here thinking the same thing, probably.
02 21 33	CC-H	Apollo, Houston. AOS at Goldstone for about 4 minutes, and about 2 minutes into the pass, we will have a keyhole of about 45 seconds.
	ACDR	Roger.
	ACDR	Dick, we saw a huge weather cycle out in the Pacific at a GET of 205 plus - plus 56. It's built upon the edges; it's down - it tapers down in the center; it's got just a round - really an open center. But it looks - and it's circulating. You can see the whole circulation. It's probably 150 miles in diameter. You might want to check it with Farouk and the weather people. Over.
	CC-H	Roger, Tom. We certainly will. Sounds like you got a better view of it this pass than you did last time.
	ACDR	Right; I think so. The only thing we - only time we can see now is just out of window 1 in this attitude.
	CC-H	Roger. Understand.
02 23 57	CC-H	Apollo, Houston. In about 50 seconds, I'm going to drop into a keyhole, and I'll call you when I climb out.
	ACDR	Okay.
02 25 04	CC-H	Apollo, Houston. I'm back up. We're about 30 seconds from LOS. I'll give you a call at Quito in 8 minutes.
02 25 10	ACDR	Okay.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

02 33 15	CC-H	Apollo, Houston. Quito for 6 minutes.
	CC-H	Apollo, Houston. Quito for 4 minutes.
	CMP	Loud and clear, Dick. How do you read me?
	CC-H	Roger, Vance. Stand by 1.
	CC-H	Vance, Houston. Are you reading me loud and clear? I thought I heard an echo there.
	CMP	Yeah, we read you earlier and you apparently didn't hear us.
	CC-H	Okay.
	CMP	... then. We just heard you then.
	CC-H	Okay, incidentally, since we went LOS up there at Goldstone, we got weather up in recovery to show us the satellite picture that - of the cloud formation that you saw. For your information, there's a big lull located right in the center of the circulation pattern, and on the - let's see, the eastern edge - the leading edge of the cloud pattern that's close to the western coast of the United States is a cold front. So the cloud characteristics - it just turns out that the cloud characteristics of the weather pattern look like a tropical storm but, of course, that's not what it is.
	CMP	Okay. Well, I'm glad it isn't. It's just that it would be in kind of an odd place for a tropical storm anyway, I guess.
	CC-H	Rog. Well, we - we do have a satellite picture of it, and it certainly looks like one, and it's - covers a tremendous area.
	CMP	Yeah, we were impressed by the spiral arms on it.
	CC-H	Roger.

02 37 56 CC-H Apollo, Houston. We're 1 minute from LOS. I'll give you - we'll be talking to you again when you get locked up on the ATS. And if you guys are eating supper and would like to hear some news, I have a little bit for you when we get to the ATS.

CMP Really would. Very good, Dick; whenever you're ready.

CC-H Okay, when we get locked up on the satellite, I'll have it for you, Vance. The EECOM - Charlie Dumis and his EECOM friends back in his staff support room really outdid themselves tonight. We had standing rib roast and all the trimmings.

CMP You mean Charlie's serving again, huh? I thought maybe the GNC's would be serving tonight. Terry Neal with the chef's hat on or something.

02 38 39 CC-H I - I'm not sure how this happened, but Charlie has been treating us every night.

02 43 33 CC-H Apollo, Houston through the satellite.

DMP Okay. Read you 5 by, Dick.

CC-H Roger, Deke. And if y'all are interested in some news, I have it here.

DMP Great. We're standing by.

02 43 47 CC-H Okay. President Ford said today the United States is earnestly seeking progress in easing Middle East tensions, but cautioned it might not work. Address - addressing delegates to the American Legion's annual Boy's Nation in the White House Rose Garden, Ford said the differences are still very serious in the search for a new interim agreement between Egypt and Israel. The Senate lead - leadership has abandoned further efforts until September to break the deadlock over the contested New Hampshire Senate seat. "It is off," majority leader Max - Mike Mansfield, Democrat of Montana, said today when reporters asked if the Senate would take up the election dispute again before an August recess of Congress. Florida laymen have broken up a bee-rustling operation in which they say thieves harvested nearly $500 000 in honey by switching brands on stolen hives. Beekeepers from

seven south Florida counties were busy Wednesday picking out their hives from nearly 1200 recovered in a Tuesday raid on a quonset hut honey factory in a rural area of Palm Beach County. All the bee-keepers have their own brands on their hives. Some of them know their stock so well they can identify the bees themselves, said Sergeant James Greer of the sheriff's department. Officers from nine state and local enforcement agencies were involved in the raid on one edge of Palm Beach County, center of the 30-million-pound-per-year honey production. In the state, beekeeping is a 10-million-adot - 10-million-dollar-a-year industry. In sports, last night the Astros lost a 2 to 1 decision to the Montreal Expos. Pretty Susan Jerns of Houston won her seventh title as a style jumper in the women's division of the National Parachute Association meet in - in - Tom, you'll have to pronounce this one for me. Tollequah [sic], Oklahoma, I think it is. What is it? Tellequa [sic].

ACDR How do you say that? Tahlequah.

02 45 52 CC-H Tahlequah. Okay. I learn something every time I come over here. Professional football is just a few weeks away. The Oilers are in full swing at their training camp in Huntsville. The word on the player/management dispute is that the teams will start the season on time, but they're still deadlocked at the bargaining table over several issues. There are predictions in Athens, Greece, that over 90 000 fans will turn out to watch a U.S. all-star basketball team play a Greek team in an outdoor stadium. And Muhammad Ali and Joe Frazier are already drumming up business for their October first title match in Manila, Ali says his routine will defeat Frazier and Frazier says it's an invitation to a bombing of Ali. You guys are still in the news, and there's a whole lot of interest in your splashdown tomorrow. Deke, your Aunt Sadie Link in Wisconsin made the headlines today. She was talking with - by telephone from up - from up there, and she said she was ready to go into space herself anytime. Her statement came in response to a question put by reporters after the in-flight news conference when you remarked you thought your aunt in Wisconsin could come up and do this job physically. She also said that she couldn't remember you as being particularly interrested in flight as a boy, but, "I guess that came

after he got away to school," she said. Incidentally, bef - while ago I talked to all of your homes, and everybody's doing real fine and very excited about the splashdown tomorrow.

ACDR Well, I thank you very much, Dick. Appreciate that.

CC-H Incidentally, speaking of the - -

DMP ...

CC-H Yeah, go ahead.

DMP Just saying my Aunt Sadie didn't disappoint me. I expected fully she'd be ready to come.

02 47 54 CC-H (Chuckling) Roger that. Incidentally, when you guys splash down tomorrow, it will be within about 4 hours of 6 years from the splashdown of Apollo 11. And at the end of your mission - I thought we'd pass up a little data to you - At the end of your mission, the United States will have collected 22 468 man-hours in space. That's over 2 years. You make 43 astronauts we've flown in 31 flights and, in total, we've chalked up 30 - 3422 manned revs of the Earth. Might also point out that when we saw these figures we decided to - to get some figures ourselves. And so the - Neil Hutchinson asked the Silver Team, just the guys working here on the consoles tonight, to figure up how much flight control experience that we have, and I'm talking about people out here in the frontroom and just people directly supporting us in the staff support rooms and over in the MER, not, of course, including all the other people that work on the space program. But it turns out that - that we have actually, of the people here tonight that you're talking to now, we have collected 122 838 hours of flight control experience during manned flights. And that's 14 years. And assuming the other two teams are of similar experience, that's 42 years. And, incidentally, Deke, I know you've been in the program a long time, but our network controller tonight first controlled Al Shepard on Mercury Redstone 1.

02 49 34 DMP Outstanding; glad he's still there.

CC-H That's right - -

DMP Give him my regards.

CC-H So are we, Deke.

DMP I didn't know there was anybody left as old as Al Shepard.

02 49 58 CC-H Well, as a matter of fact, when we total up the - when we total up the numbers, it turns out that for the first two - He controlled the first two Mercury missions. There's another fellow here that - that came onboard for the third and fourth one; another one came up - came onboard for the fifth one, and by the time we flew the last manned Mercury mission, we had four guys that are still here tonight right now, helping control you guys. So we don't give up easy, just like you.

DMP Super.

CC-H And, incidentally, Deke, our INCO said that he worked for Wilbur Wright.

DMP (Laughter)

CC-H You can gu - you can guess who the INCO is.

DMP Yeah.

ACDR Is he still wearing those sporty boots he had on?

CC-H I can't see that well down there. I'm not sure.

CMP I didn't know the Wright airplane had a radio in it.

CC-H (Laughter) Roger.

CC-H Ed started with semaphores, Vance.

DMP Tell him - Tell him to stick around for another 5, and we'll take him for a ride in the Shuttle.

CC-H Okay.

02 51 36 DMP Give you a chance to get up here and look down for a change, instead of yakking down there, Dick.

CC-H I'll drink to that.

