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STS-5 PRESS CONFERENCE TRANSCRIPTS

CHANGE OF SHIFT BRIEFINGS
SUIT PROBLEM BRIEFING
POST LANDING BRIEFING

Okay. We're ready to start with our first change-of-shift news conference for STS-5. With us today, we have Flight Director, Tom Holloway, and Mr. Holloway has brought with him Ernest Smith, the data processing systems flight controller for the first shift. We'll open the conference with a summary from Mr. Holloway.

TOM HOLLOWAY We launched the first operational shuttle this morning early. Liftoff was at 6:18:59.61 seconds and if you do your arithmetic you'll find that it was a little bit early, so we were not late today, we were early. The launch, as you all know, was very normal in all respects; well within expected tolerances and everything went very well during powered flight. In fact, things have gone very well all day today. Our orbit at present time is 160 by 161 miles. We were shooting for 160 by 160 nautical miles and we think 150 by 161 is very good, well within what we would expect to be able to do on any given day. The post insertion activities with the 4 flight crew onboard have gone exceptionally well. They have been either on the timeline or ahead of the timeline all day. They're invisioned, seems to me at least, to be in very good spirits, enjoying themselves as well as doing a very excellent job in accomplishing the work that they had to do to configure the spacecraft for the on-orbit operations and get ready for the deployment this afternoon. At the present time, we are on schedule. The crew is feeling well. Things are going exceptionally well and we expect to deploy the SRS satellite this afternoon on schedule at 8 hours. The only anomaly that we have had, that is of any significance, is we have apparently lost CRT number 2 which Erni can talk to you about if you have any detailed questions on it. It failed somewhere between Dakar and Yarragadee right after launch. At the present time, that loss of that CRT does not impact our operation and we would be expecting to complete the remainder of the flight without any influence on how we operate, or the kind of things that we do on-orbit. I believe with that, we'll go ahead and open up for questions.

Okay. We'll take questions first from Houston. Please raise your hand and identify yourself when we call on you. Carlos Byers, Houston Chronicle.

CARLOS BYERS Good morning. You've had the...you said everything was nominal and I'm sure it was very close but there was a call during the powered flight that said that the solids were below trajectory. Could you discuss that for us what...how low was it, how much, how low were you on velocity. What was the effect and what means did you get compensation for it.

TOM HOLLOWAY Well, let me talk about that starting at the back end of the question. First of all, the performance of the solids were well within the expected tolerances on the solids, but they appeared to be a little bit lower than what we call nominal, or

normal. They did not perform quite as well, apparently, as what we call nominal, but they were well within, to use our language, the 3 sigma dispersions of what we expect our solids rockets to do. They were low. The reason we reported to the crew was that it could influence how they operate in some contingency situations on down the line, had these contingencies occurred. Fortunately, they did not and the fact that the solids were a little low today, if they indeed were, did not affect us in any way. We achieved a guided MICO and from all aspects of STS-5 solid rocket performance did not affect us at all. To wind that up, the actual performance of our solid rockets will have to wait analyses and when our post flight people get together and reconstruct the ascent and determine really how well they did. There's a lot of factors that go into that and we really don't know where our SRB's were yet, but they do appear to have been a little bit low.

Lynn Share, ABC.

LYNN SHARE Tommy, a couple of things. First, when did you find out the President was going to call, and second, do you have any readings yet on the eye monitoring of Joe Allen on the ascent, the sensors.

TOM HOLLOWAY Okay. Relative to the President's call, I was asked about an hour or an hour and a half before it occurred if we would accommodate such a call. We looked at the timeline and in light of the fact that the crew's activities were going very well, we selected that the particular pass which we had conducted it happen to be convenient with his schedule, and it was done. Relative to your first question, the data is on a recorder relative to the eye monitoring activities during ascent. I don't know that the surgeons have looked at those yet. As you heard on the air to ground, Joe did check out the equipment after we got on orbit at about 2 hours or so and the equipment is working very well.

Steve Cross CBS.

STEVE CROSS (garble)

Can you wait for the mike Steve.

STEVE CROSS You said that everyone was feeling well. Does that mean that no one has experienced any motion sickness at all yet.

TOM HOLLOWAY That is correct.

STEVE CROSS Is this a normal timeframe, or is that something that you look for a little bit further down the road to feel the first symptom.

TOM HOLLOWAY Well, motion sickness is a variable phenomena and it depends on the individual, so I can't answer your question to be honest with you. It varies a great deal and, who knows, but it looks like this crew, all 4 of them, are off to a very good start and I'm hopeful that we won't have any motion sickness.

SAM ALLIS, TIME MAGAZINE.

SAM ALLIS How automatic is the ejection process this afternoon for SBS 3. I mean is it, is the mission specialist going to press 1 button and then everything happens after that or is there a long detailed procedure that has to occur.

TOM HOLLOWAY Well, it's somewhere in between the two extremes of what you mentioned. He doesn't punch 1 button and then a series of activities accomplish, put out the pams, but on the other hand, it's not a long detailed set of strenuous set of procedures that he has to accomplish either. So, it's somewhere between the two extremes of what you're talking about. It's something that I would consider a reasonable activity for a guy to do on-orbit.

MAX RISLEY, GALVESTON NEWS.

MAX RISLEY What was the water spray boiler message they got. Is that the same old problem that seems to have cropped up on almost every one of these flights? Was it freezing over.

TOM HOLLOWAY No sir. It was not. Our water spray boilers are in good health. They did well. They did not freeze. We had absolutely no problems and apparently all of our problems with water spray boilers relative to freezing have been solved. We did have a failure of a transducer that failed off scale low and caused us to get a message, but that has no impact on the flight or the functioning of the water spray boiler.

MAX RISLEY In other words, the failure was in the instrument that would indicate it rather than in the device itself.

TOM HOLLOWAY Yes sir.

PAT DOLIN, CABLE NEWS.

PAT DOLIN There was an air to ground communication about patchy data from Dakar. Apparently something with telemetry. Could you explain that?

TOM HOLLOWAY Well, our first pass over Dakar was not very good, and it was described by the people who configure the network and make sure we have data as being patchy and intermittant and frankly, I do not know the cause of that yet. We did not have solid telemetry over Dakar during the first pass.

PAUL RESER, AP.

(garble)

Okay.

STEVE COLEMAN, KIKK RADIO here in Houston. Did visual or other contact occur between the Columbia and Soviet Saluid Space Station this morning?

TOM HOLLOWAY Not that I know of.

There's nothing reported. This gentleman here.

ANDY CHAKEN, SCIENCE DIGEST I heard 1 air to ground exchange about some white material flapping off behind the ohms pods from Joe Allen. Can you talk about that at all.

TOM HOLLOWAY Yes sir. We believe that's the same phenomena that we have observed on previous flights. More pronounced on flight 4 than on flights 1, 2, and 3. We believe that it's the lox venting, the normal activities of venting the liquid oxygen out the main engines and is completely normal.

ANDY CHAKEN, SCIENCE DIGEST (garble)

TOM HOLLOWAY No it is not part of the tiles nor part of the ohms pod, or so on or so forth. We believe it's frozen lox that's coming out the back of the main engines.

PAUL RESER, ASSOCIATED PRESS.

PAUL RESER Yes, I hate for your colleague to escape without confronting a question. On the CRT 2, is the problem with that a phenomena from the computer itself or an artifact of the screen?

Well, it really appears to be an artifact of the screen. The crew has 4 CRT's onboard with which they monitor the data processing system and 1 of those screens, one of the forward screens has failed on them and they're no longer able to use that screen.

PAUL RESER Okay. But that failure is not associated in any way with any of the computers onboard then.

That's affirmative.

TOM HOLLOWAY I sure appreciate you asking that question. I wanted Erni to have a question to answer.

(garble)

CARLOS BYERS, HOUSTON CHRONICLE.

CARLOS BYERS Erni, I'll toss you another one. Is there any possibility or practicality in the crew changing out the screen?

Yes there is and we're looking in that direction. We had a problem not exactly like this but something similar on STS-2 in which the crew decided that in order to get all 3 of their forward CRT's, which they prefer to have for entry, they did change out that CRT with the aft CRT, which is basically not usable during the entry phase and we may opt to do that same thing here.

TOM HOLLOWAY So later in the flight after the deploy activities are over and most of the on-orbit work where we use the CRT in the back, we will, assuming the situation remains the same, we'll be thinking about making that, doing that inflight maintenance and moving the back CRT up front.

PAT DOLIN, CABLE NEWS.

PAT DOLIN Again on the CRT. Does the loss of that CRT restrict in any way the information available to the crew?

No sir. He can get the same information from the other 3 CRT's that are still usable.

PAUL RESER, AP.

PAUL RESER Given normal mechanical ability, how long would it take to switch out the aft CRT.

We believe it takes 45 minutes to switch it out and 10 minutes to check it out after it is switched out.

LYNN SHARE, ABC.

LYNN SHARE You said that there's no material that they will be missing by not having that screen. Is there anything in terms of deployment of the satellite that makes it more awkward for them. I mean, my understanding is the CRT is in front of the pilot. Is that right? The one that's gone. Is there anything that just makes it awkward in terms of who's sitting where and what they're doing at what time.

I think ordinarily for the payload operations they would use the aft CRT anyway, which is operational and that's why we'll delay any inflight maintenance until later in the flight after they've done the payload activity. So I think the answer is no, I don't think it would cause a problem.

TOM HOLLOWAY Remember Lynn, we have 3 CRT's, one on the left, one in the center, and one on the right and I expect the pilots will remain in the same position they always have and Rob will use the center CRT for what he normally does.

REX RISLEY, GALVESTON.

REX RISLEY Did they leave any tiles on the beach this time?

TOM HOLLOWAY I've not received a report yet from the people who do the walk down and look to see if there's any tiles on the beach. The base on the reports that we have received from the people who look at the television and also from the flight crew, I believe that all the tiles are onboard the Columbia.

Okay. The gentleman back here.

DAN CHIPPERO, NEWSWEEK MAGAZINE I don't know if you've already dealt with this question in a prior briefing, but why was the decision made to drop the autoland and when was that arrived at?

TOM HOLLOWAY I don't remember the date that NASA management decided to drop the autoland. It was something like 4 or 5 weeks ago, and if you'd like to know the time, PAO can get that date for you. Relative to the autoland question of why was it dropped, let me talk about autoland for about 30 seconds and then I'll answer your question. Autoland, before one gets ready to do an autoland, he ought to have 2 things going for him. First, he ought to have a system that is absolutely confident in that it will work and it's tested, and he's ready to go do it. And secondly, he ought to have a takeover criteria in case it happens to not work, that the pilot can take over from the auto system and go land the airplane manually. Now, we decided not to do the autoland because of a little concern in the second area. We are confident that the autoland system would work should we need it. We're a little concerned at this point in the program, particularly in how we have trained and how our training systems have performed and we're a little concerned about the pilot's ability to takeover the last 100 feet or so when things are happening very, very fast and for that reason, NASA management decided it was not time to do autoland in Shuttle.

Okay. We'll take about 2 more questions from Houston and then we'll switch to Kennedy. Do we have any further questions here?

We'll switch to Kennedy.

ROY NEAL Tommy, I have 2 questions for you if I may. First of all, what is NORAD advise you as to the time of closest approach to the Salud 7 and question number 2, can you give us a reasonable description of what video to expect on the SBS deploy?

TOM HOLLOWAY Roy, your question on the closest approach to the Soluid, I don't have any data on that. I'm sure it's up there and we must be coming close to it sometimes, but I really don't know when that is and it doesn't affect our operation. We're not concerned about recontact with it or anything like that so I haven't been involved in keeping up with our time of closest approach. And your second question, you're going to have to repeat.

ROY NEAL All right. Question number 2 deals with what can we expect in the way of video on the SBS deploy this afternoon?

TOM HOLLOWAY Relative to realtime, we'll not have any video when it happens. If all goes well, we will dump the video tape at Hawaii after the deploy and that's some 45, about 45 minutes after the actual deploy, we'll dump the video of the deploy and it will be available.

REG TRAMMEL of CBC.

REG TRAMMEL I wonder if you could help us a bit about the private medical conference. Was this at the request of the crew and assuming that nobody's space sick onboard, can you give us any general guidance as to what it might be about?

TOM HOLLOWAY Private medical conferences are scheduled routinely everyday during manned spaceflights and as such, the surgeon and the pilots and MS's have opportunity to confer with the surgeons and advise them of the state of their health, and that's just what it is, a private medical conference between the patient and his doctor. As I've already indicated this morning, at this present time the crew is in good health and there's no report of any problems at all in this flight. One more and, we will do a private medical conference everyday and regardless of the state of health of the flightcrew. We will accomplish it everyday even if they're still feeling just as good as they are right now.

