

ASTP (USA) MC472/1  
Time: 22:15 CDT, 134:53 GET  
7/20/75

PAO Apollo Control. Ground elapsed time 134 hours and 53 minutes. The crews good night call went up approximately 20 minutes ago. The crew of Tom Stafford, Vance Brand, Deke Slaty - Slayton completing their sixth day in orbit as they drift further away from their Soyuz friends. Tomorrow morning at shortly before - shortly after 5 a.m. at ground elapsed time 141 hours and 46 minutes, Soyuz will deorbit. Soyuz will be 407 miles in front of Apollo at that time in the central south Atlantic Ocean, over the central south Atlantic. Apollo craft will be 1080 miles south of the Ascension Island when Soyuz lands in Russia at 142 31 ground elapsed time. Apollo will be over the Pacific Ocean about 660 miles southeast of Tokyo. Tomorrow's day begins at 6:05 central daylight time, 6:05 a.m. the crew's activities will include the performance of various experiments, including the stratospheric aerosol measurement experiment, electrophoresis experiment, and additional height measurements of the three crew members. The Apollo crew will also perform additional Earth's observations experiments, one shortly after wakeup period on revolution 88 as they cross over South America, they will be asked to take photographs in the Andes regions, looking for possible color changes and oxidation zones similar to the Great Lakes and some of the iron mines in South America. They will also be asked to take pictures of dune fields and stereo photographs of some dam sites in South America. And as the spacecraft crosses over Europe the crew will be asked to photograph and describe the Straits of Gibraltar, specifically, water and land interfaces and also snow cover patterns in the Alps. Several hours later at 12:40 p.m., central daylight time, on revolution 91, the crew will again take photographs of Central America, specifically oceanographic features off the coast of Mexico, over the Gulf of Mexico, Florida, Chesapeake Bay, New England, Newfoundland and as the Apollo passes over England, they will be asked to describe if they see any oil slicks in the North Atlantic. Wake up time again at 6:05 a.m., Monday morning, central daylight time. At ground elapsed time of 134 hours and 56 minutes, this is Apollo Control.

END OF TAPE

ASTP (USA) MC473/1  
Time: 22:48 CDT, 135:26 GET  
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PAO 5,4,3,2,1. Apollo Control, ground elapsed time 135 hours and 27 minutes. A call from Apollo to the ground by command module pilot, Vance Brand. Just checking out the comm equipment for the evening. Normally it's a habit here at mission control center that the uplink voice comm is inhibited on the ground in order that the cap comm doesn't inadvertently wake the crew up. Vance Brand just checking on the comm system aboard the spacecraft before they sign out for the night. So the crew did get to sleep a little late, as earlier reported. They said goodnight at 134:36, however they are just completing the checkout presleep activities aboard Apollo. We will have acquisition throughout this ATS pass, however we don't anticipate further conversation with the crew. At ground elapsed time 135 hours and 28 minutes, this is Apollo Control. We'll roll the tape that we just acquired through this uplink call. We'll play that tape now.

CMP (Garble) How do you read?

CC-H Apollo, Houston. I heard you call. Go ahead.

CMP I'm just making a radio check, Dick.

CC-H Roger. We're standing by down here. You are - we've got you on the ATS for the next 45 minutes. And we had - the reason I was delayed calling is that after bedtime, we usually inhibit my uplink so I don't make a mistake while you're asleep. But I'm standing by.

CMP Okay, just wondered if the comm worked. I guess we have it set up this time.

CC-H It works loud and clear. Thank you very much.

Goodnight.

CMP Goodnight.

PAO That's the extent of the conversation between Vance Brand and cap comm, Dick Truly here at the MOCR. At ground elapsed time 135 hours and 29 minutes, this is Apollo Control.