	DMP	So will we.
02 57 20	DMP	Dick, you still with us?
	CC-H	Sure am. Go ahead.
	DMP	Okay, just sitting here thinking about experiments - things we might not have given you any information on. The old fish this morning had a slight mortality rate for the first time. We lost three out of one package overnight last night. Just thought I'd better let somebody know that so that they didn't get all uptight if they discovered it when we landed and thought it happened in reentry.
	CC-H	Roger, Deke. Thanks much. I got it.
	CC-H	Apollo, Houston. If you'll give us ACCEPT, we'll - get your loads up for the evening.
03 01 16	DMP	Okay. You got it.
	CC-H	Okay. Thank you.
03 14 43	CC-H	Apollo, Houston. We're through with uplinks. The computer is yours; and, when you go to BLOCK, you might - after that you might go ahead and give us a VERB 74 for the evening dump.
	CC-H	Apollo, Houston. We have about 20 more minutes here in this ATS pass. We're planning on - what we'd like to do is clean up all our evening stuff here. And we'll give you a call at Goldstone, and we'll make that the last call of the evening. That's about 30 minutes prior to the scheduled time.
	CC-H	So if some - -
	CMP	Okay, we're - we're - we're still eating, and sound great - -
	CC-H	Oh, okay.
	CMP	We don't have that much to do but - we don't have much to do after we finish, and we're almost finished.
03 16 40	CC-H	Okay, Vance, I tell you what. I don't have a whole lot of clean-up to do either, so if y'all are going

to finish here, in a - in a few minutes, why don't you give me a call, and we'll do it real quick.

CMP Okay. Yeah, we can talk to you at Goldstone.

CC-H Rog, Vance. We just wanted to get our presleep stuff here - done here over the ATS while we've got it. We still have about another 18 minutes.

CMP Okay.

CMP Houston, Apollo.

CC-H Go ahead, Vance.

03 19 12 CMP I can give you volts. BAT C, PYRO BAT A, PYRO BAT B; they're all 37.

CC-H Okay, and I'll - thanks, Vance. And another thing we want tonight is get a reading on RCS quantities.

CMP Okay.

CMP Okay. A is 67, B is 61, D - let me start that again.

CC-H Okay.

CMP Okay - yeah. A is 67; B is 61; and 60 for C; 59 for D; and PSM, 15 percent.

CC-H Okay, another thing we're going to want, when you can, also I wanted to talk to you - I wanted to throw one switch on - get you to throw one switch on panel 3. It's the S-BAND NORMAL POWER AMP HIGH switch, and put it to LOW.

03 22 23 CMP Okay, that's done. Stand by for the Doppler.

CC-H Okay.

CMP A is 6-1/2, B is 2, C is 11, and D is 12.

03 22 45 CC-H Okay, Vance. Thanks very much. Let me talk to you a little bit about the water situation. The waste tank has got a lot - a good bit of water in it, but the potable tank is about half full, so we'd like you to put the POTABLE TANK INLET valve to OPEN. And

you kind of have your choice tonight on the SECONDARY COOLANT LOOP. We have sufficient water, and it's - to - for you to either run the loop all night, and let it automatically cycle on and off, or if you'd like to secure the loop before you go to bed, you can do that. And in either - -

CMP Dick, we'd like to run it.

CC-H Okay. That's fine with us. And so we'll just assume that the loop is going to be running all night. And - -

CMP And we'll - close the potable - -

03 23 31 CC-H No - no, open the potable tank. We want - it's only about half full. If we didn't open the tank - potable tank, we'd have to do a water dump. We don't want to do that.

CMP Okay, I'd lost track of what position it was in.

CC-H Okay, it's - we want it OPEN.

CMP Right. And we still have to do the LiOH changeout and set the vent valves.

03 24 00 CC-H Roger. And - EECOM says that any time that it's convenient, you can go ahead and open the POTABLE TANK valve now, and leave it OPEN. And that's all the things on my list except - with the checking on the LiOH canister, and that kind of thing. And we still have about 10 minutes here at the ATS, so I'm standing by.

CMP Okay.

CMP Houston, Apollo.

CC-H Go ahead, Vance.

03 28 17 CMP Okay, Dick. We got your POTABLE INLET valve to OPEN, and we've changed out the LiOH, so maybe EECOM can see that on his instrumentation there.

CC-H Okay, thanks a lot. Saved me a call, because he was - wanted me to make sure you got the POTABLE INLET, OPEN, because if you - if you hadn't we'd have had to wake you up probably at some point and bug you.

	CC-H	Apollo, Houston. We're 2 minutes to LOS ATS. Goldstone at 207 plus 32. See you there.
03 33 13	ACDR	All righty. Thank you.
03 53 58	CC-H	Apollo, Houston. Goldstone for 2-1/2 minutes.
	ACDR	Roger, Dick.
	CC-H	Roger.
	DMP	Hey, Dick. You with us?
	CC-H	Yes, sir. Go ahead.
	DMP	Okay. We just saw what we think is a possible volcano. I don't know if you got any operating there or not, but it was about 207 - was it 18 or 19? 207:19:20 - a very large - kind of a mushroom-type thunderstorm-looking thing with a large stream of gray-brown smoke going downstream, mixed with white. All that I could interpret it to be would be a volcano. If not, it was certainly a - a horrendous oil fire. Can anybody track that one for us?
	CC-H	Okay. We'll - we'll correlate that time and see if we can check it out.
	DMP	Thank you.
03 55 23	CC-H	Apollo, Houston. We're 1 minute from LOS. We're going to make this the last call of the - of the evening, so it's - we've certainly enjoyed working with you here on ASTP, and we'll see you guys when you get back to Houston. So everybody say, "Good night, Dick."
	ACDR	Good night, Dick.
	DMP	Good night, Dick.
	CMP	Good night, Dick.
	CC-H	Good night.
	CMP	Good night, Silver Team.
	ACDR	Yeah. Thanks a lot for all your help. It was just tremendous.

	CC-H	Roger. We really enjoyed it. We'll see you guys when you get home. Have a nice splashdown.
	ACDR	All righty. It's been a real ball.
	CMP	Thank you.
	DMP	Thank you.
	ACDR	Thank you guys again for the help.
03 55 51	CC-H	...

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

ACDR Hello, Houston; Apollo.

CC-H Apollo, Houston. Loud and clear. Go ahead, Tom.

ACDR Roger. One thing we're discussing up here, Dick, can we use Myrtle now, or do we have to, because of the Doppler, store the urine? Over.

CC-H Stand by 1. I'll check. Hang on.

MCC-H I don't think - -

04 24 11 CC-H Incidentally, while I'm getting a - an answer for you guys, it turns out that that latitude and longitude that - when Deke reported the possible volcano, was directly overhead the Aleutian Islands, and we're going to be checking it out overnight. But that - that's more likely exactly what you saw.

ACDR Okay. Real good.

04 25 07 CC-H Tom, Houston. No problem using Myrtle. Help yourself.

ACDR Okay. Real - real good. Thank you.

CC-H Okay. Good night.

ACDR Night. Thank you, Dick.

DMP Hey, Dick. Just out of curiosity, does - does anybody know that thing is running up there, or is that what it is?

CC-H Well, Deke, we haven't confirmed it for sure. Our - we - we do know that there are some volcanoes up there, and the latitude and longitude that corresponded to your time was directly over the Aleutian chain. So we're guessing that's what it is, and we're going to check it out overnight and get a straight answer for sure. And so, Bo or Crip, whoever is in here in the morning, will - will have the word for you. I'm sure that's what it is, though.

DMP Okay. No big deal. We're just curious.

	CC-H	Roger.
	DMP	Thank you. Good night.
04 25 59	CC-H	Roger. Good night.
	CMP	Houston, how do you read on the intercom - I mean, on squawk box?
	CC-H	I read you loud and clear.
04 26 40	CMP	Okay. Thank you.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

12 22 57	CC-H	(Music: "Redneck Mother" by Jerry Jeff Walker.)
12 26 54	CC-H	Good morning, gents. Party's over. Time to come home.
	ACDR	You really know how to wake somebody up, don't you?
	CC-H	I figured that'd do it.
	CC-H	Amber Team sitting here ready to monitor your activities today while you're coming back.
	CC-H	Incidentally, while you guys are getting the sleep rubbed out of your eyes and getting started, the Flight Plan called out for you to start syncing your timer and so forth. We haven't got that loaded in there yet, and not planning on doing it until we get to Orroral about 37 minutes from now. And we'll give you a call then, before we do that.
	CMP	Okay, Crip.
12 29 05	CC-H	Okay. We're about a minute from LOS here at Madrid. And after you guys get this P20 option 5 and so forth out of the road, at about 216:30 on your clock, you should be able to get us at - through the ATS.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

13 04 27	CC-H	Apollo, Houston. We're AOS at Orroral. Have you for about 4 minutes.
	DMP	Okay, Crip.
	CC-H	Okay. If we could - down on panel 230 - get the UP TELEMETRY switch to DIRECT, please. And also, if we could have ACCEPT, we'll give you a state vector and also change our time over for PET.
13 04 46	DMP	Okay. You got all those.
	CC-H	Could - did you get a time hack on when you started battery Bravo on charge?
	CC-H	Or at least approximate.
	DMP	Stand by a sec. See if I can backtrack it.
13 05 06	DMP	Oh, about 10 minutes ago, probably.
	CC-H	Okay. Thanks a lot, Deke.
	CC-H	Okay. And whenever you can get it, we've got our command in; you can take the UP TELEMETRY switch on 230 back to UP TELEMETRY - center position.
	CC-H	And whenever you guys can get to it, we recommend going ahead and closing the POTABLE TANK INLET valve. And we're not going to do the scheduled water dump we've got coming up at about 93:30 on your PET.
13 06 11	DMP	Okay.
	CC-H	Okay. We're about - a little less than a minute from LOS, and our next station contact is going to be Quito, and that's about 28 minutes away. We've got CMC clock loaded with PET, and you can go ahead and synchronize your mission timer whenever you get a chance.
	CMP	Okay, Crip. We'll synchronize. See you soon.