DAVE DOLIN, HUNTSVILLE TIMES I have 3 questions for you Tommy. First off, are any of the crew now on Scopex?

TOM HOLLOWAY Yes, they are. All except one and I believe Rob Overmyer did not.

DAVE DOLIN Okay, secondly, how broad was (garble)

TOM HOLLOWAY ...all 4 of them did. I'm sorry. One took it on the pad and the other 3 after ohms 1 which has been our previous flight procedure. All 4 have administered Scopex.

DAVE DOLIN Okay. On the matter of the ascent trajectory being a little bit low. What was the maximum divergence from the planned trajectory?

TOM HOLLOWAY I don't have that exact data. In terms of the kind of our plotboards over in the Control Center, it was not a large deviation and really not anything that I personally got excited about. We were depressed because of the headwinds and in addition it became obvious that we had at least a small performance problem as the ascent went on, but not anything to worry about.

DAVE DOLIN Okay, finally, this, I heard secondhand, but did I understand someone correctly say that Joe Allen was running around using his bare feet to help grasp things and stay in place in the cabin?

TOM HOLLOWAY Well, I think that was Bill Lenor. He made a comment that in his bare feet it was easy to use the foot restraints and attach himself to various fixtures in the spacecraft, and I'm not sure he was serious. That may have been a comment just to get us to chuckle.

Are there any further questions?

No further questions from KSC.

TOM HOLLOWAY I've been told that our closest approach to Salud 7 was at launch plus 4 hours.

Okay. We'll go to Marshall now for questions.
Are there any questions?

Somebody mentioned something about a headsup display that might be used in STS-6. Can you tell me anything about that? Is that, by any chance, some hollographic technology in use of the CRT?

(garble) Could you ask them to repeat it and up their volume?

Someone mentioned something about a headsup display in conjunction with the landing procedures, the landing operation in STS-6. Is that headsup display something new. Does it have to do with hollographic technology, hollographic visiplay that's transferring CRT information so that the Commander can pile up this display while looking at the runway of the approach.

TOM HOLLOWAY The headsup display is not a new thing in the Shuttle. There are headsup displays in airplanes flying all over the world today. Relative to Shuttle, flight 6 will be the first, and 099 will be the first vehicle when we have a headsup display. As far as describing what it is, it's a display system that puts the certain critical information, particularly associated with the landing, on a lens screen for the pilot such that he doesn't have to take his eyes off the scene, out the STS-

window view to have available also other information that normally he would have to go heads in to a pilots language to obtain so he can continue to look out the window during the critical landing phase and have data such as altitude and velocity and so on and so forth, available to him and maintain his visual on what's going on out the window. So, STS-6 and Challenger will be our first flight with the Shuttle heads up displays but they are used in many other airplanes throughout the world today.

Okay. We'll come back to Houston and see if we have any final questions. PAT DOLIN.

PAT DOLIN More on Solud 7. Was the crew instructed to look for Solud 7 as it passed? That's part 1 and part 2, do we talk to the Russians before launching in order to tell them that we are planning a trajectory that would come close to one of their ships?

TOM HOLLOWAY No, the crew was not informed of the closest approach to this particular vehicle that belongs to the Russians and routinely we do not do that for any of the other spacecraft that are in orbit or in some cases, junk that is in orbit. Relative to your first question, no not as it relates to the business of being in orbit and flying around in the vicinity of their spacecraft.

Okay. MAX RISLEY, GALVESTON NEWS.

MAX RISLEY On this mission, they did away with the pressure suits at launch, but I was just wondering, what sort of a headgear did they put on when they got in? Was it just like what a fighter pilot would wear or what?

TOM HOLLOWAY It's called a launch and entry helmet and it's very similar to the helmet that's worn on top of the ejection suit. Take the ejection suit off and look at it and it looks very similar to ejection suit helmet, and it is a hard back with a visor and so on and so forth.

MAX RISLEY But it doesn't attach to anything. There's no ring to attach it to on the (garble)

TOM HOLLOWAY No, it is a helmet and it does have a oxygen hose so if we have contamination in the cabin and a face mask, they could get a 100 percent oxygen during ascent and entry.

LOU ALEXANDER.

LOU ALEXANDER Concerning that small leak in the RCS that was reported before launch, does that have any minute affect on either the roll pitch or yaw on the speed of the spacecraft?

STS-5 CHANGE-OF-SHIFT BRIEFING p001j 1/11/82 11:00 am PAGE 10.

TOM HOLLOWAY No sir, and I might add that at this time, there is no leak in the RCS. It's healed itself and all is well.

Do we have any other questions. No other questions. We'll close it. See you folks tomorrow.

JOHN COX Good evening, this is the type of change of shift briefing that I think anybody would enjoy. NASA has probably established several new firsts today, we had a beautiful launch early this morning, and we had another beautiful launch this afternoon with the SBS payload into orbit and it's well on it's way now to geosynchronous orbit and as far as we know, doing all the good things. The crew had a very good day today, they stayed on the timeline all day, as a matter of fact, it seemed like they were probably running a little bit ahead most of the day. Start of the shift we finished cleaning up all of the things from the post-launch phase and got the Orbiter systems configured. We got into the IMU alignments, we did a couple of those today, and we were right on the money, which again supported the good attitude at deploy. The auxillary power units, the cooling went fine on those, this flight had none of the problems that we've seen in the past, so we look super. As far as the deploy activities go, we do several computation cycles. And those computation cycles went perfectly, we exchange information with the payload operations control center, the deltas that came back between cycles where we would update with new trajectory information were so small that they were virtually insignificant. We went ahead and made all the changes, got the information up to the crew in plenty of time, and they went about and performed a beautiful deploy and I hope everybody's had a good opportunity to see the downlink TV we had from that, both the live and the dump TV, that was very impressive. The crew is all feeling fine, they seem to be, every one of them, in super spirits. You could probably tell that through the conversations today, there is quite a jubilant attitude onboard. Towards the end of the day we did manage to activate the Get Away Special, we performed a COAS calibration, but probably, we'll be repeating that one. It had a very light star that we used, and we looked like we picked up a little more air in the alignment than we thought, so we're going to go back and repeat that one until we get it right. We've had an initial report from the people to look at, see if we have any water on the tiles, since that was the big issue last flight. Virtually you have none, and there is attitude requirements to do anything with that now. The pad walkdown has been completed and no Orbiter tile debris has been picked up anywhere, so all in all it looks like we've just had a fantastic day. I'll take any questions.

PAO Okay, before we get started with questions for purposes of identification, Dr. John Cox, Flight Director on the Orbit Team just speaking. On his left is Bill Comerford, Launch and Orbit Systems Director for Satellite Business Systems. On your far left is Michael W. Hawes, Payloads Controller on the Orbit Team. Bill, did you have anything you wanted to say, or do you want to just wait for questions.

COMERFORD Well, no I would just really like to say things went beautifully for us. It was better than you could hope for,

everything was very smooth, everything was very mild beginning with lift-off and into orbit, almost a perfect orbit. The payload looked very good, the temperature situation is something that we were concerned about, because it was such an unknown and rather complicated, but that looked very good. Temperatures were a little bit warmer than we expected, which is the good sign. Then when we got into the deployment sequence, that went very smoothly, everything happened on time and we left the Orbiter bay and achieved the forty-five minute coast period. And that was an anxious time for us because we're waiting for the solid rocket motor to burn. It was ignited forty-five minutes after deployment and it went off on time, a nominal burn, and placed us into geosynchronous transfer orbit. We were fortunate once we got into the transfer orbit that we were able to get a quick look from Yamaguchi tracking station and the data looked good there. After that we acquired about an hour earlier at the (garble) tracking site and the spacecraft data looked good there. All systems performed beautifully, and I think it represents a team effort of a lot of people and a lot of organizations brought together to deal with a very complex problem. It shows what you can do, the Shuttle has an excellent record of success. And we are very pleased, we're very happy to be working with all the people that contributed to it.

RAJ Okay, I guess we're ready to go to questions.
Please wait for the microphone and identify yourself. Back over on the far right, back here.

PAPA TALLY URJ Regarding the location of the two chipped tiles, can you tell us exactly where they came off and how critical, if at all, the missing tiles will be.

COX I think all we really know is the crew report that they're on the left OMS pod on the forward side we have a location serial number that was read down, folks will be looking at that. They did indicate that it was only a chip and we don't expect that to be any concern. In previous flights we've lost more tile than that in those areas and we've had no problem at all. I think in previous flights they turned out to be cases where they were diced tile and what not, and they had chipped as a result of the way they were assembled. I don't know what the case is this time, but we certainly have no concern over that.

JOHN DISNEY RKO Gentlemen, I realize it has probably been a long day for you, but nobody seems to terribly excited about the historical implications of this. The Shuttle has finally shown that it can do what it's suppose to do. Does anyone want to address what you've done today in a milestone way?

COX I believe that NASA today stepped out and did something that we've been building for, for a long time. Ever since we came up with the Shuttle system, we've finally gone

operational, and if we look not excited that sure is not the way we were in the Control Center. If you had any idea in there that that place was ringing with high emotion and excitement. Maybe we should do it all again and playback the video several times to relive it. It was so exciting.

DISNEY We're gonna do it all over again tomorrow anyhow right!

COX And we'll get one more chance tomorrow. No, I think that we've started a new era. We've now shown that the government organization that everyone knows as NASA is now going to the service end where we can now put up satellites or do things at customer desires. We're not exactly one-hundred percent paying for this right now with the money we're taking in, but it says that we're headed in that direction. It's been a long haul, it kind of looks like the concept works. Dealing with the customers has been a very pleasant operation. Things have gone very well on that end. This new set of customers that we've flown at this time probably can tell us a lot how that interface went and how hard it was to work with this group of folks, but I think all in all, it's been a positive and enjoyable experience, we're all very happy, pleased with what has finally turned out and looking forward to many, many more of these.

PAO Okay, on the isle.

JOHN KIRBY CH 12, SAN ANTONIO I was wanting to follow up on that, if you considered this Columbia's best day in space?

Cox I would say so. From our point of view, you know usually when you come in for a handle on a launch day there's a bunch of little transducers that may have broke or something. Today, there was nothing. I mean, it was just the most perfect nominal day as far as getting into orbit was concerned. We got up there, went right about our business and the satellite deployment went flawlessly through customers that have to second bet. That went, that was just super.

PAO Jules Bergman, front row up here.

JULES BERGMAN ABC John, would you say, I don't want to get you to say again what you just said, but in my mind the historic thing about today was that the Shuttle did, did the Shuttle today really go operational?

JOHN COX We feel so. This was our first operational flight and we did exactly what we intended to do. It was beautiful. So the answer to your question in one word is yes. I think if you want to look at what the whole operational envelope is of the program, each flight that you'll see over the next succeeding 5 or 10 flights will continually build upon what we just accomplished. The flights will get more complex and, I would say by the time we finish the space lab flight and the solar max repair flight, you will then see what a fully operational Shuttle is.

JULES BERGMAN What I was also getting at, John, was the learning curve from the test flights. Smooth countdown, smooth ontime launch, does this prove NASA can really do it when it says it can do it?

JOHN COX We've always felt that that was the case and I feel that every flight ought to be this way. You never can predict any of those small instances that may occur during a prelaunch count. There's a lot of things that have to go right. But that's the way it's supposed to be. If you had to write the textbook, we did it that way today.

PAO Back behind there.

DAN SHAPIRO NEWSWEEK MAGAZINE I have a technical question. Some point today Lenoir was heard to say, "Hey Mike, tell Woody the jalapenos are outstanding up here". Who is Woody, and what was he talking about?

JOHN COX (laughter) I suspect he has a place he likes to eat that is good for jalapenos.

DAN SHAPIRO Okay.

PAO Paul Reecer AP.

STS-5 CHANGE-OF-SHIFT BRIEFING p2jb 11/11/82 6:50PM PAGE 2

PAUL REECER AP Could you review for us the difficulty that you had with the gas and how that difficulty was overcome?

JOHN COX That is, what we had there was a case where we have two payloads that we call standard switch panels that are available for any payload configuration for any flight. It so happens that the SBS and the ANIK payloads use a standard switch panel for the switch activities that support the deployment, and then we have another panel in there that supports some other equipment. It so happens that that other panel, that other standard switch has been carried on some previous flights like last flight, flight 4. That's where the gas hookup is located. The panels are originally machined to look identical and it so happened that when they did the overlay that put the labels on each one of the switches they put a gas label on the similar switch gas being the getaway special. On the similar switch on the SBS Telesat panel and that's where the crew went first to plug in to that one. We caught ourselves with just a label. There was nothing behind there when they plugged in, so all they had to do was get back over to the right panel and everything worked fine.