END OF TAPE

ASTP (USA) MC474/1  
Time: 23:44 CDT, 136:23 GET  
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PAO Apollo Control. Ground elapsed time 136 hours, 22 minutes. Apollo crossing high above the Aleutian Islands on revolution 63. Wake up time in the morning at 6:05 a.m. central daylight time, Monday morning for day of activities, concentrating on Earth observations. Further experiment with the EUV and x-ray experiments. Additional leg volume measurements and docking module height measurements data which will be used for the Space Shuttle program. The crew has been asleep now for more than 2 hours. However a wakeup - comm check by Vance Brand less than 1 hour ago. When Soyuz deorbits the Earth tomorrow morning at 5 a.m., at 141:46 ground elapsed time, Soyuz will be approximately 400 miles ahead of Apollo. And when Soyuz lands in Russia, Apollo will be approximately 660 miles southeast of Tokuo. Landing time for Soyuz tomorrow is ground elapsed time of 142 hours and 31 minutes. Wakeup time tomorrow morning for the Apollo crew is 6:05 a.m. central daylight time. At ground elapsed time of 136 hours, 24 minutes, this is Apollo Control.

END OF TAPE

ASTP (USA) MC475/1

Time: 01:00 CDT, 137:38 GET

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PAO 137 hours 38 minutes ground elapsed time. This is Apollo Control. The Apollo, with the Soyuz several hundred miles in front of it, are presently over China. And the Apollo crew is very much asleep right now. A little interaction between the Moscow Mission Control Center and the Houston Mission Control Center. Off going flight director, Neil Hutchinson, wishing the Soviet ground team good luck on their recovery tomorrow. The Soviet-Soyuz is scheduled for a deorbit burn at 141:46 ground elapsed time, and they will be over Acension at that time getting ready for their reentry. Their landing is scheduled to take place at 53:35 north, and 67:19 east, That's in the west Siberian plain, just south of the Petropavlovsk tracking station and northwest of Karaganda. We'll be bringing live video from the Soviet Union of that recovery this morning. They expect to have two helicopters with cameras onboard. We won't be getting video from both helicopters. The plan is to have the helicopters at either end of their landing foot print and, depending on the exact moment of deorbit burn, the helicopters can go in either direction to bring us video of the Soyuz as it parachutes down. We'll be keeping track of the Soyuz all evening long. Expect that video to start sometime around 5:30 this morning. We'll also be providing Soyuz comm english as the audio associated with that video. Our next status report will be at 138:40. At 137:40, this is Apollo Control.

END OF TAPE

ASTP (USA) MC476/1  
Time: 01:59 CDT, 138:37 GET  
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PAO 138 hours, 37 minutes ground elapsed time. This is Apollo control. Both spacecraft in the south Atlantic Ocean between Tierra del Fuego and Cape Town, South Africa. No activity aboard the Apollo right now. The crew still asleep. Just received some information from the mission control center in Moscow concerning the Soyuz. Their crew Alexei Leonov and Valeri Kubasov continue preparations for their return to Earth later on this morning. They've closed the hatch between the descent vehicle and the orbital module, that's hatch 5, and the Moscow control center indicated an orbital inclination of 51.78 degrees and a period of 88.71 minutes for the Soyuz. Last hour's status report contains some misinformation concerning the deorbit burn of the Soyuz. We indicated that would occur over Ascension. Actually it will occur about 1000 miles south of Ascension and just beyond range of Ascension tracking. This - the exact location is 20 degrees, 53 minutes south latitude and 12 degrees west longitude. At that time the Apollo will be right behind the Soyuz and at 25 degrees, 45 minutes south, and 16 degrees, 13 minutes west. And the Soyuz is scheduled to land in the west Siberian plain. Our next status report will be at 139:40 ground elapsed time. At 138:39, this is Apollo control.