	CC-H	Okay. How about reverifying on your NOUN 78's for this P20 option 5. It doesn't look quite right for us here on this attitude.
13 09 15	CMP	All right, Crip.
	CC-H	Those look good.
	CMP	Yeah, it does. Kind of looks funny to us, we - -
	CC-H	Okay.
	CMP	- - can't figure it out, either.
13 09 23	CC-H	No problem. We'll talk to you about it at Quito.
13 37 41	CC-H	Apollo, Houston. We're AOS Quito for 3 minutes.
	CC-H	Apollo, Houston. AOS Quito. We have you for 2 minutes. How do you read?
	ACDR	Roger, Crip. Read you loud and clear. How me?
	CC-H	Okay. Read you the same, Tom. We had - did a little bit of investigating after my call regarding the NOUN 78's on that last time. And we had an error in the Flight Plan, there. And I need to get register 3 on NOUN 78 changed if I could, please.
	ACDR	Go ahead.
	CC-H	Okay. We need to change register 3 on NOUN 78 to a VERB 23 ENTER to get it to plus 22814.
13 39 03	ACDR	Okay. Register 3. 22814.
	CC-H	Okay. And that's going to put it more than 10 degrees in error. So you're going to have to initiate the maneuver with a VERB 58 ENTER.
	ACDR	Roger.
13 39 52	CC-H	Okay. We're about 30 seconds from LOS, here. And we'll pick you up at the ATS when you get it locked up at - should be about 6 minutes after.
	ACDR	Okay.

13 40 13	ACDR	Okay. We got register 3 set, Crip.
	CC-H	I'm sorry. Say again?
13 40 20	ACDR	Roger. We have register 3 on the NOUN 78 set.
	CC-H	Roger.
13 40 41	ACDR	And we are maneuvering.
13 44 40	CC-H	Apollo, Houston. We have you with the ATS. About 52 minutes.
	ACDR	Roger, Crip.
	CC-H	When you gents get all squared away up there - I'll be glad to read you some news.
	ACDR	Go ahead. It's a good time.
	CC-H	Okay. Your press conference actually ended up making up quite a bit of news yesterday. And I had a few items that sort of came out of that. One entitled - headlined, "Apollo Era to End in Splash. The Apollo astronauts, who have made history in the first manned international space flight, will become the links between the past and the future when their spacecraft splashes down Thursday. Brigadier General Thomas P. Stafford, Vance D. Brand, and Donald K. 'Deke' Slayton are scheduled to end the Apollo era some 480 miles west of Honolulu at 4:18 p.m. central daylight time." And, here's one entitled, "Deke Can Fly Again." I'm sure you'd be glad to hear that, Deke. "America's oldest astronaut will get another chance to fly in space. Donald K. 'Deke' Slayton will be offered a job of directing the horizontal flight test of the revolutionary Space Shuttle rocket plane in the spring of 1977, Johnson Space Center director Christopher Kraft said Wednesday." We also see that we should ENTER on that 50 18 we see on your DSKY. "Slayton also will be considered, Kraft said, as a pilot for the Shuttle flights beginning in 1979. Kraft said he planned to offer Brand a management job if he did not want to wait his chance to become a Shuttle pilot. Kraft said Stafford, an Air Force Brigadier General, had not made up his mind whether he - to stay with the National Aeronautics and Space Administration, the Air Force, or enter private industry or politics." And here's one about our - -

ACDR (...)

CC-H I'm sorry?

ACDR That last option is sure out. I'll clue you, ol' buddy! (Laughter)

13 46 54 CC-H (Laughter) Okay. Okay. I'll take your word for it. Here's one from our friends across the way. "Two Return in Triumph. Moscow. Two Soviet cosmonauts, who held an historic meeting in space with three American astronauts, flew into Moscow in triumph Wednesday. And Tass said two other Soviet spacemen would be back to Earth - on Earth soon. Alexey Leonov, commander of the Soyuz 19 flight, which linked up with the U.S. Apollo last week, telephoned Soviet experts and asked 'How are things with Stafford?' Before flying to Moscow from the Baykonur Cosmodrome in central Asia. Leonov, newly promoted to Major General of the Red Air Force, was told, 'Everything is all right with Apollo's commander, Thomas P. Stafford, and his two colleagues.'" Probably some of the best news is what the weather is out in your recovery site today. It looks supergood out there. Nice Hawaii-type weather. It's - temperature is around 80 degrees. It's 1800 feet, scattered. Wind is coming out of the east at about 15 knots, and the wave heights are about 4 feet. So everything looks supergood out there for you.

13 48 06 DMP That sounds great.

DMP It you'd like a report from us, we're prepared to give it to you.

CC-H We would love to have a report from you this morning, Deke.

13 48 51 DMP Okay, that most important of all reports, coming down to you - the old daily status.

CC-H Standing by with bated breath.

DMP Okay. The AC, breakfast: no coffee, replaced it with tea - Oh, okay, and B is scratch coffee, and add a cocoa. C, scratch shortbreads, and add a tea. And the PRD reading, next page: 11014; 7 good, no medication, and a full tank of water. Okay, on the CP, if you're ready to copy.

13 49 57	CC-H	Yes, sir; keep it coming.
	DMP	Okay, he got everything and add a jerky for A, add a tea to B, and add a salmon to C.
	CC-H	Sounds like he's getting hungry.
	DMP	Starving. Okay, the PRD is 48314. That's probably why. The radiation uses a lot of calories.
	CC-H	Rog. (Laughter)
	DMP	He had 7 hours of good sleep, no medication, and about 80 seconds of water.
	CMP	Feel good in spite of all that radiation.
13 50 46	CC-H	(Laughter) I suspected you did, Vance. You had a pretty smile on the press conference all day yesterday.
	CMP	Funny thing, though, lost all my hair in 1 week; can't understand it.
	CC-H	(Laughter) Well, it - it's not catching, is it?
	CMP	Hope not.
	DMP	No, but nobody up here could catch it.
	CC-H	(Laughter)
	DMP	Okay, and the DP: A, no changes; B, add a cheese, a strawberry, and a tea; and C, no changes. PRD is 61012, and about 5 hours of good sleep, and I miss my old bedroom since you guys turned it into a Doppler target.
	CC-H	Sorry about that.
13 51 40	DMP	And about 50 sips of water. And that's about the size of her.
	CC-H	Supergood. Got all that copied down here. Some time, kind of at your - kind of at your convenience today, there are a few minor items regarding the Entry Checklist we probably ought to walk through and talk about. We can do that whenever you guys feel like you want - want to and got the time.

	DMP	Yeah, we could do it after a while, I guess.
	CC-H	Yeah, I was certain - -
	DMP	I'm not quite ready for it - -
	CC-H	We - we got lots of time today; no rush at all.
	DMP	Okay.
	DMP	Crip, anybody got any word yet on our Aleutian Volcano?
13 54 08	CC-H	You get me completely at a blank, here. Let me see if I can get an update on that. Hey, we're talking about your - your little bedroom that we spun away yesterday. Well, I'd like to let you know that we still - showing that we got a good, solid lock on that. And incidentally, if somebody has an opportunity today, we would be interested in getting another reading off that Doppler recorder just to see whether it still looks like it's advancing properly.
13 54 32	DMP	Okay, we'll give you that here shortly.
	DMP	Yeah, we spotted what I'm quite sure is a volcano last night there, Crip, just before we went to bed, and they plotted it about off the Aleutians. Only one - other one I ever saw, I was underneath it, so, I'm having a tough time evaluating from this range.
	CC-H	Okay, we'll - I guess that I missed that in my hand-over from Bo this morning. I'll - we'll go back and get some word on it for you.
13 55 32	ACDR	Okay, Crip. Reel A is reading 4; reel B is reading 1-1/2. Over.
	CC-H	Okay. And I take it C and D haven't moved.
	ACDR	That's affirmative. C and D are still 11 and 12.
	CC-H	Okay; real fine. Thank you very much. Appreciate that, Tom.
13 57 09	CC-H	Incidentally, I mentioned it earlier, but I'll repeat it again to make sure. We do not want to perform this waste-water dump for entry that's called out at about 27 on the Flight Plan.

13 57 21 CMP Rog. Copied that.

14 01 26 CC-H Apollo, Houston. Coming up in your Flight Plan there, there is an RCS propellant configuration that switches you from PSM to quads. We've already made that configuration change earlier, so that one is not necessary. However, there are a couple of configuration changes that are - not changes so much as valve throwings, that we'd like to - to do to make sure we're in a good position for the rest of the day. If somebody's available, we can just kind of to do those in real time.

CMP Go ahead.

CC-H Okay. We'd recommend that you go ahead and OPEN the SERVICE MODULE RCS PSM HELIUM valve, and verify that the SM RCS PSM MANIFOLD ISOLATION valve is OPEN. That's just in case we need the PSM later.

14 02 10 CMP Okay. I verified a gray talkback on the MANIFOLD ISOLATION, and the PSM HELIUM is coming OPEN now.

CC-H Okay; fine. We'd also like you to hit all four of the SM RCS SECONDARY PROPELLANT FUEL PRESSURE valve switches to the OPEN position just in case they might have got bumped. Since we really can't see those.

14 02 31 CMP Got them.

CC-H Very fine. That's all we need you for, Vance. Thank you. That's all we need you for right now.