PAUL REECER Were the instructions that they had in the manual onboard also incorrect?

JOHN COX They would lead you to believe that you were supposed to plug in where the gas location was.

PAUL REECER So in effect they found a mess by not following the instructions?

JOHN COX Right, and we caught ourselves on that one.

PAO Back over here, Joyce. Did you have a followup?
Go ahead.

BERGMAN I wanted to ask Mr. Comerford, if I'm pronouncing the name correctly.

MR. COMERFORD That's good.

BERGMAN When is the apogee burn that puts it into a 22,300 mile circular geosync stationary orbit?

JOHN COX It's planned for fifth apogee which is about 5 p.m. Saturday afternoon.

BERGMAN 5 p.m. our time Saturday afternoon?

JOHN COX Eastern time, I forget, we're here in Houston, eastern time, that's an hour different.

BERGMAN And is that being done out of here?

JOHN COX No. Soon as we launch the Shuttle, operational control of the spacecraft shifted to our launch control center in Washington D.C., and in fact during the mission we have a fairly strong team of engineering support there that we use, but after we leave the Shuttle it all shifts to that engineering team. In fact, all the people that are down here supporting our launch will travel, and many of them have already left to go back to Washington. We have a lot of activities particularly in the first transfer orbit first revolution, and after we fire the option motor we have some very complicated maneuvers and deployments to perform which would be done Monday and Tuesday. It all depends on the orbit though, it could be depending on how the orbit parameters turn out, it could be the 4th apogee or 3rd apogee or 7th apogee, but nominally it'll be fifth. Everything looks nominal so far, it's probably when it's going to happen.

BERGMAN Do you know yet what perigee geosync orbit you've achieved?

JOHN COX We're taking ranging data now to determine the orbit and it'll probably take us through the night before we get a good fix on the orbit.

PAO Way back over there.

DOUG MILLER KTRH Did you folks learn any lessons today from the deploy of the satellite that you can apply tomorrow, or did everything go hunky dory and didn't learn a thing out of it?

JOHN COX There's one general observation I think we can make. We saw some in the training. A 4-man crew is extremely effective. You can take a complicated task which this was not very complicated. It does require 4 people to be busy, but not overly so. But we have found that they were able to, on launch day stay on the timeline, go right to work and deploy satellite right out of the shoot, that was super. And I think as far as that is concerned tomorrow we'll work out much the same way, even if there is some extra work or activities that we would want them to do which currently aren't scheduled. We from time to time do that. The planning team is working tonight and will come up with any changes that they might come up with for tomorrow's flight plan. But even if asked to do something extra the crew can probably handle it and that's one of the advantages of a 4-man team. As far as for itself, I think it went right on the money and Mike or Bill might want to elaborate if they thought there were any extra things as far as the payload specific activities are concerned.

I don't think there's anything particular that we would try to apply to tomorrow's deployment that we went just as

we had planned to go, everything followed the checklists and all of the procedures. As John said we learned a lot of things about our timeline and that we can easily fit in the time that we have allotted and we'll probably take a look at that in evaluating just how we're going to fly two very similar spacecraft on the 7th flight.

PAO Any other questions. Over, back over here. Dan Shapiro.

DAN SHAPIRO Has there been any analysis yet of the data sent down from Allen's sensors on the eye muscles?

JOHN COX I don't believe there's been any inflight analysis on that and I don't believe anybody intends to make any inflight. The data has been received though, did verify that. Did get calibration data on it, and so the data is coming in good.

DAN SHAPIRO And also, is there still no air sickness, motion sickness rather, reported by the crew?

JOHN COX That's what we've been told. Absolutely, no problem at all and you can tell by their spirits everybody is up, so it sounds really good.

PAO Jules

JULES BERGMAN Did they take any premedication, John?

JOHN COX All four of them took Scopex. One of them took medication prelaunch, and that was Joe, I believe, and the rest of them took them after we achieved orbit.

JULES BERGMAN So you wouldn't expect air sickness or space sickness, to correctly term it.

JOHN COX Well, if you can correlate exactly 100% that taking Scopex prevents motion sickness, that would be one thing. But we haven't exactly demonstrated that that has that high a correlation anyhow. But nobody has a problem today.

PAO Any other questions. Okay, I understand there're no questions from any place else. I trust the President will excuse our preempting his press conference which began about 6 minutes ago. Thank you all for coming.

END OF TAPE

PAO Good morning, welcome back. Thank you for coming. The Flight Director, Tommy Holloway, just finished his second shift in the Mission Operations Control room and let me turn this over to Tommy and let him tell you about it.

TOMMY HOLLOWAY Well, again, welcome. Last 8 hours have been very calm over in Control Center. Last evening the crew apparently slept well throughout the evening. The spacecraft has continued to operate perfectly for all practical purposes. This morning we executed a flight plan and performed all the activities as they were scheduled, the most notable one being the resert burn that eventually placed us in 160.1 by 160.5 nautical mile orbit. We're all set up to deploy the tail side communication satellite this afternoon and ...

PAO ANIK, Tommy. ANIK.

TOMMY HOLLOWAY Okay. Use the right words. And we expect to do that on time as scheduled in the crew activity plan. The crew is again today performing very well and appear to be in good health and in good condition and, certainly, they are, are still excited about the work that they're doing and are running right on schedule in terms of all of their activities. And with that I'll open it up for questions.

PAO Wayne Dultrafino.

WAYNE DULTRAFINO You mentioned the crew slept well. I was curious, I didn't hear it, I was curious if you know where they slept - how they worked out the sleeping arrangements overnight.

TOMMY HOLLOWAY I honestly don't know where the crew slept. I talked to them before the flight and asked them where they most likely would sleep and they'll start off with the Commander and Pilot upstairs probably in the seats and the MS's down the stairs perhaps and then they'll migrate from there until they find a comfortable place. Maybe they'll tell us in day or so where they're sleeping.

WAYNE DULTRAFINO One more. That master alarm which apparently just went off for a second or two, did we ever figure out what that was or was that just a fluke.

TOMMY HOLLOWAY Yes sir, as a matter of fact we did and it's a perfectly normal situation that occurs when a, under a rare circumstances when a certain situation occurs in the pressure control system. What's going on is we have a situation where the system is asking for flow of N2 and right in the middle of that flow it switches to O2 and the pressure range between those two systems is 100 PSI different. And so when we switch, it caused the master alarm and we're thinking about changing the limit so

that if it should happen again during the sleep period it wouldn't wake the crew up. We don't like to wake the crew up.

PAO Back over here.

PAUL FRIENDSHIP, VOI A follow up on Wayne's question. There was also talk of venting sounds.

TOMMY HOLLOWAY Yes, a warning. Bill Lenoir talked about venting sounds and we believe that was the inflow of either the N2 or the O2 into the cabin that was going on at that time. May have been outflow going out of the wet trash bag which we vent overboard. But whatever it was, we're confident that it is a normal situation.

PAO Lynn Sherr please.

LYNN SHERR Two things, Tommy. First, was there any significance to what Joe described as seeing during the rotation with the glowing or whatever it was when the jets were firing? He was talking about seeing some kind of odd coloring or luminousness. What was that?

TOMMY HOLLOWAY Well, I'm not sure we know exactly what it is but we have a phenomena associated with spacecraft that we have glow around the spacecraft under certain physical conditions and, a matter fact, the glow experiment which you may be familiar with that we're going to try to photograph this thing later on in the flight. Probably some kind of interaction between the oxygen ions as we fly around in space. Maybe we'll find out more about it in the experiment that's scheduled later in the flight.

LYNN SHERR It's nothing you're concerned with.

TOMMY HOLLOWAY No. No way.

LYNN SHERR Can I...

PAO One more...

LYNN SHERR Just one more thing. Perhaps I missed it before but, is this the first time that the PAO's, John or Tommy, are referring to the CAPCOM as a spacecraft communicator. Has that name officially been changed or did I miss it earlier?

PAO No, it hasn't been officially changed. I guess, in the strictest sense, we're not operating with a capsule anymore and we still call him CAPCOM so but...

PAO Yes

PAO But I don't think there's anything meaningful in there. Somebody may have just said, like a slip of the tongue, and called him a spacecraft communicator but we knew what we mean I guess.

HOLLOWAY In fact it sounds like a better name to me.

PAO Maybe I can do something about that. Anybody have anything else here in Houston. Olive? Okay, we'll get to you.

STEVE CRAWFORD, CBS How did the, were there any problems with the student experiments this morning that were activated?

TOMMY HOLLOWAY Absolutely none, and they were all done on time and are pretty close to on time and the MS's reported that they were all completed or at least started. You know some of them are scheduled for later follow on the work so on and so forth, but those things that were scheduled today were done.

STEVE CRAWFORD, CBS I have one more question. Throughout the shuttle development, there have been critics who've said that this is not going to be that easy to launch satellites because the shuttle can't go into geocynchronous orbit and all kinds of criticisms in that area and was going to be a real competitive threat in the future and was gaining on the United States. In last, in view of the Aerians last flight and in view of your success yesterday, how do you see that race to commercially develop space.

TOMMY HOLLOWAY Well, we certainly believe in the Shuttle as a launch vehicle and as a launch vehicle that will get us in low earth orbit and provide the opportunity for our customers using their own vehicles to carry on and go to geocync from that point. And in fact, that's what the French rocket also does. It simply delivers to a certain orbit and then the perigee kick motor and the apogee kick motor goes on from there. We're confident that the orbiter is on schedule in terms of becoming the launch vehicle that it was built to do and, as we go on, these briefings will be shorter and shorter.

QUERY Do you think the United States has established a substantial lead in this area?

TOMMY HOLLOWAY Well, I don't know that we're in space race with the French folks. I'm sure both of these vehicles will serve a pupose and as we go forward from here and the total world's business's in outerspace. But I'm sure the orbiter will fulfill its planned responsibilities in the 80's and 90's in terms of delivering commercial and other spacecrafts to orbit that we plan to do.

PAO Olive Tally right here from UPI. Right in front of Margaret.

OLIVE TALLY UPI Yesterday, Bill Lenoir called Mike down at the control room and said, "Hey, Mike tell Woody the jalapenos are outstanding". Have we figured out yet who he was referring to and secondly, are they eating jalapenos in space?

TOMMY HOLLOWAY I don't know, really know the answer to that question. I'm sure Bill was referring to one of his favorite places in the local area in terms of, and I don't know whether he, whether we have some of those on board or not, but I don't think so.

OLIVE TALLY UPI As a follow up to that, have we got any reports of space sickness lately?

TOMMY HOLLOWAY No, not at all at this time.

PAO Right here.

REED COLLINS CBS Have they taken any medication whatever?

HOLLOWAY Yes we took all four crewmen, took the scopedexs as planned. One, I believe, Joe Allen, just before liftoff, and the other three crewmen were scheduled to take it, and I presume took scopedexs right after OMS 1 and same time frame that the guys have taken it previous flights take it.

QUERRY Since then.

HOLLOWAY Since then? Not to my knowledge. Normally, I would know but we have not had any further communications on that and at this time I don't, maybe tomorrow I'll give you an update on it.

PAO We'll take one more question here in Houston, then we'll go to Kennedy Space Center, Paul Recer.

RECER Have you got the same number of folks working on the floor, the MOCR, and in the back rooms that you did during the first four flights? And if there has been a reduction, by how many?

HOLLOWAY At this time, we have approximately the same number working, both out in the mocker and in the SSRs. There may be a few less, for example, on flight 1 we had a command officer. And between flight 1 and flight 5 that function has been assumed by the INCO, the communications officer. So we may have 1 or 2 less, but by and large our support at this state is still the same, the number of people who are in the control center. Now later in the program, and I can't tell you just when, I've been concentrating on the first four or five flights so far, have not been involved in the long range planning. That's going to be reduced substantially. But right now, it's about the same.

PAO We'll take some questions from the other centers and then come back here to Houston. First to Kennedy Space Center, Florida.

This is Redge Turner, BBC There was an exchange earlier and I didn't get it properly, but it seemed to imply that there was concern that some of ANIK solar cells might have been damaged. Can you tell us whether that is the case?

HOLLOWAY I don't believe there's, we've had any concern about damaging any of the ANIK solar cells. We have had some concern about the thermal state of the ANIK spacecraft and the PAM system that supports it. In summary that is a little concern about the temperature of those vehicles and not about the solar cell. The folks who do the thermal analysis were predicting that under the worst kind of conditions, we might be right on the border of getting a little colder than we would like to be before we deployed the ANIK spacecraft. And that's turned out not to be

the case. The ANIK spacecraft is, in thermally, is in very good condition and we don't expect to have any problems along those lines.