END OF TAPE

ASTP (USA) MC477/1

Time: 02:57 CDT, 139:36 GET  
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PAO 139 hours, 36 minutes ground elapsed time. This is Apollo control. Apollo presently within data acquisition of the tracking station at Hawaii and Soyuz about 400 nautical miles in front. At a press briefing just concluded in the Soviet Union some information was passed on concerning the Soyuz landing later on this morning. And we have some figures here we'd like to relate. At 1:40 a.m. central daylight time, the crew aboard Soyuz, having closed hatch 5 between the orbital vehicle and the descent module began depressurization in the orbital vehicle, reducing pressure in that - pressure by about 150 millimeters of mercury to check the pressure integrity between the two vehicles. About 3:40 a.m. this morning or about 40 minutes from now, descent operations will begin aboard the Soyuz and that is considered one of the most intense parts of their flight plan. At 5:10 a.m. central daylight time this morning the Soyuz deorbit engines will be turned on and the Soyuz at that time will be over the mid-Atlantic Ocean about some 1000 miles south of Ascension. At 5:22 the descent module will undock from the orbital vehicle and at that point the two vehicles will be over central Africa at an altitude between 150 and 160 kilometers. At 5:28 the radio blackout will begin. At that point the descent vehicle's altitude will be 80 kilometers and it will at that time be over the Black Sea. The radio blackout will last for about 5 minutes. At 5:35 the spacecraft will be approximately 30 kilometers altitude. At 5:37 the main parachute will deploy and at that point the descent module will be about 7 kilometers above the ground. And sometime between 5:50 and 5:51 the Soyuz with Alexei Leonov and Valeri Kubasov will touch down at a location about 80 miles, excuse me 80 kilometers northwest of Karaganda which is not as we said earlier at 53.35 north and 67.19 east, it's more like 50 degrees north and 71 degrees east. We'll put the exact target point coordinates out when we get them from the Soviet Union, we've requested that. Apologize about the misinformation. The written word is mightier than logic. We also have the night crew surgeon's report, Dr. Jerry Hordinski indicating there is no evidence of crew health problems. We expect Dr. Hordinski at this morning's change of shift briefing. Also the Apollo commander, Tom Stafford's biomedical data was lost. That seems to have been a problem at the ground station and a repeat session prior to re-entry has been requested either today or tomorrow. No medications were taken by the crew in the 24 hour period ending 7 a.m. this morning, yesterday morning, excuse me, Sunday morning. Also, we're expecting a TV dump onboard video and that will occur in about 25 minutes at 3:25 central daylight time. No real activity here in mission control. All of the activity presently occurring at mission control Moscow. Repeating once again a correction on some coordinates for the landing site of the Soyuz with Leonov and Kubasov aboard. The general coordinates are 50 degrees north, 71 degrees east. That area is not as we said earlier in the west Siberian plain. It is south of that, or about 80 kilometers northwest of the town of Karaganda. Our next status report will be at 140:40 ground elapsed time. At 139:41 this is Apollo control.

END OF TAPE

ASTP (USA) MC478/1  
Time: 04:00 CDT, 140:38 GET  
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PAO 140 hours 38 minutes ground elapsed time, this is Apollo Control. The Soyuz presently over the Soviet Union and the Apollo not far behind, moving now into the Soviet air territory. At the time of the Soviet deorbit burn, the Apollo will be about 450 nautical miles behind, and very soon thereafter will be ahead of the Soyuz as the Apollo continues in its orbital plane. This evening's earlier Moscow press conference, we have some comments on crew health. Dr. (garble) Soviet flight surgeon on shift with (garble) indicated that both cosmonauts had been requested to take mild sedatives, and that's something the Soviets normally do at the end of their missions. Also, Dr. (garble) indicated that Alexey Leonov had showed slightly slowed heart rate on the electrocardiogram, and had been requested to take a pill - a panigan(?) pill, which would increase the amount of potassium in his blood. And Dr. (garble) indicated that that would indicate on the EKG telemetry that they have a better heart rate for Leonov. Dr. Jerry Hordinsky is not unconvinced that the Soviets were not prescribing panigan(?) as a prophylactic medicine. There's nothing in the air-to-ground that Dr. Hordinsky saw which would indicate that Leonov had any problem. Also, (garble) indicated that for the past several Soyuz missions, their recovery helicopters have accompanied the spacecraft within about 10 miles of its recovery point, so they expect that we'll be getting some good television for this, since their landings have been very exact. They also have about 1000 people or so involved in crew recovery. And Dr. (garble) indicated that the crew would be recovered within 10 minutes of touching down, that the ground team members would be on sight in 10 minutes. At 140:41 ground elapsed time, this is Apollo Control.

END OF TAPE

ASTP (USA) MC479/1

Time: 04:37 CDT, 141:15 GET

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PAO Apollo control at 141 hours, 15 minutes ground elapsed time. Soyuz presently in the mid southern Pacific Ocean and the Soyuz crew is getting ready for their deorbit burn which will occur just about 30 minutes from now. We'll keep the Soyuz comm line up on PAO release to bring you Soyuz deorbit burn and landing. This will Soyuz comm.