CMP Okay. And we're still in ACCEPT. Can we go to BLOCK?

CC-H I'm sorry.

CMP ...

14 02 44 CC-H Yes, sir; you can.

CMP Okay.

CC-H Incidentally, Vance, a little bit later there, on that P20 option 5 we got coming up, there's another one of those mods to give us the new attitude that you guys like. On your NOUN 78 for R2, we want 6000 instead of 9000.

	CMP	Rog. Understand the standard load.
	CC-H	Also, a little bit further down there, we call for Deke to go ahead and oper - operate the SIM bay experiments: X-ray, helium glow, and EUV. And what we're going to do is request that you don't do it there, but rather wait until we get ATS coverage a little bit later so that we see them when they're operating. And we'll call that to you in real time.
	CMP	Okay. What's the time of that one?
	CC-H	That's at about 94:08, somewhere along there.
	CMP	Okay. I'll look it up. Stand by.
14 04 49	CMP	Okay, Crip. I - I guess then what you want is, at 94:08 or whatever it is, take the three bottom items, which are X-ray ops, HeG ops, and EUV ops, just, say, later.
14 05 07	CC-H	That's what I want. And I'll call you when we get locked up on the ATS.
14 15 50	ACDR	Hello, Houston; Apollo.
	CC-H	Go ahead, Tom.
	ACDR	Okay, Crip. Do me a favor and check with the photo people. For the fireball photography the only DAC cam - mag we have left is an internal one. It's CI01. And ask him what is the settings - the lens settings and everything to use that for fireball photography. I've got the f-25 lens and the right-angle mirror out. So it's CM/DM interior film we're going to use in shooting out the window. So if you get us some settings, I'd appreciate it.
14 16 20	CC-H	Okay. I'm holding them here, and they're - just including that in with the - with the items that - when we ran through the Entry Checklist, we can put them in there.
14 16 31	ACDR	Sounds good. Thank you.
14 26 45	CC-H	Apollo, Houston. For the AC: Tom, when you get an opportunity, I'd like to give you a few words regarding this upcoming vis obs pass.

ACDR Okay, I'm ready.

CC-H Okay. Nothing really - I don't think you have to copy down. You might want to make some notations someplace though. At about 94:36, we'd appreciate it if you could give us - get down a - record a colorwheel reading on what color the water is - looks to you at that particular point. And also, north of the Caribbean islands, just a couple of minutes later about 94:38, we expect you to pass over a developing tropical storm. It'll be about the latitude of Cape Kennedy, directly under the groundtrack scan. So if you could - try to get some stereophotos. If you've got any film left, you can use the camera settings for - that are noted down for site 3 Bravo.

ACDR Okay, real good. And the - at what time is it to look for the tropical storm?

CC-H About 94:38.

14 27 51 ACDR Okay. 36 for the color of water at 94:36 and 38 is the tropical storm.

CC-H That's affirm. And incidentally, the whole vis obs team is - like to give you several "atta-boys" for the performance you guys have been doing on this vis obs stuff. You've been doing a super job, and they can't wait to hear your efforts recorded on the VTR and also to see the photos when you get them back.

ACDR Okay, good. We're trying like mad. The only thing that's gotten to us - there's just been so many clouds up here that - that its gotten to us occasionally.

CC-H Yeah; understand. It's - it's something you have to live with, but your - your effort's really been great. You can - it's obvious to us down here.

CMP Okay, thank you.

ACDR Thank you, and tell "hi" to Farouk and all his team then.

14 28 56	ACDR	Okay, Crip. And I'm going to be maneuvering to this vis obs attitude. Will this DAP be - this low-rate DAP be plenty of time to get us over to that new attitude? Over. If I maneuver by 94:12?
	CC-H	If you maneuver as called out there, that should give you plenty of time. Before you do that maneuver, we would appreciate it if you could give us - give us POO, though, so that we can take a look at some computer information that we don't get while we're in P20, just to make sure we're all good - squared away for this - today's activities.
	ACDR	All right. Sure will.
	CC-H	And for the DP: If - Deke, if you're still listening. We're - we still have not been able to get any confirmation regarding that volcano report you gave us last night. We're still looking into it.
14 30 29	ACDR	Okay. He's off the headset, but I'll tell him.
	CC-H	Okay. Thank you, Tom.
14 30 52	CC-H	Tom, for your information, that maneuver time is about 4-1/2 minutes. Shouldn't be any sweat.
14 31 00	ACDR	Real good. Thank you, Crip.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

14 31 55	ACDR	Hey, Crip. I have a question.
	CC-H	Go ahead.
	ACDR	Was it Phil Shaffer that selected that wake-up music this morning?
	CC-H	Negative. Negative. That was compliments of your Flight Director Frank Littleton and your CAP COMM.
	ACDR	Okay. Thank you.
	CC-H	Although I'm sure that Phil and Don Puddy would highly approve of it.
	CC-H	For the AC, Tom, if you could go ahead, or whoever's close to the DSKY, and can give us POO right now. We'll take a look at the - that computer downlink.
	ACDR	And you have POO.
	CC-H	All right. Let's look at it a few minutes and we'll turn it back to you.
	CC-H	Okay; we've got all the information we need, and you can go ahead and take it back. And if you want to, you're clear to go ahead and press on with your P20 option 5.
14 35 59	ACDR	Roger. Thank you.
	CMP	Houston, Apollo.
	CC-H	Okay. We're getting ready to lose you and going to have you at Quito at - Oh, we'll have you here at Orroral for a few minutes, but go ahead.
	CMP	Crip. Do you have any updates on the times for the mapping pass 135, 136?
	CC-H	Don't believe 135 is a mapping. And let - and we'll get one for you for 136 - 136 a little bit later. Right now we show no update for them.
	CMP	Okay.

14 36 49	CC-H	We're going to lose you briefly here, and I should pick you up - we may go straight through. I'm going to get VHF through Orroral.
14 38 00	CC-H	Okay. We've handed over and we're back with you through Orroral Valley.
	CMP	... maneuver to the ...
	CC-H	I'm sorry, you were - you were unreadable. Say again.
	CMP	Roger. We're starting - we are starting the maneuver for Earth observation ...
	CC-H	Copy.
	ACDR	Houston, Apollo.
	CC-H	Go ahead.
	ACDR	Okay. On the Doppler shutdown coming up. Do you want to give us a call on that on a specific time, or do I do it just at the 94 or say 12?
	CC-H	You've already started this maneuver, and that is cutting us off all our data, so you may go ahead and perform it now.
	CC-H	Apollo, Houston. We're about - about a minute from LOS and we'll see you again at Quito in 28 minutes at 94:32.
14 41 18	CMP	Cheerio.
15 10 57	CC-H	Apollo, Houston. AOS Quito for 3 minutes.
	ACDR	Okay, Crip. And we just shot the Galapagos.
	CC-H	Roger. Any turtles down there?
	ACDR	Only big ones.
	CC-H	Roger.
	CC-H	And, for whoever's going to set up the high gain this time, pitch is modified slightly from what we've got in the book. It should be about a minus 8, instead of the 15 we have there. So, pitch of minus 8, yaw of 322.

	ACDR	Roger. Pitch of minus 8.
15 12 24	CC-H	We're going to drop out, here, in about a minute, before we pick you up on the ATS.
15 14 32	CC-H	Apollo, Houston. We're talking at you through the ATS.
	ACDR	Roger. Coming up over Jamaica.
	CC-H	I'm sorry. I'm talking at you through MILA, not ATS.
	ACDR	Hey, Crip. We're on top of a tropical storm, right now.
	CC-H	Very good.
	CMP	Houston, Apollo.
	CC-H	Go ahead, Vance.
	CMP	Are we over the area where you reported there might be a tropical storm?
15 17 38	CC-H	That's affirm. You should be just about in that position.
	CMP	Okay. It doesn't seem to cover so much area, but it does have a rather swelling appearance. I don't see an eye. But I can see where an eye would be.
	CC-H	Okay. I think that it's just developing, yet. I don't even believe it's to the area where they're - they're calling it a storm, yet.
	CMP	Roger.
	DMP	It looks just like the bunches of a thunderstorm patches we've seen around the Pacific area the last couple of days.
	CC-H	Copy.
15 22 33	CC-H	Apollo, Houston. When somebody has an opportunity, we would like to go ahead and activate the SIM bay experiments now; X-ray obs, helium glow obs, and EUV obs. And for EUV we would like to use DETECTOR 1, vice 2.

	ACDR	Okay.
	DMP	Okay.
15 22 55	CMP	Okay. Understand the three experiments, helium glow, X-ray, and EUV. DETECTOR 1 for EUV. We'll start her right up.
	CC-H	Okay. Thanks a lot, Vance.
	CMP	Houston, Apollo.
	CC-H	Go ahead, Vance.
15 25 01	CMP	Let's see. I guess we had the LOW VOLTAGE POWER, OFF, on this. You need that on too, don't you?
	CC-H	That's affirm. I should have reminded you of that. We turned it off last night, so that - we do need that on.
	CC-H	Apollo, Houston. If somebody's got a moment, I'd like to - like to bend your ear about one item.
	ACDR	Go ahead.
	CC-H	Okay. We've discovered that the DAC film that - our friends were to use when they were over in the command module, namely CI09, 10, 11, and 12, were not apparently returned in the Soyuz. And, consequently, we think the - -
	CMP	Yeah, we - we - -
	CC-H	I'm sorry.
	DMP	Yeah, we know that. We know that. We got them.
	ACDR	And they're stowed in B-5, right now.
	CC-H	Okay, if there's any chance at all on that film, that we've got - that we want to pass out quick to get developed, we would certainly like to be able to pass those out also. Do - do you think that's possible?