TURNER There's no reason why you shouldn't have another perfect launch.

HOLLOWAY Did he ask another question?

PAO The answer is yes, there is no reason why we shouldn't have another perfect launch.

HOLLOWAY That's absolutely correct. We're going to do it again, just like yesterday.

TURNER Thank you.

PAO Thank you, now to Marshall Space Flight Center, Huntsville.

DAVE DOOLING (HUNTSVILLE TIMES) First off, have you been monitoring the helium pressure on the regulator that has given you a little bit of concern before launch.

HOLLOWAY Yes, as a matter of fact, we continually monitor those systems. The RCS and the OMS systems, as far as pressures are concerned, and performance. And that regulator is performing exceptionally well, it behaves just like a brand new one.

DOOLING Okay, secondly, I believe I heard the public affairs commentator from in the MOCR earlier say that the ANIK deployment might be just a little bit earlier than in the mission timeline. Could you comment on that.

HOLLOWAY If it is early, we're talking about a matter of seconds or minutes. We're not talking about deploying it at a different time of day or a different node. We may have a little bit of change in terms of seconds, but we don't have any change in the basic point around the world that we're going to deploy the ANIK.

DOOLING Okay, have there been anymore comments about the material, I believe it was white fuzzy material about the size of 8 by 11 sheet of paper, after the OMS pod.

HOLLOWAY No, we have not had any additional comments on that. And I would expect at this point it is probably stopped venting or flashing out through the main engines and I don't expect that we'll hear much more about it.

DOOLIN Okay, and final one. Did the crew provide any comments or feedback during the eye motion experiment that was conducted this morning?

HOLLOWAY If I understood the question, relatively, eye motion experiment. The crew of course, have exercised portions of those experiments that were scheduled this morning. They told us they were doing them, that told us when they were done, and so on and so forth. There's not any plans to evaluate that information in real time and do anything with that data, as a relation to this flight. It's a data collection activity, and the results of that will have to wait postflight analysis.

There are no further questions at Marshall.

PAO Thank you, anything further here in Houston. Shelly Cats, way in the back, please.

SHELLY CATS (TIME MAGAZINE) We had an unscheduled VTR dump this morning, can we expect more of those in a little bit of dialog on a what was done this morning?

HOLLOWAY The activity that was dumped via VTR this morning was associated with a communications test that we conducted as we flew over the Eastern part of the United States. The vehicle was rotating at 2 degrees a second around the X axis to look at the antenna patterns as it switched from one antenna to the other. The crew had the television on during that time and recorded some, what they thought was interesting, television. The answer to the second part of your question, unscheduled VTR playbacks, or real time TV, is the option of the flight crew based on the timeline, the availability of what they think might be interesting information for us on the ground. And it will be scheduled as a function of when they think they have something for us, and a station is available to dump it. And now would be a good time for me to correct something I said earlier. I must have said a French, something about the French's launch vehicle. That's really a ESSA launcher and not a French rocket, for the record.

And no scheduled/unscheduled TV?

In the world of scheduled TV, we're going to show the ANIK deployment on REV 23, over Hawaii, the crew will downlink at about 3:45 p.m. today, central time.

PAO Any further questions here in Houston, thank you.

PAO Good evening. Thanks for coming tonight. We've had another successful day in STS-5 on the second payload deployment. With us tonight is the orbit team Flight Director, Dr. John Cox, and hopefully showing up will be Robin Guby of Telesat Canada and the Payloads Controller from an orbit team Mike Hawes. John, why don't you run through your flight log there and we'll go from there.

JOHN COX Okay, I'll run down now. A few of the events of the shift today. Kind of all smiles in the Control Center. We completed the primary jobs of this flight and everybody's just feeling super about it. The crew, the orbiter, the payload all had a good day. We've had another successful deploy. Going through the items of the day. We did an aft station COAS CAL at the beginning of the shift, it was during handover time. The star set before the crew was able to complete that CAL and believe the data is probably good enough to press on, but that's the backup item that we use if, for any reason, we'd ever lost our star trackers, which we've never had any problems with them anyhow. But this is a crew alignment technique and we went ahead and tried it today. We hadn't done it on previous flights. We had tempted it once before and it seemed to go all right, but we may go back and try a little more on that. We had some difficulty with the forward station COAS CAL yesterday because we'd used too light a star with the crew to work with too much so we may put that in tomorrow's flight plan to let them try that with a brighter star and it looks like that'll probably go all right tomorrow. The crew started the medical DTOs, devoted some time to them this morning and, just exactly like we thought with them, they take a whole lot longer than we had estimated. We never did get a lot of time training with those, and so, the linear acceleration portion where the one crewman is hooked up on bungies and tries to sense accelerations, the crew was unable to get to that one today merely because the other ones, all the other medical DTOs or DSOs there working on, took a little longer. As far as the deploy went, what can you say. Deployment was beautiful, the pictures were beautiful. Another perfectly nominal. Yesterday, we thought we'd done pretty well. The tracking error at the time of deployment was estimated to be somewhere on the order of 400, 4500 feet which is almost something you can't measure. That's really down on the noise. And the attitude error at the time of deploy was something like 5 or 6 hundredths of a degree. And yesterday, I think as you probably heard on the air to ground conversations, they picked the SBS satellite up beautifully at the very first tracking station and the PAM burner had gone off beautifully. Well today, didn't think we could do it but we cut that 4500 feet by a factor of 10 and knocked it down to 496 feet. Error deploy time in less than 4 hundredths of a degree attitude error and everything went clicking right on through. It appears that tracking stations picked vehicles up as expected and out did ourselves from yesterday's great deploy. Some of the other items we are working

on today. I think Tommy mentioned in the last hand over that we had a heater failure or suspected a heater failure on one of the aft RCS jets. They did a test firing earlier in the day to warm it up and we got a good idea of what the cool down rate was on the jet and so just prior to sleep tonight we did another one and feel the jet'll be fine, will have no problem during the night. And, as a matter of fact, that jet will be on the warm side since we have now started the starboards on attitude of the thermal testing. We did get the student experiments started today, the crystal growth and the sponge growth. And just prior to crew going to sleep tonight, we started the oxygen interaction test and that all seemed to go real well.

PAO Shall we go to questions now. Back here, Mike.

ANDY CHAKEN Andy Chaken for ...

PAO Yes, Andy, yes whatever.

ANDY CHAKEN No problem. The tracking error refers to the orbital altitude.

JOHN COX No, that's in head of down range tracking. It's your uncertainty of where you might be down range.

ANDY CHAKEN Okay. And, did you say that the alignment was off by 4 1 hundredths or 1 4 hundredth of a degree?

JOHN COX .04 degrees.

ANDY CHAKEN .04. And one last thing. Can you talk about the oxygen interaction?

JOHN COX Oh, I don't know what all you'd like to know about that, that's ...

ANDY CHAKEN I just don't know what it is.

JOHN COX Okay, that's a test that we have several different material strips mounted out in the payload bay. They're on the top of the DFI pallet. We've noticed on previous flights that organic materials tend to interact with, we suspect, oxygen molecules, and there's probably a temperature effect and it's just a hypothesis right now, but it appears that some of the material seems to be venting or outgassing during this interaction. At least it's being consumed in some manner. It is very small amount, but it is measurable. So what we did, was took on this experiment some of the typical coatings and external materials that you may find in space applications and there's probably 30, 40, 50 different types of materials and they're spread out on several different panels. And then what we're doing is while we're in this starboard sun attitude, with the

vehicle turned over sideways, and we will periodically be sweeping through the velocity vector and getting sort of a ram effect of whatever molecules are in the orbit. And we also have the different materials heated at different temperatures to see how if there is a temperature effect or what, what is the phenomena that's taking place. There's no inflight data from it. Somebody will analyze all the materials in return.

PAO On up here, second row.

PAUL (garble) Voice of America Has there been any problem with space sickness on this flight so far?

JOHN COX Nothing that's had any effect on the flight that we can tell or anything.

PAO Right next to...

OLIVE TALLY UPI We haven't heard any words of caution or problems about the waste management system on this flight.

JOHN COX Isn't that great. That's super.

OLIVE TALLY Have there been any problems and secondly,...

JOHN COX Hasn't been a thing.

OLIVE TALLY with general habitability of the spacecraft. We heard a few references to people bumping into each other, but has there been any big problem? Are people stepping on each others heads or anything like that.

JOHN COX I don't, get your first one on the waste management system. It is a real pleasure not to have any comments on that. There have been some minor modifications made and there's been more training involved and what not, so we think that whole system is working a whole lot better and hopefully we won't hear anymore problems with that system. As far as crowded environment or any effect there, the only indication we've had is we did get, we suspect, a switch bump this morning and that was a circuit breaker that we ended up resetting and nobody could figure out any reason the data didn't show any current spikes or anything so maybe we guessed that maybe somebody bumped it and that's, the crew suggested that, that possibly that happened.

PAO Paul Reeser, AP

PAUL RECER Oh yes, you mentioned the crystal growth and the sponge growth student experiments. How about the third one? Has it already been started and if not, when will it be? And secondly, have you decided absolutely that you will in fact switch out CRT number 2 on bay 5?

JOHN COX Let me get the CRT one first, and if you could look up one, let me start the other one. The IBM folks have tried to analyze the signature of the incident the crew reported, the CRT 2, and even though it looks like it was probably a power supply as from a crewmen's point of view on it, they think that the display electronics unit which feeds that CRT is probably the item at fault and they think they've been able to duplicate the failure. So, we're sort of betwixt and between. We, it's going to be one or the other, and what we're looking at is Flight Day 5 and we're coming up with a little procedure where we can do a quick test to tell, it involves pulling some panels and making a connector. And, that way, we'll be able to tell which one is the one that's actually had the problem and then, based upon that, we'll probably go ahead and swap out the either CRT or the DEU and they both take about the same amount of time.

PAO Okay, Jules Bergman front row up here.

JULES BERGMAN John, can you tell us where the crew is sleeping and secondly, beyond the obvious elation in their voices after the second deployment today, I think I heard Joe say 2 for 2 we deliver. What can you say about the crew's spirits?

JOHN COX I think the crew's spirits are obviously just peaked. I mean you couldn't be any happier. That's been a big load. They've been training and working hard and here all the team too (garble) right there and two days of perfectly nominal deploys, they couldn't be any happier. And Joe's been pushing that we deliver theme and I think the whole team probably seconds that.

JULES BERGMAN Wasn't it Bill who started that first yesterday, by the way.

JOHN COX Yes, that's been a theme around for some time. Thinking of ourselves as the Shuttle and jokingly referring to ourselves as the trucking company that delivers some...

JULES BERGMAN I was going to say almost like a trucking company or airline freight department.

JOHN COX Right, and they feel so good about the way things went these last couple of days, you know, that it's just like a company motto is coming out in them - we deliver.

JULES BERGMAN Is that likely to emerge as a logo on the side of the next Shuttle?

PAO Probably not.

JOHN COX I don't think anybody's got that in working.

STS-5 CHANGE-OF-SHIFT BRIEFING p004ja 11/12/82 5:50pm Page 5

JULES BERGMAN And can you answer my first question, where are they sleeping?

JOHN COX we didn't ask. Probably would be an interesting question to ask them. The intent was that the preflight, the commander and the pilot were going to sleep upstairs and the two mission specialists were going to find a place to call home downstairs. They were going to try also using different sleeping restraints and what not and we were going to find out some time on the flight where they finally ended up. But we also know that, I think Bob was interested in looking at some places next to the DFI pallet downstairs, he felt like looked like a good place to try. So they're just trying, they've only had one night of it and we haven't had any feedback yet.

CRAIG COVALT AVIATION WEEK John, I've got several questions on the deployment. First is there any way you can acquaint your ranging air with what you would get off a delta on a typical error as a spring push off the delta?

COX I don't have those kind of numbers, but the kind of numbers that we're dealing with here. When you talk in terms of what you do to get ready for an entry, or how accurate we have to have the IMUs for different activities that the orbiter's associated with. These are one or two orders of magnitude better, in most cases. We'll take like a half a degree error as a max type of upper end priority to fly an entry. You wouldn't want that kind of an error, but you would be able to fly a successful entry, and we're talking 500s of a degree.

COVALT You would at least know much better what your error was than a delta?

COX Oh certainly, there isn't any question about it.

COVALT And secondly,

COX Just to give you an idea, we were able to see star data being acquired by the trackers, as we were doing this, so we could constantly get an idea of where we were, which was really a unique tool.

COVALT Okay, and on the ANIK PAM burn, they're not carrying telemetry on the PAM, and I just wanted to make sure you. I heard it come out of the MOCR that you see at Guam, and confirm by Guam. Was that radar Guam, which showed that they were in proper position, successful burn?