KIO (This is the Soviet mission control center. The comm session with American (garble) ship Vanguard is now finished. Moscow time 12 hours 38 minutes. This the 141st hour of orbital flight of Soyuz spacecraft. This is the second last orbit of the spacecraft. The spacecraft is now in orbital attitude hold using the infrared vertical and also the angular rate sensor. The spacecraft is oriented for braking. This attitude will be maintained until the time 12 hours and 9 minutes. At the present time the distance between the Soyuz and the American Apollo spacecraft is 672 kilometers - 772 kilometers. The mission control center has calculated the descent - deorbit data. This data has been entered into the program computer. The crew is monitoring the orientation and also the transmission of information and data and commands for braking. The deorbit data has the following parameters: The braking calls to shift the spacecraft from Earth orbit to a descent projectory will be 120 meters per second. This braking pulse - burn will work - will operate for 194.9 seconds. That's the altitude of 214 kilometers. At 13 hours and 9 minutes at this time the Soyuz spacecraft will be stabilized using the - with orientation engines. The corrective engines will turn on at 13 hours, 22 minutes and a second. At this point the altitude will be 212 kilometers. The engine burn will end at 13 hours, 13 minutes, 35 seconds. The data from the time - control at 13 hours 22 minutes there will be separation of the two modules. At that moment the altitude of flight will be 153.8 kilometers. At the altitude of 104.8 kilometers, the spacecraft will enter the atmosphere. The G overload will be later at 13:18. At that point altitude will be 85.6 kilometers. At 7 kilometers altitude at 13 hours, 36 minutes, 23 seconds, the parachutes of the Soyuz spacecraft will open. At 13 hours 51 minutes the Soyuz will touch down. This is Moscow mission control center.)

PAO Flight director for Soyuz landing at MCC Moscow is Slje Sebin and his shift CAP COMM is Vladimir Chatalov. The Soyuz landing target point is presently 50 degrees, 15 minutes north, 66 degrees, 50 minutes east. And the weather in that area of the Soviet Union is reported as very good. Winds less than 1 mile per hour, scattered clouds and a temperature of about 82 degrees.

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KIO (This is Soviet Mission Control. This is 104 hours, Moscow time. (garble) spaceship Soyuz is coming out of shadow and is coming on to braking at 15 hours 50 minutes and 50 seconds. Then they will have AOS reception. The (garble) spaceship is (garble) 120 meters per second. Time 194.1 seconds. Patch of clouds, 1500 meters; visibility, 10 kilometers. Wind velocity, 0.7 meters per second. Temperature, (garble) degrees. (Garble) correction. Spaceship will land at longitude (garble) 67.32 degrees. This is Mission Control Center, Moscow.

PAO Soviet Mission Control indicating that the landing area for the Soyuz has now moved about 100 and so miles east to 67:32 longitude. 67:32 degrees east. Yri Romanenko is the normal shift Cap comm at the Soviet Mission Control, but General Vladimir Shatalov, the Soviet cosmonaut training leader, is also over there. And both of them are expected to be conversing with the crew. This ship flight director, once again, is (garble)

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PAO - - and the both of them are expected to be conversing with the crew. Shift flight director once again is Sojad Sebin(?) and Mission Control Center Houston Soviet comm air-to-ground translator is Ross Lavrov. Soyuz presently due east of Montevideo, Uruguay, or Buenos Aires, Argentina, scheduled for their deorbit burn in about 10 minutes. The Apollo is about 450 nautical miles behind due east of the Gulf of Jorge, the jagged coast of Argentina. Soyuz about 6 minutes away from their deorbit burn this - -

KIO Soviet Mission Control Center. Moscow time is 13 hours, 3 minutes. 141 hours and 43 minutes and 40 seconds have passed since the moment of launch of the Soyuz spacecraft. At the present time it is completing the 96th orbit in flight. The spacecraft has left the Earth's shadow and is now flying over the southern part of the Atlantic Ocean. In 13 minutes it will enter the zone of coverage of the Ascension Island tracking station. In 3 minutes it will enter the - in 3 minutes it will enter the zone of coverage. There is also a tracking ship near Ascension Island. This tracking ship will relay the commands for a braking. The first braking session - engine will fire in 5 minutes, 40 seconds. I am reminding you of the coordinates of the landing point. The Soyuz spacecraft will land near the city of Arkalyk in the Kazakh Soviet Socialist Republic. The coordinates of the landing point are as follows: latitude 65:35:62, longitude 32; time - 32 hours 51 minutes.)