15 26 51 DMP Sure, we'll just put them in the same bag with the quick-release stuff.

CC-H That'd be great.

ACDR Yeah. You can tell the recovery people, we're going to have - Crip - about three bags, three or four bags of quick-release stuff. So we'll hand it to them as soon as we open the hatch.

CC-H Okay, super.

DMP And, Crip, we still owe you a O_2 fuel cell purge, but we're holding on that until we get through this daylight pass.

CC-H Okay. Our friendly EECOM down here has been - been noticing that - that we hadn't done it, and it is not required. So that - you can forget it.

DMP Oh. Well, that's nice of you. Thank you. We thought it was more time-critical to get some film. We only get one chance at that.

CC-H Roger that.

15 28 56 CMP EECOM's real easy today, I guess.

CC-H Oh, yeah. He - just likes to know where things are, though. So he appreciates knowing that we didn't do it.

CMP Right.

ACDR Sounds like we've but - budgeted this hydrogen pretty - pretty good, didn't we?

CC-H Yeah. Apparently, we're right on the line.

CC-H Incidentally, Tom, since I had you on the line there, might - might as well tell you that due to that problem we've had on your OBS the other day, that we're requesting that you use that spare set of leads and electrodes that we've got in the medical kit over in - B-13.

ACDR All right. Like I said, since that's the most important message of the day, I hope later on we have a minor one, like the retrofire pad.

CC-H Roger that.

CMP Ireland really is green.

CC-H Really is what?

15 31 10 CMP Say, Ireland really is green.

CC-H How's the percentage that - does most of the world look green up there? Or most of it - well, I know most of it's blue.

CMP Not as green as it looks on the ground, generally.

CC-H Rog.

DMP But Ireland is really supergreen. We got a couple of pictures of that, and we're over the south end of England here, now.

ACDR Yeah, England - was looking great, except it just has these broken clouds all over it. That's its problem.

CC-H Rog. Obs normal.

ACDR Yeah. Crip, you can tell the BBC and all our good friends in England hello for us.

CC-H Roger. I'm sure they'll appreciate that greeting.

DMP Yeah. We're sitting high over London at present.

CMP Unfortunately, quite a bit of cloud cover over England.

CC-H Roger.

ACDR Okay, Crip. We can see the Zuider Zee loud and clear here, but unfortunately, there's still some cloud cover.

CC-H Roger.

15 48 54 CC-H Apollo, Houston. We have somebody available to throw a couple of switches for us on 230, involving the X-ray experiment and a little engineering test we're running?

CMP Stand by 1, Crip.

CC-H Okay. No rush.

CMP Okay. Go ahead, Crip. We've got somebody down there now.

CC-H Okay, Vance. What we need is to take the X-RAY HIGH VOLTAGE POWER switch to OFF and, then the BACKUP PURGE switch to - to OFF, which is momentary, there. And what we're doing is - we're - we're re-pressurizing the detector in the X-ray unit. We just took a look at it with - It bled down, which is what we had you do yesterday, to see if we could get that high voltage from - to quit discharging on. Now we're going to pressurize it and take a look at it again.

15 50 01 CMP Okay. So, we'll go HIGH VOLTAGE, OFF, and we'll take the BACKUP PURGE switch and hit it momentarily to OFF.

CC-H Okay. And after a couple of minutes I'm going to be requesting that you turn the HIGH VOLTAGE back ON. But we want to delay on that until we get - get pressurized.

CMP Okay.

15 52 34 CC-H Apollo, Houston. If somebody can turn the X-RAY HIGH VOLTAGE POWER to 1 for us now, we'd appreciate it.

CMP Okay.

CMP And, Crip. We'll go into P20 here, for maneuver to mapping attitude, if - okay to you.

CC-H Okay. No problems with that. We potentially may lose you or have an early LOS with that maneuver. If we do, we'll see you again at MILA in about 52 minutes. I did want to - -

	CMP	Okay. Well that's the reason - that's the reason I was calling you. If you want to keep us in this attitude - for any reason, why - recover any data or anything, why - we can stay here awhile.
	CC-H	Okay. Why don't we hold up on it just a little bit. And if Deke's handy, I can bend his ear about one item coming up on vis obs here.
	CMP	Okay. We'll get him on a headset.
15 55 33	DMP	Okay, Crip. I'm on the air here. Do you have a message for me?
	CC-H	Okay. What we wanted to tell you was the - we got some ships collecting some data on this 5 Alfa, which - that you're going to be coming across next time, and we'd like you to - -
	DMP	Okay.
	CC-H	- - attempt to get a colorwheel reading of the coastal water that'll be visible from - and hopefully out of - they'll be visible out of CM-3, and they'll be between the Mississippi delta and the Gulf Coast around Mobile. Just, in that general area there.
	DMP	Okay.
	CC-H	That's at around 96:07 that that - that'll be coming up.
15 56 17	DMP	Roger. Thank you.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

16 01 16	CC-H	Apollo, Houston. We have adequate amount of data at this time, and you're - go ahead to proceed on your P20 option 5.
	ACDR	Okay, Crip. Copy that. Thank you.
16 04 27	CC-H	Okay. We're getting close to losing you, and we'll see you at MILA in about 42 minutes. That's at 96:08.
	ACDR	Okay, Crip. Thank you. We're progressing normally here, I think.
	CC-H	Very good. Somewhere during that next ATS pass, we can talk a little bit about changes to the Entry Checklist, and they're not really changes so much as notations and that kind of thing. And we'll also try to get you a pad there.
16 04 55	ACDR	Okay; very good. Thank you.
16 45 30	CC-H	Apollo, Houston. We're AOS through MILA. I've got you for 6 minutes.
	ACDR	Okay.
16 52 48	CC-H	Apollo, Houston, I guess, for Vance. If you're running that mapping pass there, we might as well go ahead and not terminate the mapping camera on the time and just go ahead and let it run to completion. We have plenty of film.
	CMP	Okay. We - we won't cut it off in between there.
	CC-H	Okay.
	DMP	And we just crossed good ole Boothbay again, and, as usual, it's under clouds here from our angle. Got some beautiful pictures, however, of the Cape Cod area.
	CC-H	Very good.
	DMP	And we did get some color prints, or measurements, between the - New Orleans and Mobile there.

	CC-H	Great.
	DMP	Get back to you in a little bit.
16 53 34	CC-H	Okay; fine.
16 55 53	ACDR	Okay, Crip. I think I'll go ahead and get BMAG 1, ON a couple of minutes early.
	CC-H	Okay.
	CC-H	Apollo, Houston. If somebody is available, we got another little special test we were going to run down on 230. This time on the helium glow instrument. Just need a couple of switches there.
	ACDR	Okay. I'm down here, Crip. Go ahead.
	ACDR	Okay, Tom. What I need is, under the HELIUM GLOW under HELIUM INHIBIT switch, I want first to select DETECTOR 1, and then DETECTOR 2, and then back to center. And after you do that, we want to CLOSE the HELIUM GLOW COVER. And what we're doing is we're going to take data with the cover closed, and that way it'll give us some good background information on the instrument itself.
	ACDR	Okay. I'm going here to detachment - DETECTOR 1.
16 57 42	ACDR	MARK it.
	ACDR	Now back to 2.
16 57 45	ACDR	MARK it.
16 57 48	ACDR	And now center. And I'll CLOSE the HELIUM GLOW COVER.
	CC-H	Very good. Okeydoke.
	CC-H	Incidentally, for your information, that little test we had run earlier on the X-ray instrument allowed us to isolate that the problem was within the detector itself and not in the - in the electronics.
	ACDR	Okay; good.

	CC-H	Which is good engineering data for future experiments.
	CC-H	And, Apollo, Houston. At your convenience during this pass - and we've got about 45 minutes of it - I would like to kind of walk through the Entry Checklist and note a couple of items to you, and also give you your preliminary pads. And there's no rush on that at all.
	CMP	Okay.
	ACDR	We'll do it in just a minute.
	CMP	Yeah. Let us get finished with this Earth obs.
	CC-H	Yeah, we've got plenty of time for you to - yeah, we got plenty of time for you to finish up the Earth obs pass and do it after that.
	CC-H	Apollo, Houston. If we can go ahead and have ACCEPT, we'll load your entry REFSMMAT.
17 00 10	ACDR	You got it, Crip.
17 02 37	CC-H	Apollo, Houston. For your information, we have completed the REFSMMAT load. You may as well go ahead and stay in ACCEPT, because after we complete the P52's 3 and 1, we'll be loading state vectors.
	ACDR	Roger. I understand.
17 10 39	ACDR	BMAG coming ON.
	CC-H	Say again.
17 23 52	CC-H	Okay. We copied that P52.
	CC-H	Apollo, Houston. Vance, if you'd like to go ahead and do your option 1 now, to get it out of the road, then we can go ahead and upload your - uplink your state vector.
	CMP	Okay. Did you see it all? I just got back on comm.
	CC-H	That's affirmative. We got it all.
	CC-H	Apollo, Houston. If somebody's available we want to try out something a little bit different with the EUV. We'd like to go ahead and close the cover with it still - still on. Down on 230.

Day 205

DMP Okay. Stand by. I'll get it.