COX Yes, the TELESAT folks have a tracking station there that they used to acquire the spacecraft. And they were able to acquire the spacecraft, they weren't able to lock onto the telemetry signal yet, and you can see that, that they're looking probably right up the spin axes of the system. So they weren't able to lock on the telemetry, but they were able to find it, it was right exactly on time, and that had been a concern since they

have experienced some problems in the past, but this was right smack on the money. They expect us as they get a better angle on it to pick up the telemetry signals. We also got a report in that NORAD was able to track two vehicles there, so we were able to confirm the fact that we did separate. And with the fact at the time that they were able to acquire you can pretty much conclude that the burn went as planned.

COVALT And that was an RF signal at Guam instead of radar that they were getting, it was an RF off the spacecraft itself. Then one last thing, with 1 CRT down, for both deployments, really, briefly could you describe any work around in use of the CRTs to get both the front and the back guys getting their deployment work done.

COX It is really almost a no impact type of thing. The way the crew is situated, one of the Mission Specialists sits on the front left seat, the pilot sits on his normal seat on the right. One Mission Specialist is in the back, working the cameras and the switch panel. And then the Commander is in the back at the controls in case any maneuvers need to be made or what not. So where you finally do most of the CRT work is up in the Commander's station and if you'll look at the timeline on the deploy checklist, most all this is fairly relaxed, things move out in a fairly structured orderly manner, it's almost a serial type fashion. The crew had been used to using 2 CRTs there, but all that the Mission Specialists had to do was just cycle displays, he just pushed a button and selected the other display when he needed to talk to it, and when he needed to talkback to the other one he just brought it back up, so there was no problem in that. And since there are 3 CRTs available, the pilot then just used the 3rd one for monitoring the attitudes. So the crew didn't report any problem, and our look at it, in experienced crews that have (garble) simulators thought that that would be a zero impact, and it turned out that it was.

GEORGE ALEXANDER LOS ANGELES TIMES John, could you clarify something? You said the crystal growth and sponge growth experiments were started today, yet the press kit said the sponge growth was supposed to be started half hour after entry and there was something that had to do at 1 hour after entry, 30 minutes and 1 hour, so it should have been started Thursday.

COX Entry, there's no. What you do in that, (garble)

 The first runs for the sponge growth were scheduled to start the beginning of today's crew day, runs 1, 2 and 3 at MET of 23 hours. You stop the first run shortly, about an hour after that, you stop run 2, 24 hours after that, and the 3rd run you allow to run the entire mission length. Runs 4, 5 and 6 are started at various stages throughout the rest of the flight and those also run through the duration of the mission.

And I guess there was another question over here that the third student experiment that convection current experiment is scheduled to start the third day at hour 23.

GREG JEN BAY AREA NIGHT LIFE Dr. Cox, I was wondering if you could talk a little bit about the long duration exposure facility that may have already been deployed or will be deployed with this mission. Has it been deployed yet?

COX Not on this flight. I hope not. (garble)

Along about 13 or so (garble).

JEN A couple of questions about it, in as much as it going to be

Excuse me, we're talking about the last 8 or 9 hours of STS-5, if you can confine your questions to that, I think we'd get along better here.

Next over here, John Bisnery RKO Radio

JOHN BISNERY (RKO RADIO) Yes, I wonder if you could run down tomorrow's activities in the CAP for us briefly, touching on the main ones, and especially talk a little bit about the head night tracking experiment.

COX Let's see, we did add, there's going to be that excel detection sensitivity 1 again. That's the one that the crew wasn't able to get to today just because they had night tracking what took so long. We will probably end up adding a forward station COAS CAL in there somewhere with the startracker threshold test. That startracker threshold test merely looks to see the sensitivity of our system to see what negative stars we pick up and we have an index we can just dial in and looking for different sensitivities, and I suspect it'll all happen just like it's supposed to. We'll then do some more medical DTOs, the (garble) repeatability, and then probably the, oh the item that will involve more of the crew time switching will be the VRCS engine soakback test which is combined with a stratification test on the cryogenic systems. And what we do there in those tests, the VRCS tests, we have a, sort of like a design type limit on how long we should continually fire some of those vernier jets, that concern that they might over temp or something. We don't believe that's any real constraint, but as part of a test program, we'd like to get along firing with them. So, what we're going to do is make a long slow attitude maneuver on the vernier jets. Coupled with that is the stratification test where we set up the cryogenic tanks, one set is feeding all fuel cells and we power the fuel cells up to a reasonably high level and again we'll look it up near the design limits and then we load the hydrogen and oxygen through all three fuel cells and you might

pull little pockets from those tanks, and then when you do this attitude maneuver, you'll reshake the tank up and remix the cryogenics and you may see a pressure pulse or some sort of a signature. So, since we don't have a gravity feed system or what not, it is just a thing to look and see whether you can do that, we expect there will be no problem doing that, and we'll fill the square up completing that little test that hadn't been completed in the past. We will have the radiators deployed, while we're in the side Sun attitude, and we will close them again prior to starting the EVAs, so that we can get some time out and some time in with the radiators to look at the effectiveness of operating that way and the side attitude. Each one of the test attitudes that we've flown through the OET program and now, we've tried to get an idea of the efficiencies of the radiators at the different test attitudes. And this is just another one of those NAV step. Being in this thermal attitude, the starboard sun, we're setting ourselves up also to look at what vehicle distortion you might get and thermal effects throughout the system and see how well the heater systems respond on the cold side. And we'll also take some measurements and see if we get any vehicle distortion out of heating this nonsymmetrical way, don't expect any. And also since we're getting the left side cold, we'll be doing some RCS soakback tests, where we'll fly one engine for pulse period of time, and then we'll fire a single engine. Now those firings will take place on flight day 4, as the EVA day, before and after the EVA. Tomorrow all we're doing is setting up that case of getting jets turned off and getting the system cooled down on that side.

How would you characterize tomorrow then, in terms of the workload for the crew, as compared to the first two days, where they had one major job, tomorrow it sounds like they have a number of smaller tasks.

COX Yes, and nothing is very time critical tomorrow, it's a very relaxed type of flight plan. You could almost give the crew a list of things when they get up in the morning like you'd have little jobs that are on the house, and see if you get these done before you go to bed tonight, that type of thing.

PAO Next row

STEVE HOLT WESTINGHOUSE BROADCASTING Is the growth experiment still on the timeline tomorrow, and do you have anymore thoughts about what, I believe it was Joe Allen, was seeing earlier today, something coming off the vernier jets. He saw I think a visual phenomenon

...he saw, I think a visual phenomena centered around firing of the verniers.

COX We didn't get any more comments about the visual effects, but it's those type of comments that we've had from previous crews that have stimulated the interest in the glow experiment. That also ties in probably related to this oxygen interaction test that's going on, so if everybody is probably talking about the same phenomenon in a different way. Glow experiment is on the timeline and no reason to do any different. It'll be a 1 full night side pass of the different attitude maneuvers and photo taking.

PAO Okay. Over here on the aisle.

JEFF LEVENWORTH TIME The crew reported that one of the sponges from the student experiment was missing. Have we found the arrant sponge?

COX The last I heard, we hadn't. There are six groups of sponges or pockets, 3 packets in each pocket, and as they opened the pocket, it should have had 3 packets in pocket number 3, they found 2.

Pocket, a pocket, a pocket.

Would you say that again please? (Laughter).

COX I only practiced to do it once. Since they are identical to the other pockets, there's 3 more the same type of set up because all that you do is start these and let them go until the end of the flight. We suspect maybe they'll find one had been placed in one of the other pockets and so that's a suggestion. I suspect by tomorrow morning, we'll know if there was if the other one was found.

PAO Okay. Let's switch to Marshall now for a few questions.

DAVE DOOLING HUNTSVILLE TIMES Still on the sponge experiment, I heard one of the crewmen say that they had gotten a late start or an out of sequence start on that. Could you elaborate a little bit?

COX The only thing was that they started at a different time. What's critical for this experiment is that you do things on a sequence and so all they did was started the sequence at a different time. You start the first one, and then you stop it, affix the sponge growth after one hour, and they did do that, and then they started up the next set properly. Those times all have the like relationships with respect to each other and they just asked us to give them reminders tomorrow now that

they got off the start time. All we're doing here is going to give them reminders tomorrow when to stop the right ones.

DOOLING So, it's like any part of the timeline that gets started a little late but then everything falls into place after that.

COX That's exactly right.

DOOLING Back on the ranging error. I must have missed something there. Could you explain that again and compare it against what the specification was?

COX Oh my goodness. Specification wise, we were able to tolerate a 2 deg attitude error and still be, I guess our rules had a degree and 1/2 at deploy time, and that's because we have to measure in the single axis and they're looking for total attitude error of 2. We had 500's of a deg of error. 500's yesterday, and 400's today. As far as the ranging error, we were able to take somewhere in the order of 10 seconds timing error which, going to 25,000 feet per second, is an awful lot of feet of ranging error. 250,000 feet, and yesterday it was 4500, it's what, two orders of magnitude better, we bettered by that today by another order of magnitude. We had 496 feet of error today. So, we have to say it was spectacular. It was well well beyond the accuracy that was required.

DOOLING So you're talking about being within a mile, within less than a mile, within less than a 10th of a mile respectively on the theoretically perfect position.

COX That's right.

DOOLING Okay. And do we have anything on the current health of TELESAT?

They, really we've heard nothing else from the TELESAT folks that they did pick up the signal over Guam and that they did have confirmation from NORAD that they had a clean spacecraft and PAM separation.

COX I might also add that's exactly what was expected at this time, I mean on a good day, this is exactly the way you would expect it to take place.

There are no further questions at Marshall.

PAO Any other centers? Okay. We're back here in Houston. Jules, do you have another question.

JULES BERGMAN Yes. John, last night, I asked about when the apogee burn was going to be done in SBS and the man from SBS

spoke of possibly as early as 5:00 pm today. Was that done and, if not, when is it expected and second part, when is the apogee burn expected on ANIK?

COX I'll let Mike handle that one.

Okay. The SBS burn will be done approximately 5:00 pm tomorrow afternoon now that they have had time to track the spacecraft and determine its orbit and the preplanned time for the ANIK burn would be approximately the same time on Monday, about 5:00 o'clock on Monday. And we've heard no change from the TELESAT people on that.

PAO Way in the back here.

JOHN KIRBY (KSAT) Yesterday you said that it was the best day in space. How does today rate?

COX It was hard to say it, but we were just a little bit better. You can tell by the accuracy of deploy and everything, it was right on and everything at the control center was a lot more relaxed. We had done it right once and we were just able to come right trucking on through and do it again, better.

(garble) star truck.

PAO Anybody else? Paul Recer, AP.

PAUL RECER AP I know the odds are extremely long on this, but is there any possibility that the crew could visually sight the satellites during the circ burns on Saturday, yeah Saturday and Monday?

COX No. They burn at apogee 22,000 miles away. That would be awfully tough.

PAO Anyone else? Craig Covault, Aviation Week.

CRAIG COVAULT A couple of questions unrelated, but back again on the deployment today. I heard this morning a callup use, I think the number 2 sequence control assembly because of telemetry problem on number 1 or perhaps vice versa. Could you speak to that a little bit?

COX There's one temperature measurement that wasn't working properly. Noted prelaunch, nobody had a druther until we noticed that, so there's a druther, and so let's just use the one that has perfect data.

CRAIG COVAULT And also prelaunch, Joe and Bill talked about really trying to make a go at some good Earth photography since

they had a couple of days this trip that aren't quite that full. Do you know what some of their targets, preferred targets on Earth photography are?

COX No. You know, they're both kind of camera bugs, Joe especially, and I couldn't tell you what particular targets but I'll bet there won't be very much film not exposed when they get back. Get a good idea of what they do when they get back. I'm sorry I can't help you. I'll can probably go see whether anybody does know though, and get you that information.

PAO Anyone else? One more back here. Diane Barnes.

DIANE BARNES In regard to the TELESAT, how long is it designed to operate and then how is it to be repaired if it should malfunction before the end of the planned lifetime?

The spacecraft are designed for an 8 to 10 year lifetime in most cases. At that point, there is no repair capability on the spacecraft. It's real limiting factor is the reaction control fuel that it uses to keep it on station and once that fuel is expended, then will just tumble out of control.

PAO Okay. Any further questions? We'll wrap it up then. Thank you very much.

END OF TAPE

PAO Good morning, change of shift for the Irovy Team, Flight Director Tom Holloway, we have with us today too, Dr. Sam Pool, who's Chief of Medical Sciences Division here at the Johnson Space Center. We'll start with the summary of the past 8 hours by Tommy, and then go to Dr. Pool.