PAO An update on those coordinates for Soyuz landing;  
65:35 - -

KIO (This is Soviet Mission Control Center. Less than 1 minute is left until the moment when the Soyuz spacecraft will enter the zone of coverage of Ascension Island tracking station.)

CC-M (Soyuz, Soyuz.)

CC-M (This is Moscow. I hear you. How do you receive - -)

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CC-M (Soyuz, Soyuz. This is Moscow. I hear you. How do you receive?)  
SCDR (Roger.)  
CC-M (I understand. I hear you excellently.)  
SCDR (Orientation is precise. The divergence is about 2 or 3 degrees. Everything normal onboard.)  
CC-M (Roger, Soyuz. Thank you very much. The last COMM session was very short, and there were some changes.)  
SCDR (We hear you intermittently.)  
CC-M (Roger your report, Soyuz.)  
CC-H Again, the new coordinates provided by Soviet Mission Control Center: 65 degrees 35 minutes east longitude, 52 degrees 32 minutes north latitude.  
USSR (Moscow, everything is normal.)  
CC-M (Roger. 69th mark - normal. Over.)  
SCDR (Moscow, this is Soyuz. We have engine fire. Stabilization is stable.)  
CC-M (Roger.)  
SCDR (The engine fired in a stable mode for 20 seconds.)  
CC-M (Roger, Soyuz.)  
SCDR (40 seconds.)  
SCDR (Russian)  
USSR (90 seconds, firing normal.)  
CC-M (Roger. 90 seconds.)  
SCDR (2 minutes, normal firing.)  
CC-M (Roger. 2 minutes.)  
SCDR (Everything operating normally.)  
CC-H Soyuz now out of range of Ascension. We show that their deorbit burn began at 5:10 and 35 seconds A.M. central daylight time. Soyuz crew reported at least a 2-minute burn.  
KIO (This is Soviet Mission Control Center. Moscow time is 13 hours 16 minutes. The last, final stage of the flight of the Soyuz spacecraft has begun. Now it has left the zone of coverage of the Ascension Island tracking station and also the tracking ship. It has approached the coast of Africa near the Gulf of Guinea. According to the crew reports, the engine fired at the calculated time and turned off at 13 hours 13 minutes 38 seconds. At the present time, the automatic - )

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KIO (-- 38 seconds.) At the present time, the automatic onboard equipment is now doing the final programming. So this is preparation for separation of the modules, and also the maneuvering and control on the deorbit and entry into the atmosphere section. According to calculations, separation of the modules shall take place at 13 hours 22 minutes 26 seconds. At that moment the altitude of flight will be 153.8 kilometers. This is Moscow Mission Control Center.)

PAO About 3 minutes away from orbital vehicle jettison now. Soyuz over Central Africa.

PAO The Apollo crew is missing all this. They're scheduled for about 40 minutes more worth of sleep. They're not scheduled to wake up until 6:05 a.m. central daylight time, when they'll be in acquisition through Vanguard. All three crewmembers are - -

KIO (This is Soviet Mission Control Center. Moscow time 13 hours 21 minutes. Until the separation of the modules of the Soyuz spacecraft, 1 minute remains. The flight of the - the altitude of the flight at that moment will be 153.8 kilometers. Somewhat later at 13 hours 26 minutes and 48 seconds at the height of 104 kilometers, altitude of 104, the descent vehicle will enter the atmosphere. This is Moscow Mission Control Center.)

KIO (Separation of the modules of the Soyuz spacecraft has taken place. This data was received by signals transmitted from the orbital module of the spacecraft Soyuz.)