CC-H Deke, while you're on the line there, we haven't seen our CO_2 come down like we normally do after the LiOH change. Have you managed to get that in yet? We had one scheduled about 95:25, or something like that.

CMP Negative. We had a congestion down in that area while we were changing film and that sort of thing, packing things away. So we'll get it right away, as soon as we can.

17 26 46 CC-H Okay. No rush, Vance. We were just wanting to get a status. Thank you very much.

CMP It was another case of we all stand in line to utilize certain areas.

CC-H Roger. I figured something of that nature. Kind of hard to stand there, though, isn't it?

DMP Hey, Crip, did you say it was the X-RAY COVER you wanted to CLOSE and leave the power on? Is that correct?

CC-H That's a negative, Deke. It's the FUV we wanted to CLOSE.

DMP FUV; okay.

17 28 15 DMP Okay. She's CLOSED.

CC-H Okay. We're just going to sit here and get a little bit of data on it with the cover closed. And y'all can go ahead, and you've got a deactivation scheduled a little bit later that you can do on schedule.

DMP Okay.

CMP Can you see these torqueing angles, Crip?

CC-H We're looking at it, Vance. Thank you.

CMP Torqueing now at 96:51:00.

17 28 53 CC-H Copy that.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

17 30 05	CC-H	Okay. We see you're back to POO now, and we'll go ahead and get squared away and give you a PSM state vector and your target loads.
	CMP	Okay. Go ahead.
	CC-H	Okay, Vance. And we've got another - about another 13 minutes left in this ATS pass and if - if it's convenient sometime, we would like to go through the Entry Checklist with you and also give you pads. We had thought we were going to lose this Vanguard pass scheduled a little bit later, but we do have it also, if we need to get anything there.
	CMP	Okay. We'll dig out the entry book.
	CC-H	Okeydoke.
	CMP	Incidentally, one interesting thing about the LiOH changeout is the canisters in B-6, of course, are behind an apron, which is behind the cryo freezer; that kind of makes it - only that changeout - a big deal.
	CC-H	Roger that. Understand.
17 33 18	CMP	Right. Okay, Crip. Ready to copy your changes. Page, please?
	CC-H	Okay. If you got the book there handy, the first thing is not really a change, but just a comment on page 1-3. We are, of course, operating on secondary evap now, so that's totally unnecessary; however, one thing there, we'll be using the secondary evap, of course, to - for steam pressure on the 90K indication. This - -
	CMP	Okay. We - we have to be in SECONDARY to get that indication.
	CC-H	That's affirm.
	CMP	I mean, we have to be monitoring that.

CC-H Yeah, there's no real reason necessary to be PRIMARY, as called out on the thing, I guess.

CMP Right.

CC-H Okay. The other thing is on page 1-4, to update your - settings for the fireball photography -

17 34 20 CMP Go ahead.

CC-H Okay, the only change we need is that T11 should be T22, and we want to change from 1/500th to 1/1000th. Otherwise, it's as written.

CMP Okay. T11 should be 1/5 - I'm sorry, T11 and 1/500th changes to T22 and 1/1000th.

CC-H That is correct. The other small notation is that, over on the right-hand side there under final stowage checklist, it has on about the fourth line down, "GLYCOL TO RADIATOR - SECONDARY valve to BYPASS" and to verify it. It is in NORMAL now, so we will have to go to BYPASS. So the verify is not applicable after all.

CMP Copy. Right.

CC-H Okay - and why don't we flip on over to 1/2-1 - and let me just make a comment here. You don't have to write anything down; I'm going to talk a little bit. You know we've still got that SCDU failed indication inhibited; in other words, so it won't come up and give you a failure indication. We feel that's the way we'd like to go ahead and leave it for entry. And the only items that we'd like you to note is that if we did have a CDU problem and our - when you got down to about .05g at minus 5 minutes and your display, if it had not advanced to the 06 64 - in other words, it was still 06 22, you can go ahead and load your NOUN 20's with a .05g attitude, and that'll allow everything to progress normally.

17 36 03 CMP Okay. Understand that.

CC-H Okay. All the other CDU failures you can also detect by your normal monitoring of your ball versus the beta angle commanded on the DSKY.

CMP Right. The - I guess what you're saying is we won't get the alarm if we had a real problem, and the way to detect it is either by looking at the ball or seeing that we don't get the NOUN 22 at the proper time, and then you get into the action.

CC-H That is affirmative. And any yaw CDU failures will be - come up with a NO ATT and GIMBAL LOCK warning lights, as normal.

17 36 44 CMP Right. If that happens, we're on GDC ..., probably.

CC-H That's affirm. Okay. One - I'd like to slip over to page 3-1 and give you a backup to a backup here. Down at the indic - note on the lower left-hand corner of the page, at 23-1/2K where it talks about cabin pressure increasing and what to do if it's not, about going CABIN PRESSURE RELIEF valve to DUMP. That - that duct is, you know the one also that your evaporator's been out of, and there is some potential, although small, that some ice could have ended up forming in the CABIN PRESSURE RELIEF valve such that even going to DUMP would not work. If that should be the case, the - the thing to do is to have Tom there in the center couch, or whoever can reach it easier, just to take the side half - hatch CABIN PRESSURE DUMP valve and open it up at - about 800K. I'm sorry; open it to - yeah, go ahead and do it there at 23-1/2K if the thing's not coming up and your CABIN PRESSURE RELIEF valve going DUMP does not help. That's a backup step to the backup. Okay - -

CMP Understand. I - I presume that that the heat of entry would help our duct situation, but - but - we got that noted.

CC-H I'm confident it would, Vance, but it just makes everybody down here feel all nice and comfortable if we've covered every - every angle we can think of. If perchance you did have to open the thing, we'd want you to close it again at 800 feet.

CMP Roger. Good idea.

CC-H Okay. And if you'd flip over to the completion charts, we'll talk about one other item, please, on 4-1.

17 38 56 CMP Okay. Go ahead.

CC-H Okay. Currently, with the amount of SPS we have available to us in our quads, we do not have a full four-quad completion capability. If our SPS delta-V to go is greater than 169 feet per second, we're going to go around. In other words, if we had an SPS failure, and we still had a delta-V of greater than 169, we'd go ahead and go around the six revs. If it's less than or equal to 169, we can go ahead and complete per the chart here. And what we want you to do is to draw a vertical line up from the bottom, starting at 169, and just make a little notation to the right of that that you'd go around if you were in that particular case. To the left of it, we could complete okay. We have RCS capability to - for 191 feet per second; that's where that line comes out in - on your graph there. And if any of that's not clear, I want to discuss it with you.

17 40 10 CMP Okay, well, to - throw it back at you. We have 191 RCS - feet per second - RCS capability, slightly lower than normal, not much. We'd go around if - well, if we had to do a completion, and if to-go was greater than 169 - stand by. Okay, and the to-go was greater than 169, we'd go around and if it's less than, we'd complete. Very clear.

CC-H Okay. Real fine and - Stand by 1. Yeah, and of course, it's obvious to you, that if you don't get ignition on your SPS, that we will go around in that case since we don't have a full four-quad capability.

17 41 03 CMP That's right.

CC-H Okay, that's all I had, and you guys can go around getting all your little ditties out of the road - getting your OBSs on and all that sort of thing - and get squared away. We're in good shape.

CMP Okay. Most of us have them on but we've been moving around so much, we've been off comm and off biomed a good bit of the time.

CC-H I am about a couple of - about ready to lose you on the ATS here, and what I'd like to do is to get the

pads to you when we - when we get to Vanguard, and that's about 9 minutes away.

CMP Okay. We'll be waiting, happily, for your pads.

CC-H Okay, fine. And we've completed our loads and you can go ahead and go back to BLOCK; the DSKY's yours.

17 41 48 CMP Okay. BLOCK.

CMP And, Crip, are you still there?

CC-H That's affirm.

CMP Okay, and we'll finish now the rest of the SM experiment deactivation.

CC-H I'm sorry, I couldn't get that.

MCC-H ... deactivates.

CC-H Oh, deactivate the experiment. That's affirm. Experiments has gotten all the data he can think to get out of it.

CMP Okay, and you still want to leave the POWER switch ON on the EUV until further notice, huh?

CC-H Negative. You can go ahead and do a complete powerdown at this time.

CMP Okay, very good.

17 50 21 CC-H Apollo, Houston. We're AOS through the Vanguard and when somebody has a chance to dig out the Entry Checklist, 1-6, we can give you some pads.

CMP Ready to copy.

CC-H Okay. Also, we're ready to go ahead and terminate the charge on battery Bravo if Deke can get to that. And starting with your SPS deorbit burn pad: NOUN 33 - 100:00:00.00; would you believe that? Minus 189.2, all balls, plus 017.4; all balls, 180, all balls; 171.9; 00:07; 086.0; plus 11.1; 25067; minus 0.19, minus 0.78; 33, 054.8, 29.3; 14/4. Readback, please.

CMP Okay. Preliminary SPS deorbit burn pad: 100:00:00.00; minus 189.2, plus all - all zips, plus 017.4; all zips, 180, all zips; 171.9; 00:07; 086.0; plus 11.1; 25067; minus 0.19, minus 0.78; 33, 054.8, 29.3; 14/4.

CC-H That's a good readback, Vance, and if you want to go to 1-7 now, we'll give you your preliminary entry pad.

17 52 35 CMP Okay. We're going to really have a light bird on this entry, aren't we?

CC-H Roger.