HOLLOWAY The last 8 hours have been very routine, we're continuing some of the orbiter testing that we're continuing to do after on STS-5, setting up for different kinds of tests. We hot fired all of the primary RCS thrusters this morning to demonstrate that they were all still operational. There's some 14 of the big jets that are not routinely used on orbit, unless they're required to replace other jets and the redundancy management scheme of business. The activities this morning have gone very well. The crew is performing in their usual exceptional way, have accomplished all activities on time, and we're on schedule for the activities that are scheduled today. The crew requested that a private medical conference this morning and we scheduled that at a Hawaii about 2 passes, 2 revolutions ago and at that time they conferred with their surgeons and I'll let Dr. Pool talk about the details of that, and he completes that discussion, I'll talk a little bit more.

DR. POOL Okay, from a medical point of view, this mission has progressed pretty much, I think, as we expected. I think most of you know that in the early Shuttle missions, we ran something on the order of a 50 percent incidence of some form of space sickness of one type or another. We point out that generally this crew has been in good health and their performance has been excellent. However two of them have experienced some of the symptoms, brief episodes of motion sickness and they've taken motion sickness medications, specifically skapolomine dexadrine combination and phenigan for those symptoms. Please to report that one of the crewman has completely adapted apparently and has no more symptoms. One of the crewman continues to have some symptoms. I'll leave it go with that until we get some questions.

HOLLOWAY Okay, and continue my discussions, as you probably know, we always have an alternate plans and opportunities to conduct the flight. At this time, we're evaluating whether we would continue with the EVA tomorrow, based on the health of the crewmen, and that'll be a judgement decision that will be made by Dr. Pool and others. And we have an option to delay the EVA up to one day, as late as first thing in the morning after the crew gets up. We don't necessarily expect to do that, but if we decide that it would be prudent to do so, we have the option to do that and it's a fairly simple flight plan change to do that. In fact, we have had those options open to us from the very beginning. So, we'll continue to evaluate the situation through the day and up through, including in the morning. And probably, we'll press on with the EVA tomorrow, but if it becomes prudent,

and we think it would be better to wait a day, the option is there to do that, and we would make that decision first thing in the morning. And with that, I'll open up for any questions.

PAO Okay, Reed Collins

COLLINS Dr. Pool, who is sick and how long have they been sick, and how much skopdex have they taken?

DR. POOL Alright, the first individual who had some symptoms of this space sickness was Bob Overmyer and he said that they only bothered him for brief periods. I think the more we deal with this and learn about it, we find that this phenomenon varies from individual to individual. In his case, he said that he was occasionally bothered by it, and he took some skopolomine dexadrine, he took one shortly after the OMS 1 burn, which is just as they get into the null gravity environment. He took one before, I think his noon meal that day, and I think he took yet another that evening, before supper. The second person to report symptoms is Bill Lenoir. He felt pretty good the first day, second day, he began to feel, what I would describe as a physician, malaise, and didn't have much nausea associated with this, but since then he has had some symptoms this morning, and we discussed those with him.

PAO Roy Neal, NBC

NEAL How serious, Doctor, are these symptoms, and how serious are the side effects as they would pertain to tomorrow's possibilities? In other words, could you give some kind of feeling for what Tommy was talking of a few minutes ago.

DR. POOL I think at this point, we're still evaluating, and we plan to talk with them again this afternoon and this evening as noted earlier to make certain that our instincts are correct. But my instinct is that we're doing pretty well in our adapting to this phenomenon. And to try to put this symptomatology in perspective, it's much like the other missions. We've observed on the one hand, their ability to do fairly delicate and complicated tasks. But on the other hand, I think they're aggravated by these symptoms. And from the point of view of EVA, yes, we would be concerned if someone were really having a lot of symptoms of space motion sickness, and we've got to make that judgement today.

HOLLOWAY And I would emphasize that there is no overriding reason why the EVA should occur tomorrow or the next day. It's just a matter of choice.

PAO Morton Dean, CBS

DEAN Just to push a little bit, you said that they got malaise and then nausea and since then he has had some symptoms of malaise nausea and has he thrown up, is that your message?

DR. POOL Yes he has, he's had an episode of vomiting, I think shortly after breakfast this morning.

DEAN Will his activities be limited today because of that, or what might happen?

DR. POOL We discussed that with him, we suggested that he go ahead and continue the medication and that if he felt like it, to go ahead and work today. We also know that the flight plan would permit him to be fairly quiet today. After all, he was going to do some medical things, anyway, and I'm perfectly happy to wave that.

PAO Cross, did you have a question, or has it been answered?

CROSS Partially, I'll just ask another one instead of asking Dr. Pool if Bill had thrown up, I'll ask Tommy about something else. It's apparent that the crew is having a lighter work schedule on this mission than on any of the past ones. Would you go into the reasons why, I think we probably know them, but it should come from you.

HOLLOWAY I think that you'll find that that appearance is caused by two different things. First of all when you get four men onboard, they can accomplish a lot more work in a smaller amount of time. So you're seeing the productivity increase because the fact that we have four people onboard. And that was evident from the very beginning. The payload bay doors got open earlier than they've ever been open before, the post insertion activity was relatively easier than it ever has been before. And I was very pleasantly pleased with how smooth things went on launch day. So that's part of the activity reason that the timelines appear to be so easy compared to what they may have been on previous flights. Secondly, at least on some of the days, they just flat aren't quite as much to do as they have been in the past. But I'm encouraged by the fact that these four guys can get so much more done than two can and how productive they really are.

PAO Get Craig Covalt over here.

CRAIG COVALT (AVIATION WEEK) Dr. Pool, could you characterize Bob Overmyer's symptoms a little more specifically please.

DR. POOL His symptoms, when he had them, and these were brief periods, and clearly in the postflight debriefing we'll be able to find out more. But from the time we've had to discuss

them, they did just last for a brief period of time and he had some nausea, and he also had an episode of vomiting.

COVALT And his episode of vomiting was day 1?

DR. POOL Yes, as I recall, I think about 6 hours mission elapsed time.

COVALT I have two other questions. Have both Bob and Bill been eating well and sleeping well?

DR. POOL Yes, as a matter of fact, made a point to tell us that they've been resting well. Their sleep periods have been good, even the first night, which is sometimes troublesome. And as far as eating is concerned, they've both been eating well. When they have these symptoms, we advise that they not eat large quantities at any single meal, that they backoff from that and maybe eat a little more frequently in smaller quantities.

COVALT Okay, and an EVA question for Tommy, a mission rules question actually. Whether or not you go tomorrow or slip a day, is it Bill's call whether he goes out in consultation with you, and correct me if I'm wrong, but is it not that if one crewman cannot go out, but you still have two good suits, you can do a 1 man EVA and would do a 1 man FVA this time?

HOLLOWAY Well, I'll answer those questions in this way. First of all, you interpreted the flight rules basically correct. Now whether we would actually do a one man EVA or not, is being evaluated, and that might be one of the flight rules that we would decide not to implement, should we decide 1 man EVA was the only option. Secondly, the determination on whether to go out tomorrow or delay a day, will be made jointly by the commander and Dr. Pool and myself and other NASA management.

PAO Mark Kramer, CPS.

KRAMER (CPS) Dr. Pool, who took the phenagin and does phenagin make you sleepy or drowsy?

POOL It may. It may make you sleepy, Bill Lenoir took the phenagin and well, we advised that he take it and it can make you a little sleepy.

KRAMER (CPS) When was that?

POOL He's taken it before on the ground, before he went up, we know he's not going to have any uncoord reaction to it or shouldn't and we know that it makes him a little sleepy.

KRAMER (CPS) And when did he take that?

POOL Yes, he was going to take that this morning.

KRAMER (CPS) I see. And I guess for Tom Holloway. Is there any reason why if Overmeyer had recurrence of this malaise or mild nausea or whatever, that would preclude an EVA if Lenoir felt okay?

HOLLOWAY I don't think so. Bill, Bob is the sort of the traffic director during the EVA. He coordinates with the guys outside and keeps up with what's going on and helps us if we need to talk to the crew over UHF station and so on and so forth. But I think under normal circumstances, Vance could fulfill that role very well and Bob could relax if required, but we really don't anticipate in any way that that would be the case tomorrow.

POOL I might add to that just briefly that Rob Overmeyer apparently had adapted very well and is doing well at this point.

PAO Get that right behind you there.

DEMBART (LA TIMES) Dr. Pool, am I right in thinking that's scapalomina is a better preventative than it is a cure if motion sickness?

POOL No, it's frequently used when individuals have developed symptoms. We use it on the KC135 very frequently with experimental subjects and it works pretty well. We find it is efficacious.

LYONS (ABC NEWS) Dr. Pool, if the drugs seem to control Lenoir's problem, but you need to continue them, would you concern about the EVA be side effect in his reaction to them?

POOL No, I don't think that's the case. Most of the medications that we use, particularly the escapoline dexadrine

don't have mark to pronounce side effects. The phenagin does make you a little sleepy. I think we would feel comfortable with it. Administration escapoline dexadrine and possibly phenagin, but we'd have to think about it before an EVA.

LYONS (ABC NEWS) So your concerned would only be if the drugs don't seem to work?

POOL That's correct.

PAO The one up the right there, there's one there. Come on up this way.

KELLY (ABC) Dave Kelly ABC. Have Allen or Brand had any symptoms at all?

POOL No. None whatsoever. They've just been doing great.

PAO Paul Recer from the AP up here.

REESER Lenoir as I recall exercised rather vigorously yesterday ...

POOL I'm sorry ...

REESER Bill Lenoir as I recall exercised rather vigorously yesterday. Did this precede his episode of illness or was it during or what?

HOLLOWAY I'm sure he was scheduled there but I don't know ...

POOL I can get that information for you. I'm not certain. We - I know we didn't do one of the medical tests that we were scheduled to do today and frankly and during the private med comm we did not discuss who exercised yesterday. It was in the flight plan I believe that he would so he probably may have. If in fact he did, I don't think it - if it precipitated something, he didn't - it wasn't a highlight for him because he didn't mention it to us.

RECEP I'm trying to establish the sequence of these events in regard to the exercise and the illness.

POOL I understand. And I honestly don't know that he exercised yesterday, that's number 1. If he did and it was associated with motion sickness, he didn't say so. He didn't highlight that for us and we are - I'm sure you know, concerned that if they move around alot in the first few days of adapting to the environment, those people who are susceptible are apt to have more difficulty with the problem.

PAO Reed Collins.

COLLINS Would you get into the airlock with any question about GO or NO/GO or when do we get a handle on this decision? One thing I - answer that and then I have one more question.

POOL No, I don't think so. We would make up our minds first thing in the morning and if we were not going to do the EVA we'd get on with the business with doing the work that is now on flight day 5 on flight day 4 and so we will continue you with an EVA prep that is scheduled this afternoon. Some preliminary equipment preparations to be in a position to exercise either option first thing in the morning. But we'll basically make it about breakfast time and get on with whatever the plan of the day is. And we may decide this afternoon.

COLLINS At this change of shift briefing yesterday, the question was asked if any medication had been taken, if any illness had occurred, the answer was the medication preflight for Allen and the postdome medication for the remainder and nothing since. Why?

HOLLOWAY That's I think that's correct and that was based on what I knew at that particular time and of course Dr. Pool has given you information that he has obtained since then and he can answer additional questions.

POOL I'm not sure exactly which press briefing you're referring to.

COLLINS 9:00 yesterday morning.

POOL There was this one, (garble) before the private med comm yesterday?

COLLINS Yes.

POOL Let's see. I'll try to remember the sequence of events. I think when we had our first private medical communications with the crew, it occurred fairly early on the first day and at that point in time it all felt pretty well. And that's what we - I think we recorded and unfortunately I didn't see the one yesterday. I missed it.

COLLINS So the information you received at 9:00 yesterday was based on what we knew or what I knew about the crew's performance at that time and what had actually happened and at that time that's all I knew and that's all I told you.

PAO John Wilford, New York Times.

WILFORD (NEW YORK TIMES) Now if you proceed with the EVA, the guys get out in the payload bay and one of them or both of them

get sick. How quickly can you get them back and what if one of them vomits in his helmet?

HOLLOWAY Well, I'll answer part of that and then I'll let Dr. Pool talk about that second question. It would take us 15 to 30 minutes to get them back in the airlock and start repressing the airlock and it goes fairly quickly and of course we're prepared to do that for other reasons, equipment reasons, and suit reasons and malfunctions in the backpack and so on and so forth.