KIO (This is Soviet Mission Control Center. It's 12 hours 24 minutes Moscow time. The distance between the spacecraft and the landing site was approximately 4000 kilometers. In one minute, the Soyuz spacecraft and its descent vehicle shall - will enter the atmosphere.)

CC-M (Soyuz, this is Moscow. I can hear you.)

SFE (Roger. Everything onboard is normal. Separation was on time. Everything is working. The descent - retrofire engine worked fine. The engine fired on schedule and at the proper time. The engines were switched ON, The button was pushed. Everything better - -)

CC-M (Continue your report please. We are listening to you.)

SFE (You can hear the engine firing. And we can see it through the porthole.)

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SCDR ( - hear the engine firing. And, we can see it through the porthole. Valeriy says that the spacecraft is moving very smoothly. We can hear the control thrusters. The parameters - the parameters - the light indicating atmosphere is not lit yet.)

SFE (The crew is feeling well, normal. Everthing is battened down, nothing is floating around. The pressure is 800, the temperature 20. Everything is proceeding as programmed.)

CC-M (Roger. Soyuzes. So far we hear you excellently.)

SFE (We can see the flashers.)

CC-M (Soyuz, this is Moscow. How do you read me now?)

KIO (13 hours, 28 minutes Moscow time. Distance between the spacecraft from the landing site is 2000 kilometers. The onboard - the commentary from onboard the spacecraft is proceeding.)

CC-M (Soyuzes, this is Moscow. So far we can't hear you. Apparently you've - in there.)

PAO We're now receiving television from Soviet Mission Control -

KIO (13 hours, 29 minutes, Moscow time. Distance between the spacecraft and the landing site was 1400 kilometers. At the present time the Soyuz spacecraft, the descent vehicle, crossed the Caspian Sea and is now flying around Gur'yev - around the - in the vicinity of the city Gur'yev.)

KIO (13 hours, 30 minutes, 50 seconds, Moscow time. The distance between the spacecraft and the landing point was 970 kilometers.)

CC-M (Soyuz, this is Moscow. How do you read?)

KIO (At 13 hours, 31 minutes, 50 seconds, distance between the spacecraft, Soyuz, and the landing site. At the present time, the descent vehicle of the Soyuz spacecraft 19 is approaching (garble) the city of Turguy in the Kazakh SSR.)

KIO (13 hours, 32 minutes, 20 seconds. Distance between the spacecraft, Soyuz, from the landing point is 460 kilometers.)

CC-M (Soyuz, this is Moscow.)

CC-M (Soyuz, Soyuz, this is Moscow. How do you read me?)

KIO (13 hours, 33 minutes, 20 seconds. Distance of spacecraft from the landing site is 210 kilometers. 3 minutes until deployment of the parachute. There is commentary from onboard the spacecraft.)

CC-M (Soyuz, this is Moscow. It is very difficult to see anything. We can -)

USSR (Roger. We hear your reports. We can hear the valves of the engines working. Everything is - )

CC-M (How do you feel ?

USSR (Excellent, thank you.)

USSR (Very good.)

CC-M (Roger. And, we're still waiting - )

USSR (You waiting for the G-overload, we already had it. We felt it. It's already decreasing. But I thought the G-load would be greater.)

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CC-M (Roger, Soyuzes.)  
USSR (Moscow, what is our altitude now, approximately?)  
CC-M (I don't know. I'll give you the distance. 25  
kilometers to the calculated landing point.)  
CC-M (Soyuz, this is Moscow.)