CMP Go.

CC-H Okay. Starting off with the area. It's 138-4 Golf; right 045; 046; plus 22.00, minus 163.00; 1637.1, 25752; 26:25; 27:51, minus 0444.7; 307/051, 33:42; 27:24, 32:34, 36:27, 37:14. Readback, please.

CMP Okay. Readback of preliminary entry pad. 138-46; right 045; 046; plus 22.00, minus 163.00; 1637.1, 25752; 26:25; 27:51, minus 0444.7; 307/051, 33:42; 29:24, 32:34, 36:27, 37:14.

CC-H Okay. A couple of corrections on that. It's not - not going to make a lot of difference to you, but the area is four Golf vice - 46. On your - time for BBO, it's 27:24 vice 29:24.

CMP Right. Couldn't read my own writing. Okay. Go ahead with any remarks.

CC-H Okay. Only remark is pitch for rolling entry is 065 degrees.

CMP Copy.

CC-H Okay. Fine. And we're about to go over the hill; we'll see you in 19 minutes at Goldstone. That's at 97:37, and we'll pick up our logic sequencer checks there.

17 55 11 CMP Okay. We'll be ready.

18 14 25 CC-H Apollo, Houston. We are AOS at Goldstone for 3 minutes. And when we get locked up on data, we will be ready for the logic sequencer check.

	ACDR	Okay. Stand by.
	ACDR	Let us know if you got the data.
	CC-H	I'm sorry. Say again?
	ACDR	Are you locked up now, Crip?
	ACDR	Are you locked up, Crip?
	CC-H	We're ready. You can proceed on.
	ACDR	Okay.
	CMP	Okay - -
	ACDR	Okay, coming on - next one's SEQUENCE LOGIC, 1 and 2, coming on and up.
18 15 48	ACDR	Okay, the SECS LOGIC are on and up.
	CC-H	Roger. Stand by 1.
	CC-H	Apollo, Houston. That looks good. We're GO for PYRO ARM, as required.
	ACDR	Roger.
	CMP	Okay.
	CC-H	Okay, and I kind of led you guys astray, awhile ago, on getting the SIM bay experiments down. We were supposed to be deactivating them, and I think we just did a normal powerdown. And I've got two switches I need to get thrown at - in that panel to get it squared away.
	ACDR	Okay. Just a minute, Crip.
	CC-H	Okay. No rush.
	ACDR	Okay. Go ahead.
	CC-H	Okay, Tom. What I need is the EXPERIMENT COVERS ARM/SAFE switch placed to SAFE, and the X-RAY LOW VOLTAGE POWER to OFF.
18 16 59	ACDR	Okay. ARM switch is SAFE. X-RAY LOW VOLTAGE POWER, OFF.

	CC-H	Okay. That's a good deal. We're all in - all squared away now. One item - I guess we need for - for entry postflight photos is - verification that we did get our ZFF taken on time - the last one.
	CMP	Verification of what?
	CC-H	That we did get the ZFF photos, our favorite fungi, taken back there at about - oh, 93:50 on the DET. Somewhere in that order.
	ACDR	It was on time.
18 17 33	CC-H	Okay, fine. Thank you.
	ACDR	As usual, Crip. As usual.
	CC-H	Oh, Roger. Didn't expect any difference. We're going over the hill; we'll see you at Newfoundland in about 7 minutes.
	ACDR	Okay. And I got the pyro battery check at Madrid. Thank you.
18 17 44	CC-H	Roger.
18 26 12	CC-H	Apollo, Houston. We're AOS Newfoundland. And, with the ATS, we should have you about 50 minutes.
	ACDR	Roger.
18 31 43	CC-H	Apollo, Houston. Understand you gave me a call awhile ago. It didn't get here. Say again.
	ACDR	I just wanted to check if we were locked up on ATS. Over.
	CC-H	We are locked up on ATS. Sounds like we got our echo here. Let - let us get that squared away.
	ACDR	Okay.
18 31 59	CC-H	Okay. We're all with you - squared away now.
18 36 27	ACDR	Houston, Apollo.
	CC-H	Go ahead.

	ACDR	Okay, we're still kind of getting a snack here and eating, and - I didn't know if you want to get that pyro battery check right on time or wait a couple of minutes. Over.
	CC-H	It's kind of your option; whenever you get it out of the road, we'd just like to hear the results of it. Also, when you finish it up, we'd like to hear your - your SCS drift check.
18 36 58	ACDR	Stand by.
18 39 58	ACDR	Hello, Houston; Apollo.
	CC-H	Go ahead.
	ACDR	Okay, the pyro battery check is done. And battery C is on the line.
	CC-H	Very good.
	ACDF	Okay, Crip, ready to copy our BMAG check.
	CC-H	That's affirm. Go ahead.
	ACDR	Okay. NOUN 20: roll, 002.54; pitch, 175.34; yaw, 357.74; thumbwheels 002.6, 175.2, 357.8. And that was for a period of 42 minutes, so it looks like we have a great GDC. Over.
	CC-H	Very good. And your platform is also stupendous. As they - we've been telling you all through the mission.
	ACDR	Roger. We should be able to put her right on the target.
	CC-H	Roger that.
	ACDR	Might tell the skipper of the New Orleans if he'll be there, we'll be there.
	CC-H	We'll set up the rendezvous.
18 43 44	ACDR	Roger.
18 49 03	CMP	Houston, Apollo.

	CC-H	We're looking at it, Vance.
	CMP	Okay. And if you've got those copied, I'll torque at 98:11:30.
	CC-H	Do it.
18 54 28	ACDR	Hello, Houston.
	CC-H	Go ahead.
	ACDR	Houston, Apollo.
	CC-H	Go ahead, Apollo.
	ACDR	Yeah, I was just looking way ahead on this secondary water activation since we're already boiling and everything. It ways SECONDARY COOLANT LOOP, AC2; we've got it on AC1 now. You want us to switch it? Over.
	CC-H	That'll be fine, Tom; you can leave it there. And, I guess, one little item here. In going through it, we have verified that the ELECTROPHORESIS COOLING valve is in BYPASS; is that correct?
	ACDR	I just jumped ahead on it: I'll get back to that.
18 55 01	CC-H	Okay; no sweat.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

19 02 06	ACDR	Crip, a review one more time again - Hold it - okay, we've got it written down; never mind.
19 02 11	CC-H	Okay, fine.
19 13 26	CC-H	Okay, guys, we're about 2-1/2 minutes from losing you on the ATS here; everything's looking supergood with your GDC and your platform and so forth. If you completed your EMS checks, we'd be glad to get that, and the only other item that we haven't seen cleaned up is that LiOH canister change which we didn't see earlier; we haven't seen that effect on our $PPCO_2$.
	ACDR	Yeah, that was changed on - in fact - ahead of time.
	CC-H	Okay, Tom.
	CMP	Tom changed that out.
	CC-H	Okay, fine. We had gotten that last one from you, Vance, and we didn't - didn't think it had been changed yet. That's fine.
19 14 15	CC-H	And, incidentally, we've picked up a little bit here, we're going to have - have Orroral in about 3 minutes. We've also got a Vanguard pass this time that we'll - we're going to pick up.
19 18 18	CC-H	Apollo, Houston. We're with you on VHF through Orroral.
	CMP	Roger.
	CC-H	Rog. Don't anticipate too good a comm this time, and we'll have you at Vanguard in about 3 minutes.
19 19 43	CMP	Houston, Apollo.
	CC-H	Go ahead, Vance.
	CMP	Our EMS checks out good for entry.
19 19 50	CC-H	Very good.
19 21 29	CC-H	Apollo, Houston. We're AOS through the Vanguard; have you for 7 minutes on a freebie pass.

	ACDR	How about that. Say, tell the troops at the Vanguard thanks a lot for all their help and steaming around out there. It's really great to be over them.
	CC-H	Rog. They've done a super job - and they're currently enroute to go over and support the Viking Program.
19 22 05	ACDR	And the EMS - EMS entry test went good. As Vance told you, we're on the delta-V test.
	CC-H	Roger that. Thank you.
19 22 19	ACDR	And that is in perfect condition.
	CC-H	Everything's going super. Even down here in the MOCR, we're squared away; we've got our two dozen roses from Cindy Diane like she's been sending all through the Apollo program so - we're GO.
	ACDR	Sounds great.
	CC-H	The weather out there at your recovery point is still super, also. It's, once more, 1800 scattered, 10 miles vis, winds out of the east about 15 knots with wave heights 4 feet, may even be less - looks like they're declining a little bit. Should have a super landing.
	ACDR	Roger. Thank you.
	CC-H	And a little reminder, of course, you know the New Orleans is the recovery ship; your two helos out there will be Recovery and Swim.
	ACDR	Recovery and Swim. Roger.
	ACDR	And we reverified that the 6-165 ELECTROPHORESIS COOLING valve was in BYPASS.
	CC-H	Okay. Make our EECOM down here feel much more comfortable.
19 26 42	CMP	Houston, Apollo.
	CC-H	Go ahead, Vance.
19 26 46	CMP	RSI alinement checks out good, and no RCS - CM RCS preheat required.