POOL Clearly we've given some thought to the probability and the consequences of vomiting in the suit. We know that is not a good thing to do. We also know from our thoughts and analysis on the subject, that it could cloud the vision, and I think it would be a most aggravating situation. You would have to maneuver your face, perhaps blow a particular matter away from the nasal and oral passages, that dueable and I think we would want to come back inside immediately upon that occurrence. I think we could come back inside. Also, I think we're going to be pretty cautious here, this is our first EVA for Shuttle anyway, and we've been cautious in the past on occasion. I think some of you may call thinking the Apollo mission we had this sort of situation and we made a determination proceeded and we did get the EVA done. Those are the thoughts that go through my mind when we think about vomiting in the suit.

PAO Paul Recer.

RECER The Apollo mission your talking about is Apollo 9 in which Rusty Swiagert did in fact go out on the porch, but he, the EVA was severally abbreviated and he did not do the full course of the pass that was assigned to him. Is that a possibility for this EVA that it will be abbreviated in some manner?

HOLLOWAY I really don't think so. In fact, the symptoms that I think the crew on this mission have are not anything like severe pronounce as the ones we had on that mission on Apollo.

PAO Come over here and get this young lady in the front row.

ARMETTI (ABC NEWS) Tommy, could you tell me if Lenoir is still feeling sick as of Monday morning or after they wake up on Monday, are there plans possibly cancelled the EVA or would you just go an extra day for the mission and try it in Tuesday?

HOLLOWAY Well, as you know, our intermission lighting and (garble) rains and lighting at the landing site is very delicate in turns of balancing our tradeoff between what crossrange we'd like to have when we land and the time after sunrise. In fact we are landing right at sunrise. We have not really decided what our options are toward extending the flight to provide the opportunity to do the EVA should we need more time. That's

something we'll be evaluating the next day or so and I'm very hopeful, in fact, I expect I'm not going to have to worry about it.

PAO Craig Covault.

COVAULT (AVIATION WEEK) Dr. Pool, could you characterize preflight test or what's the susceptibility levels you saw with each crewmember preflight and after that has been born out by the experiment - experience in orbit (garble).

POOL No, we do the preflight testing, not because it's been a good analog to predict what goes on in flight. In fact, it has not and we knew that clear back in Skylab. You say, then why do you do it. Well, we do it to try and get a handle on how effective the medications are and in the ground based environment, we may induce the symptoms of motion sickness in subjects by these provocative stimuli, we can bring them back then after they've taken the medication and determine something about the efficacy of that particular medication and that particular individual.

POOL And there is a good deal of variation as I'm sure you know. As far as the testing is concerned, and how well they did with the specific tests. I frankly, didn't bring that data with me, I would hesitate at this point to comment on that preflight testing, since it's not really an analog of the in-flight experiences and is used specifically to payload the medications.

PAO We have some questions at the Marshall Space Flight Center, we'll go there now for those.

DAVE DOOLING (HUNTSVILLE TIMES) Tommy, first off, have you, has the crew said anything whether they've noticed the so called sideways banana affect from the side sun soak yet?

HOLLOWAY No they have not. In fact, if they saw that banana affect, we would be in a heap of trouble. We do intend to take some measurements this afternoon with the theodolite and after we get those measurements, we may have an idea of how large the banana affect is.

DOOLING Okay, secondly, have they reported seeing anything with the atomic oxygen interaction experiment back on top of the DFI, have they seen anything back there, is that pretty much visible to them?

HOLLOWAY No, they have not reported anything visually on that particular experiment, and as a matter of fact, I would not expect that they would. This is back in the back, they can't see it except through the Television, and the kind of thing that experiment is designed to do, you'll have to wait until you get the materials back on the ground to take a look at them before you can tell what's going on.

DOOLING Okay, anything more on the helium regulator? Or is that still doing...

HOLLOWAY The helium regulator is working fine, almost like a new one.

DOOLING On the early morning video, we saw little dings from the tiles on the OMS pod, does that appear to be essentially the same thing that happened on STS-1?

HOLLOWAY The chips on OMS pod? I really don't know what caused the chips. Of course, as far as what it looked like and the fact that they are missing, they are similiar to what happened on flight one. In terms of what caused them, we don't know yet, and probably very well may never know exactly what caused them. But I would add at this time, there's absolutely no

concern about those two partially missing tile, they are even smaller than the ones we experienced on flight one, and there is no concern during the entry.

DOOLING Okay, and two final questions. How long did it take Overmyer to get the eggs cleaned up? And, is there any possible relationship between the incidences of Malaise and nausea with the biomedical experiments they've been doing?

HOLLOWAY Relative to the first question about cleaning up the eggs. I have no idea how long it took, but probably not very long, Bob was really in a talkative mood this morning, and he wanted to talk to us about how things were going, so he told us about how the breakfast was going, and how he was having a little trouble keeping up with all the stuff that was in the food warmer. And how he had apparently spilled some eggs, scrambled eggs. And I'm sure he cleaned that upright away, or whoever had the duty this morning for being the cook and bottle washer. Relative to the question, I'll let Dr. Pool

DR. POOL We've been really excited and delighted about the quality of the data that we've obtained. Even though the opportunities to obtain it have been very brief. We've just been delighted with that, both in the pre-flight and the in-flight period. I think it's going to take us some time to analyze that data. And that story will have to wait till post-flight analysis.

PAO No further questions from Marshall.

Okay we have a question at the Kennedy Space Center.

IVORY (NBC) Tommy, what will be the last time that you will have to make the decision of whether or not you will go for the EVA or not.

HOLLOWAY Relative to deciding whether we'll go out in the morning or not on the EVA, we'll decide that in the time frame of breakfast in the morning, and so if you have a crew activity plan with you, about breakfast time is when we'll decide, before they go into the prep and start getting ready to go out. I should go ahead and add, that is, if we decide to tomorrow, we may decide this afternoon that we'll going to go out tomorrow. Or wait till day 5. Is there a second question?

PAO Okay, no more questions there. Mark Cramer.

CRAMER Dr. Pool, how much Scopedex did Overmyer take and Lenoir, and did Brand ever show any signs of Malaise on his earlier space flight?

POOL No. There were questions there, as to the dosage, the dosage scopolomean .4 mg and dexatrine .5 mg, that's been what they were all advised to take, and what they have. Overmyer specifically took 3 the first day, my memory may fade a little bit so I probably shouldn't say, but he took some the second day. And I don't believe he's taken any at all today, he's feeling great today. Did I answer that?

CRAMER About Lenoir?

POOL Lenoir took one scopolomean dexatrine on OMS-1, felt pretty well the first day, and didn't take anymore medication. The second day he began to feel some malaise as I mentioned, and he took one I think, toward the end of the day.

PAO Back in the back row there.

JAMES WILKINS (BBC) Can I just get back to something you said earlier. If Bill Lenoir is not well enough to do the EVA is there any possibility of one of the other astronauts might take his place?

HOLLOWAY No sir. Bill and Joe are the 2 people are trained to do this EVA, and although it's technically possible perhaps we would not entertain doing that.

PAO (garble) question

DOUG MILLER (KTRH) Whenever the discussion came up about the death of ...Breshneff, there was a sort of reluctance expressed about that conversation, and indeed it seemed that there was suggestion that they shouldn't talk about that on the loop, can you explain why there was that reluctance?

HOLLOWAY I couldn't hear the question. Could you repeat it?

MILLER During the time of the, whenever Bob Overmyer mentioned the death of Breshneff, there seem to be a reluctance to have him continue talking about that subject, indeed it seemed there was a suggestion that he shouldn't talk about it, while on the loop at least, can you explain that?

HOLLOWAY The CAPCOM was afraid he was going to get me in a heap of trouble, and I was going to come over here and you were going to ask a bunch of questions about it.

DONNA BARNES (BAY AREA NIGHT LIFE) Dr. Pool, isn't (garble) also used to relieve pain, and was there any pain experienced along with the nausea?

POOL No, no pain.

PAO Come up here right here, and then over and get Carlos.

SHERRY ARUETTI (ABC) Tommy, there was something mentioned by Joe Allen about some feeling that they had, or feeling of motion when they fired the RCS thrusters, I don't know, it might of been right when your shift ended, did you hear him mention that?

HOLLOWAY Well, I know of two things that might relate to that. Was it yesterday or today?

SHERRY No, it was this morning, sometime maybe about 8...

HOLLOWAY Well the last two days we've been flying around on the little 25 pound vernier thrusters and they're very low thrust and when they fired to control attitude of the Spacecraft, there's little motion involved, and the crew, when they are very still and paying attention can feel and/or hear those thrusters fire, I don't know which it is, but we just switched over to the primary thrusters for a period of time associated with some test burns that we're going to do, one this afternoon, some tomorrow, and so we're firing the big thousand pound thrusters now, and when they fire, the Spaceship really shakes and moves about and previous crews have commented a great deal about that also. It sounds like Housers going off. For example, partically when those front thrusters fire.

SHERRY Because when Joe made the comment, it sounded as though they were suprised they got this feeling, so I though maybe it was a phenomon that no one mentioned before.

HOLLOWAY No, I don't think so. I suspect, and it must of been made after I left the control center, or after I unplugged and I'm sure it's the same thing we've seen before and Joe just reaffirming the same thing we already know.

PAO (garble)

Dr. Pool, didn't Brand have a pretty severe episode of motion sickness during reentry from Apollo/Soyuz

POOL You mean in the water after the mission was over?

(garble)

POOL Yes, okay.

There was some sequence

POOL At the end of the ASIP there was a toxic exposure, I believe the substance was hydroziene, which is propellant out of the RCS which is brought in through a vent into the command

STS-5 CHANGE OF SHIFT BRIEFING p005jc 11/13/82 9:00am PAGE 5

module and yes they were sick, but not from motion sickness I don't think.

It had been my understanding that that whole episode began with motion sickness.

POOL

No.

POOL into the command module and yes, they were sick, but not from motion sickness I don't think.

COVALT It's been my understanding that that whole episode began with motion sickness.

POOL No.

PAO Paul Recer

RECER Has this episode of vomitting with Lenoir been of a sufficient intensity to cause a concern about dehydration, and if so

DR. POOL No

RECER You've not given him instructions as to liquids or anything.

DR. POOL Sure, we've counseled with him on don't drink large quantities at once, drink more frequent small quantities. And he's been doing that anyway, you know, he's smart, he figured that out for himself.

RECER Okay, did you advise him to increase his intake of fluids?

DR. POOL No, just sort of maintain a constant flow.

RECER Yeah.

PAO Morton Dean, one last question.

DEAN I think I know the answer to this. Is he ill enough for you to entertain coming home early? And secondly, has any one of the astronauts on the, during any of the Shuttle missions, been ill enough for you to entertain the possibility of cutting a mission short because of that?

HOLLOWAY Answer to both of those questions is no.

POOL No.

HOLLOWAY As a matter of fact, you know, if you compare the kind of phenomenon this space sickness is with sea sickness, at least to date, we've not had anybody who's really been severely bothered with it as some people who go to sea are. They seem to adapt fairly readily, and the episodes of having symptoms are not as frequent nor as severe.

Guys on ship don't get better, do they?

STS-5 CHANGE-OF-SHIFT BRIEFING p005jd 11/13/82 9:00am PAGE 2

HOLLOWAY Well, no, many of them get better and adapt, but some don't. We just haven't had that kind of experience yet.

DEAN Does that include Joe Engals' sickness that, minor?

HOLLOWAY You know, there were so many compounding variables in that mission. We had water that had a lot of gas in it, we had a timeline which didn't permit them time to eat, sufficient time to eat. Those sorts of things going on make me very hesitant to comment about whether or not an individual had motion sickness, particular if the symptoms were fairly mild in association with those other things going on.

PAO Okay, thank you.

PAO I'd like to welcome you to our post launch press conference for STS-5 and with us this morning we have Tom Utsman, who is our director of Shuttle operations at the Kennedy Space Center. In between launches he took the place which George Page had as the director of that division and Al O'Hara who was the launch director for this flight as he was on the launch flight. And we'll begin with ... This is on mission audio rather than on NASA select because of the - this is on mission audio rather than NASA select because we have the mission on mission select. So you'll have to listen to the loud speakers but we'll start with Tom Utsman.

UTSMAN Okay, I guess there's not much I can say about the mission. You saw it, it was spectacular, we're very proud of it and I guess since George left Shuttle operations and I took over, we've done a little shifting in arrangements there. I sort of tried to orchestrate it and we've divided up the work because we're going to be launching very many of these and there's nobody in a free world that can do the job that the launch director does and the director of Shuttle operations. So what we're going to try to do today is let Al O'Hara, who is our launch director, he was your launch director on STS-4, takeover and give you any details of the launches and I'll try to fill in since I do a few odd jobs for Al during the mission or during the launch so I can help out if he gets a little problem there. Thank you.