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CC-H (Soyuz, this is Moscow.)  
CC-M (Soyuz, this is Moscow.)  
CC-M (Soyuz, this is Moscow. How do you read me?)  
CC-M (Soyuz, this is Moscow. How do you read me?)  
CC-M (Soyuz, this is Moscow. How do you read me?)  
KIO (This is the Soviet Mission Control Center. Accord-  
ing to the reports from the - the landing site, the descent vehicle has  
been sighted.)  
KIO (Two helicopters have sighted the descent vehicle  
and they are observing its descent under the parachute.)  
CC-M (Soyuz, this is Moscow.)  
CC-M (Soyuz, this is Moscow.)  
CC-M (Soyuz, this is Moscow.)  
KIO (This is the Soviet Mission Control Center. The  
search helicopters are following the descending descent vehicle and are  
monitoring it visually.)  
CC-M (Soyuz.)  
KIO (This is the Soviet Mission Control Center. The  
report has come in from the rescue unit that the descent vehicle of the  
Soyuz has jettisoned its heat shield. The Soyuz is continuing to de-  
scend by parachute.)  
KIO (The rescue service confirms receiving a short wave  
signal from the transmitter aboard the descent vehicle 13 hours, 40 min-  
utes, 50 seconds.)  
PAO Now we have live television of the descent.  
KIO (The spacecraft Soyuz is concluding its flight. Now  
we have a TV broadcast from the landing site. We can see the descent  
vehicle of the Soyuz spacecraft descending under its parachute. Moscow  
time 13 hours, 44 minutes, 50 seconds.)  
KIO (Altitude 2,000 meters.)  
KIO (Pilot Sregeyev of helicopter 8 is following the  
descent of the descent vehicle. Moscow time - -)

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KIO (- - pilot (garble) of helicopter 8 is following the descent of the descent vehicle. Moscow time 13 hours, 45 minutes.)

KIO (Altitude 1,700 meters. Moscow time 13 hours, 46 minutes.)

KIO (The rescue unit reports that pilot (garble) has established communications with the Soyuz 19 descent vehicle of the spacecraft.)

KIO (Altitude of the descent vehicle 1,400 meters. Moscow time 13 hours, 47 minutes, 50 seconds.)

KIO (Descent rate approximately 7 to 8 meters per second - the descent rate of the spacecraft. 1,000 meter altitude. Moscow time: 13 hours, 48 minutes.)

KIO (The crew has gotten set and ready for contact of the descent vehicle with the ground.)

KIO (The area of the landing is a smooth field.)

KIO (Altitude 600 meters. Moscow time 13 hours, 49 minutes, 50 seconds.)

KIO (Contact of the descent vehicle at 13 hours, 50 minutes, 54 seconds Moscow time. The parachute has been jettisoned.)

KIO (The soft landing engines fired and a small cloud of dust rose. The descent vehicle is lying on its side and the helicopters of the rescue unit are approaching it.)

PAO Soyuz 19 on the ground.

KIO (13 hours, 52 minutes. The rescue helicopter has landed near the descent vehicle. Members of the rescue - search and rescue group are approaching the descent vehicle of Soyuz 19 spacecraft.)

KIO (Specialists of the search and rescue group are beginning to open the hatch number 5 - the hatch of the Soyuz spacecraft descent vehicle. Moscow time is 13 hours, 52 minutes, 45 seconds.)

KIO (The place of landing is being approached by helicopters carrying the press.)

KIO (Commander of the spacecraft, Alexey Leonov, has just exited from the spacecraft. Moscow time at that time was 13 hours, 54 minutes, 25 seconds.)

PAO Alexey Leonov waving at the rescue team members, apparently in very good spirits.

KIO (Moscow time 13 hours, 55 minutes. The flight engineer of the spacecraft Soyuz 19, Valeriy Kubasov, has just come out of the Soyuz. The cosmonauts feel well.)

PAO Alexey Leonov, Valeriy Kubasov, the ASTP cosmonaut team members on the ground safely in the Kazakhstan province, USSR, surrounded by members of the press, presently.

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PAO Alexey Leonov, Valeriy Kubasov - the ASTP cosmonaut team members - on the ground safely in Kazakhstan Province, USSR. Surrounded by members of the press, presently, and rescue team members.

KIO (In the Mission Control Center, the flight time clock started at 130 - 142, 30 minutes 53 seconds. The clock has stopped.)

PAO The crew of the Apollo will have very good news this morning, 10 minutes from now, when they get their wake-up call through the Vanguard. There ASTP team members, Alexey Leonov and Valeriy Kubasov, safely back on Earth - being surrounded by members of the press and rescue team members.

KIO (The spacecraft Soyuz landed 10 kilometers from the calculated point of landing. At the present time, the crew is walking towards the rescue and search helicopters. This is Moscow Mission Control Center.)

PAO Glen Lunney, USA program manager for Apollo-Soyuz, presently congratulating his counterpart in the Soviet Union, Professor Konstantin Bushuyev. Both gentlemen watching the crew on live television.