	CC-H	Very good.
19 27 42	CC-H	Apollo, Houston. We're a little over a minute from LOS at Vanguard, and our next station contact will be Goldstone in 19 minutes; that's at 99:09. Your preliminary pads are GO; we will not have a pad update for you there. The only thing we'll be needing is ACCEPT when we become AOS and we'll give you a state vector update.
	CMP	Okay. Understand - understand, the preliminary pad -
19 28 08	CC-H	That's affirm; they're GO.
19 47 31	CC-H	Apollo, Houston. We're AOS Goldstone - 4 minutes.
	CMP	Roger, Crip. Coming right up over the San Joaquin Valley. Loud and clear.
	CC-H	Roger. Beautiful place. Hey, could - if we could go ahead and have ACCEPT, we'll send you a state vector.
19 47 46	ACDR	You got ACCEPT, Crip.
	CC-H	Apollo, Houston. Our state vector load is complete; you can go back to BLOCK. We're about a minute and a half from LOS; have you again in Newfoundland in 7-1/2 minutes.
	CMP	Okay. Do you want to activate the RCS over Newfoundland or ATS?
	CC-H	Oh, if you can hold up until we get ATS, we've got data on there - we don't have data for the Newfoundland - we'd appreciate it.
19 50 05	ACDR	Okay.
19 59 25	CC-H	Apollo, Houston. We're talking at you through the ATS, and we'll have you until you turn it off.
	ACDR	Sounds good, Crip. How do you read?
	CC-H	Loud and clear.
	ACDR	All right.

	ACDR	Okay, we're getting strapped in.
	CC-H	Okay, Tom. Whenever you all get all squared away, we've - got good data here, and you can go ahead and proceed on with the CM RCS activation.
	ACDR	Roger. We'll activate the CM RCS.
20 00 21	ACDR	SECS LOGIC, on and up.
	CC-H	And we're GO for PYRO ARM.
20 00 30	ACDR	Roger. GC, PYRO ARM.
	ACDR	Okay, 3, 2, 1 -
20 00 48	ACDR	MARK it. Got a nice bang. And both rings are stabilized. You're probably reading it out. Number 1 looks like about 36 plus, going back up - and number 2 is stabilized at 36.
	CC-H	Okay, all looks super here also, Tom.
	CC-H	Apollo, Houston. We just got a little tracking data that will allow us to get your state vector in better shape than we did it at Goldstone. So if we could have ACCEPT before you go into P30, we'll go ahead and update that once more, tweak it.
20 01 26	CMP	You got it.
	CC-H	Apollo, Houston. Our state vector base complete; you may go back to BLOCK.
20 04 09	ACDR	Roger. Going back to BLOCK.
	ACDR	Okay, Crip, if you're ready, we might as well go ahead and get a couple minutes ahead of the game. Want to pick up on the checklist at 99 plus 30; we'll cycle CMC MODE switch FREE and AUTO and do the - recheck the VERB 48.
20 04 47	CC-H	Press on.
20 10 11	ACDR	Houston, Apollo. We have Antares in the sextant.
20 10 14	CC-H	Copy that. Good star check, thank you.

20 21 51	ACDR	Okay, Crip. Looks like everything's all completed; we're going to SPS the bank entry cue card now. Over.
	CC-H	Roger. Sounds good.
	ACDR	Hello, Houston; Apollo.
	CC-H	Roger. Go ahead.
	ACDR	Okay, Crip. Everything's up - in great shape up here. The only thing we're concerned about is that you've got all your splashdown parties coordinated. Over.
	CC-H	Well, I've been working on that; I'm not sure we got it all straightened out, but we're doing our best.
	ACDR	Okay. I'm sure it's going to be a task.
	CC-H	Well, Flight claims he's got it straightened out, so maybe we can square me away as soon as we get you burned.
	ACDR	Okay, sounds good (laughter.)
	CC-H	Everything's looking spiffy here, too - all in good shape. In fact, it's so calm, we're not - we feel underworked.
	ACDR	This makes up for some of those long hours.
	CC-H	Rog.
20 24 19	DMP	Would you have your comm and electrical expert explain to me why BAT BUS B's 31-1/2 volts?
	CC-H	EECOM will take a look at it.
	DMP	Okay. I got one that's 31-1/2 and one that's 36-1/2; that doesn't seem quite normal.
	CC-H	Okay. It's Bravo you're reading at 31-1/2; is that correct?
	ACDR	That's right - I'm sorry, it's Alfa that's 31-1/2; Bravo's 36-1/2.
	CC-H	Copy that.

20 25 24	CC-H	Deke, the reason for that is that Alfa's at about 5 amphere - hours out of it, and we just finished charging up Bravo, so that's the reason it's higher.
	DMP	Okay, fine. Thank you. You sure there's some logical reason?
	CC-H	Well, at least you gave EECOM here something to look at.
	DMP	I hope I didn't tear him away from his coffee.
	CC-H	He managed to keep one hand on it at all times.
20 25 55	CMP	Are all of Ed's antennas under control?
	CC-H	Promise they're in good shape. We got - we got Ed sitting in the back seat right now.
	CMP	He's just going to watch this one, huh?
20 26 14	CC-H	Rog.
20 28 19	CMP	Crip, you've had a lot of practice on these entries, haven't you?
	CC-H	Well, we're - we're getting a little bit, but afraid not nearly as much as you've had.
	CC-H	The only reason for that is, Vance, we've - because I like to smoke the cigars.
20 28 56	CMP	That's the way.

END OF TAPE

ASTP AIR-TO-GROUND VOICE TRANSCRIPTION

20 32 20	CMP	We're showing four good gimbals.
	CC-H	Roger.
20 34 34	CC-H	Apollo, Houston. We're all GO here for your deorbit burn.
	CMP	Okay, Crip. Very good. So are we.
20 39 09	CC-H	Copied that.
	ACDR	Looks like a real nice little perigee.
	CC-H	Roger.
20 39 38	ACDR	Minus 18:40 EMS.
	CC-H	Roger.
	CC-H	Is that 18:04, Tom?
20 42 47	ACDR	Okay, Crip, we're GO for your shutdown on the ATS. Over.
	CC-H	And you're GO to go ahead and do that, and we'll have you in about 7 minutes at ARIA - correction, Orroral.
	ACDR	Sounds good.
20 43 02	MS	See you later.
20 49 49	CC-H	Apollo, Houston. We're AOS through Orroral, on VHF.
20 51 04	CC-H	Apollo, Houston. We're AOS Orroral; have you for a couple of minutes.
	CC-H	And, Apollo, be advised that we have nega - no pad updates for you.
20 51 30	DMP	How are you reading us, Crip?
	CC-H	Loud and clear, how me?
	DMP	Okay. You guys got data down there now?

	CC-H	That's affirm. We've got a few minutes coming across Orroral here.
20 51 39	DMP	Okay. How about telling them to take a look at our pyro batteries. I'm showing a amp oscillation. About a minus 2 to plus 2, I don't think it's anything, but - I never noticed it before so they might want to look at them.
	CC-H	We'll take a look.
20 52 52	CC-H	Tom - correction, Deke, would you clarify that you're talking about your pyro bus amps?
	DMP	That's affirm - pyro. And they should nominally be reading zero - -
	CC-H	Rog.
	DMP	- - but they're just oscillating there, and I'm assuming that's the instrumentation thing, but -
	CC-H	That - that's affirmative. They're all safe; there's no problem with them at all.
	DMP	Okay.
	CC-H	Okay, we're about to go over the hill here at Orroral, and we should have you after blackout through ARIA.
20 53 21	DMP	Roger.
21 11 18	CC-H	Apollo, Houston. Talking at you through ARIA.
	DMP	... 610.
	CC-H	I could hear you, that was it.
	ACDR	The computer is steering it right out, Crip.
	CC-H	Rog, Tom. You're - you're breaking up and unreadable at this time.
	DMP	..., Crip.
21 12 02	ACDR	... backed off *** baby's steering it right out.
21 13 38	ACDR	Okay, altimeter's coming off the peg.

	CC-H	Roger.
21 13 41	ACDR	0.9 of a mile miss distance; key in VERB.
	CC-H	Copy that.
21 13 44	ACDR	Oh, pardon me, 0.7; this baby is right on. 45K.
	CC-H	Okay. It's all looking good here; we got data and we got - got you in radar contact at the ship.
21 14 10	CC-H	Okay, Apollo. You're looking super here. You're coming up on your main time and - on drogue time, rather, and - so, see you tomorrow - or the day after tomorrow.
21 14 35	CC-H	They've got you on TV.
21 15 00	ACDR	Coming down at 11 000.
21 16 01	REC	*** and my position is 025 degrees. I am on the New Orleans, 169 degree radial, 7.5 nautical miles.
	NEW	New Orleans; Roger. Out.
	REC	Apollo, Recovery. Over.
	REC	Apollo, this is Recovery broadcasting in the blind. Switching to Astro voice, secondary.
21 16 50	ACDR	Coming through *** feet.
	REC	Apollo, this is Recovery broadcasting in the blind. No reception on Astro voice secondary, but we have you in sight visually; you have three good chutes at this time.
21 17 11	ACDR	Roger.
	REC	New Orleans, Recovery's latest bearing is 025 degrees. I am on New Orleans 150 degree radial, 5.5 nautical miles.
	NEW	New Orleans, Roger. Out. And we have a good picture. Over.
	REC	This is Recovery; Roger.

21 17 42	SWIM	New Orleans, this is Swim. I have a beacon bearing 200; I'm on 020 at 13.
	NEW	New Orleans, Roger. Out.
	REC	And Swim has a tally on the command module.
21 18 05	ACDR	Okay. Passing 600.
21 18 27	REC	CONTACT.

END OF TRANSCRIPTION