PAO Dr. Christopher C. Kraft, Center director of the Johnson Space Center, conveying his personal and the entire Center's congratulations to Konstantin Bushuyev and the entire Mission Control Center Moscow team, for a job very well done.

PAO Soviet Control Center indicating that their landing was 10 kilometers away from the planned landing position. And earlier this morning, Vadim Karvez, shift flight director from the Soviet Mission Control Center, indicated that that planned landing position would be at 50 degrees 15 minutes north, 67 degrees 32 minutes east. Crew members Alexey Leonov and Valeriy Kubasov presently being boarded into the rescue helicopters.

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PAO Looks like from between 9 to 10 helicopters at the rescue site, all-jet powered. Everybody presently in the process of boarding the helicopter for departure from the Soyuz 19 landing position.

PAO About 2 minutes away from wake-up for the Apollo crew. They are presently just northwest of the acquisition range of Vanguard.

PAO At crew wake-up time we'll be transferring PAO release from Soyuz air-to-ground to Apollo air-to-ground. That will occur momentarily.

CC-H Apollo, Houston through Vanguard for 5 and 1/2 minutes. Good morning.

PAO Cap Comm, Karol Bobko trying to wake up the American crew. We're now configured for Apollo air-to-ground.

CC-H Apollo, Houston through Vanguard for 5 minutes. Good morning.

ACDR How do you read, Bo?

CC-H Roger. We read you fine. We're just looking at the TV here and see that Soyuz has landed safely and Alexey and Valeriy were outside of the spacecraft and seem to be in good health.

ACDR Well, very good. Give them our best. Sure glad to hear everything went good.

CC-H I've got some flight plan changes that I'd like to start on as soon as someone has a chance.

ACDR Could you give us a couple of minutes? We're just barely starting to move here.

ACDR Stand by. Might be able to get a headset. Hang on.

CC-H Okay.

ACDR Okay, Bo. Go ahead.

CC-H Okay. The first one is at 143:15 and it concerns the waste water dump. We'd like you to DUMP the waste water to 40 percent. That's a 9 minute dump. We suggest timing the dump since the transducer has been erratic.

ACDR Okay. 9 minute waste water DUMP and 142 - 143:15.

CC-H Tom, I think I heard you say that correctly but you came through very weakly. Could you repeat it please?

ACDR Roger, Bo. Waste water DUMP 9 minutes 143:15. We'll time it.

CC-H Roger. The second one is at 144:40. That's change the high-gain angles to minus 4; and yaw 312. And that's a change to the change.

ACDR Roger. Minus 4 and 312.

CC-H At 144:45 perform the x-ray contingency prep in the experiments checklist, page 1-25.

ACDR Give me the page again, too.

CC-H That was page 1-25.

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ACDR Got it.  
CC-H Okay. And there's less than a minute until LOS  
and we'll see you at ATS at 143:07.  
ACDR Roger. 143.07. And I guess the angles of 143:07  
are minus 7 and 323 - okay?  
CC-H That's affirmative. Minus 7; and 323.  
ACDR Okay. And we'll check on how our water boil's doing.  
We should have it okay.

CC-H And, just as we go over the hill, everything  
looks fine. We still have live TV from the Soviet Union in Kazakhstan  
where the spacecraft has landed and we saw it touch down. Saw the  
cosmonauts get out and everything was good.

ACDR Okay.  
PAO Loss of signal through the Vanguard. The American  
crew informed of this morning's unprecedented live video of the  
Soviet recovery of their two ASTP crewmembers, Alexey Leonov, Valeriy  
Kubasov. During the time that Karol Bobko was talking to the crew,  
Seogaic Seobin(?), the shift flight director of the Soviet Union, said that  
this morning's and the entire mission stood as a good basis for future  
manned international spaceflights and exploration of space. The Soyuz  
touched down at 5:50 and 54 seconds Central Daylight Time this morning.  
13:50:54 Moscow time, I figure according to the Soviet Mission  
Control Center. Next acquisition for the Apollo will be 14 minutes  
away. That'll be through the ATS satellite. AT 142:52 ground  
elapsed time, this is Apollo Control.

END OF TAPE