PAO Thank you, Tom. Al.

O'HARA I'm very thankful to God for a safe and successful launch today. I think Americans can be very proud that we've taken this giant step again and moved into our prime business of transporting spacecraft up into earth orbit and this afternoon, if all goes as planned, we'll have deployed our first commercial satellite. We are very, we had great counts, that's all I can say. It was very, very smooth. The test team responded very well, very professional manner and Tom and I are very proud of the way they responded. I can't - there were very few problems during the countdown. Few minor ones to keep us occupied so we don't get nervous about something, but it went picture perfect. The weather here of course you know was just ideal. We had an easterly wind and no problems at all of any weather here. Out in the ocean, the 2 SRB's have been spotted, the parachutes did open as planned and they are in the process of recovering them at this time. They are in a spar mode about 20 feet or so protruding out of the water and we feel confident we'll be able to retrieve the SRB's and return them. The seas are about 6 to 8 feet the last count I heard, so it's going to be a little rough out there but I believe they'll be able to do the job successfully. Some people ask about the launch time, we can give it to you. It was 7:19 00.0678 or 68 thousandths of a second late. I got chewed out a bit for being late but I reminded them on the last launch we were a

few milliseconds early so it averages out. So they accepted that. So we are very thankful that everything went well and we're really looking forward to this mission. It's going to be exciting with the spacecraft being deployed and the EVA's and we believe we're just going to stay here today and wait for that first deployment before we go home. We'll be glad to entertain any questions you might have.

PAO Thank you. We're ready for questions. If I don't call on you by name, please give your name and affiliation. Do we have any questions at all? Okay, we have one over here in this section. In that row, Maggie. Right there.

LUDWIG (ORLANDO CENTINELL) We heard something about a CR2 problem. Can you tell us about that?

O'HARA We had a problem last evening with a GPC. Is that what you might be referring to last evening? It drives the CRT's. That may be what you heard. The transmission was something a bit like having your home TV slide down to the bottom of the picture tube. Okay, we'll this - only pertain to the countdown and the launch. The launch director and the - our director of Shuttle operations don't monitor all of the things happening onboard the orbiter. That sort of thing will come out at the change of shift briefings. Right here, Roy Neil.

ROY NEIL Were there any anomalies that you could call to our attention, obviously if the launch was near perfect, but were there any anomalies on the way to the market place?

O'HARA Roy, last night, we did have a problem when one of the GDCs, GPCs dropped off because of an error detected. We didn't know at first, this was about 6:30 last evening. We didn't know whether we would have to change out the input/output device or CPU. But as it turns out, it was a flight software type anomaly that happens very rarely it's a timing problem that I couldn't even begin to explain, it takes one of these software wizards to explain it. They analyze data most of the night and came back this morning and advised us that the situation was one that we could easily live with and the crew was advised as to what to do in the event it did occur. But the probability of it occurring was very very small, so the decision was made by the mission management team to proceed. That was the only significant, we had some power supply problems the night before last at the pad, ground support equipment, they were changed out, it was due to an over attempt situation. We replaced the fan, the units in the fans, and it turned out to be the problem. Tom I can't think of any other, were there any other?

UPSMAN I'm sure everybody wants to know what happened to the regulator, and the regulator worked just perfectly when we turned it on at T-15 minutes. It was, you know, negligible leakage, it was completely flight worthy, as we've expected.

LUDWIG Is it fair to say then that you had a perfect countdown?

O'HARA I would (garble)

LUDWIG That you've never been able to say before?

O'HARA That is during the last. It was as near perfect, Roy, as we could probably expect with such a complicated, you know, set of ground support equipment and a bird of this nature. It couldn't of did any better in our view.

PAO This gentleman here.

 It sounded as though you might have gotten a little less performance out of the solids than you expected, is that correct?

 That's my understanding. Of course we did have a headwind that depressed the trajectory somewhat, that was expected. So I don't know whether or not it was under performance, but we did expect that it would have a depressed trajectory because of the headwinds.

PAO Dave Dooling, Huntsville Times

DOOLING How severe were the headwinds, were they any where near close to flight limits?

O'HARA There's a lot of dialog last night with JSC and the flight dynamics people. They were near the flight limits, but the upper winds decreased throughout the night, and about 4:30 or 5, I believe it was Tom, wasn't it? We got a clear go for launch without any concern. But last evening, they were marginal and the subject of quite a bit of discussion between our centers and the experts at JSC.

UPSMAN I might just clarify a little, when we say marginal, they were approaching what their design limit was, which would no way jeopardize any factors of safety or any margins that we had in the design.

DOOLING What were the wind speeds?

O'HARA I don't recall them.

UPSM They were running, its about the 40,000 foot range, they were running about 90 miles an hour. And they were coming across in a cross component which was against the vertical stabilizer, which was giving a bending moment, it was a little bit different, from we've seen.

PAO Reggie Turnhill from BBC

TURNHILL And it was noticable that the winds brought the clouds right over the top of the Cape here. Do you think they'll be any active rain fall out, can we expect a breakout in red spots?

O'HARA I won this one. People that went out right after and were in it, essentially said that it smelled about like clorox, and a household bleach consistency. We don't expect anything more than a household bleach, but again we're monitoring the prime fallout area will be to the west of this area. So we do have a team that looks at that, and we'll have the results some time today.

PAO Do we have any additional questions? Right here, behind you.

JODY ROLLY (WQOK) You're monitoring the cloud, are you monitoring it for the aluminum levels, where they may be deposited?

O'HARA Yes, we look at the total deposition where they deposit for any change to the polige, anything that effects it,

not only just to the acid, but we are following that. We also take samples from where the ground water levels in high concentrations areas. And we've had an active monitoring program going on for some several years.

PAO Okay, are there any additional questions. If you will take just a couple more, up here in this row, Lisa.

PETER DOMINOWSKI (FM90+RADIO ORLANDO) Now that we're carrying satellites aboard the Shuttle, (1) is there any special monitoring of the stress the satellites are receiving during the liftoff, and if so, do we have any reports on what they might have received as far as stress during the liftoff.

O'HARA I would have to get you an answer. I believe there is monitoring, I just don't know the details of it. But I know there is some instrumentation that'll be working the load, and we didn't anticipate any problems at all of course, but we'll have that data sometime after we get the flight information back.

PAO Okay, if there is no more questions then, thank you all for coming to our launch.

PAO Good afternoon, it looks like we have full house today, we almost have to move into the auditorium. But why don't we start out with Dr. John Cox, off going orbit team flight director, covering the day's activities, and then we'll go to questions.

JOHN COX Okay. Today I think, as everybody recognized, was a fairly relaxed crew day. We didn't have a lot of tough activities, but we did have several minor type experiment things to get on with. We completed some of the medical DSOs, and we didn't get a good report at the end of the night of which ones were completed or not, so I won't be able to give you details on that. We did the star tracker threshold verification test, and we did a rerun on the COAS cal. We completed the vernier jet long burn, 125 second burn, along with that, the stratification test with cryo set. And both of those went real well, it was a combined test and verniers did not get very warm, which was a nice thing to find out and they didn't see stratification in the cryos. We got the radiators deployed and it looked like they were cooling well, and we were real clever in the way we flight planned that so I can't give you a quick response back on that one. We deployed the radiators when we were right in the middle of the PRSD test, or had just finished it, and we were very high power level. So it's tough to tell whether that, what the difference in cooling was, but it was obvious that it was cooling better with the radiators out and that's what we're showing, and we're just trying to measure accurately what that difference is. The glow experiment was performed, the crew did make a few comments on it, it seemed to have run alright. Did not visually or with the TV cameras, which have a pretty good sensitivity, pick up any glow, but hopefully the film and the photographs will before we look at them when they return them. We configured the system for the hold OMS left pod test, we have the, we're in the side sun attitude now and the left OMS pod is being cooled so that we can do some RCS test burns tomorrow. And we did take the theodolite measurements, they seem to go real well. One of the targets that we would like to normally use was going to be right at the top edge of those sunshields on those deployable payloads. With the sunshields now closed, we can't quite pick the target up, so we suspected that that might happen and we had a little backup screw up on the bottom of the vertical stabilizer and they were able to use that and we pressed on with that test, and the crew did capture all the data for it. We stopped one set of sponges and we started another set today as planned. And basically, as far as today, that is most of the significant items of accomplishment. We did get a really good habitability report that was dumped and I can run through some of that if any of ya'll are interested. I think the significant change that delayed the conference here was our discussions and deliberations on tomorrow's flight plan. And late in the evening we did advise the crew that we had finally made a decision to press on and do the EVA on flight day 5 instead of flight day 4, basically just

swap some of the activities on those two days. It was not any overall fear that we couldn't pull it off tomorrow and crew would have liked to have done it I think tomorrow, but it's just NASA being extra conservative and wanting to take the first EVA and get as much as we can out of it, and let's have everybody at a 110 percent. Private med conferences with Bill today indicated he was well on the way to being on the mend and feeling quite a bit better. We just felt, don't push it. We were going to give them the option to say tomorrow morning to say whether they wanted to do it or not, or what, that's ridiculous, why don't we just decide tonight, there's no reason not to do it that way, so that's what we did. Okay.

PAO Roy Neil, NBC.

NEIL John, can you, first of all, who passed up the word, what were the exact events leading up to this decision that you just described? And what impact will this have on the follow on events, such things as what time now will the EVA be, will this impact the landing? Can you give us a little discussion in short.

JOHN COX Okay, last part first, there won't be any impact on the landing, we don't see any reason that there's any difference there. When it's going to be, if you take a look at you cap, I don't have the hours written down right now, but if you take a look at your two caps, the wake up and sleep times were the same for both flight day 4 and 5. So if you just took them and went flip flop, you can figure out where the EVA is on flight day 5, that's all we did. I can give you an idea of what the changes were. The events that led up to it though, obviously you're aware of the press conference earlier today, Tommy and Dr. Pool talked to you. Throughout the day we had the regular scheduled private medical and then there was one additional one which we had arranged with the crew in the mornings, said, well let's just have a couple more of them during the day. And Bill seemed to be feeling much better, but we just didn't see any reason to push it. There's no reason the EVA's got to be on flight day 4 or flight day 5 or flight day 3, and it just happen to be where it was on the flight plan. So we said, hey look guys, let's just give them another day and don't push it, that's what we did.

NEIL Who actually passed up the word?

JOHN COX The capcom.

NEIL Who was it, who was on capcom at that time?

JOHN COX That was John McBride on the planning team.

PAO Okay, pick George Alexander L.A. Times back here.

ALEXANDER John, two questions. (1) will Lenoir continue to take medication through the rest of tomorrow to make sure that he's okay for the EVA on Monday?

JOHN COX I don't know the exact protocol that the surgeon worked with them on that. He's feeling much better, and I don't think he's doing anything special at the moment. If you need any more detail, I can get a surgeon to respond to that, but I don't think that there's any, it's just a matter if he feels good, and he didn't feel real good this morning and you know how you feel

ALEXANDER He did or did not feel too well this morning?

JOHN COX No that was the reason the press conference early this morning. But he's feeling a lot better now, and I'm not aware that he's on any medication or anything special other than what everybody else is on, just everybody's aware and watching that kind of stuff, and I don't think anybody's having that many special problems right now.

ALEXANDER My next question deals with questions that were posed to you in change of shift briefings, you were asked twice specifically according to the transcripts whether there were any manifestations of motion sickness, and you told us flatly no. My question is, were you being advised by the physicians on your shift as to the status of these guys? And if so, why didn't they tell you that the crew, Overmyer and Lenoir were not feeling too well? There does seem to be a discrepancy here, which I think a lot of us would like to get to the bottom of.

JOHN COX Well, I think if you go look at the time course of all this, flight day 1, I came to you after the private med, and after the private med on flight day 1 there was no report of any problems at that time, so I told you that. Flight day 2, I was informed from the private med that there had been an episode, but everybody was feeling fine, and everybody was in good shape. And I was never asked anything like that, and you asked me how the crew was, the crew was fine. We had no report of the private med

ALEXANDER I think the questions were, has there been any instances of motion sickness, and your answer was no, and Holloway's answer was no. In fact Paul Recer has

PAO The question was something like, are there any medical problems?

ALEXANDER Is there still no air sickness, motion sickness reported by the crew? That's what we've been told, absolutely no problem at all and you can tell by their skirts everybody is up, that's you, John.

JOHN COX That's the way I felt at the time.

ALEXANDER at you knew at the time that Overmyer had been sick?

JOHN COX I knew that he had not felt very well, but he was back a hundred percent, that's what I understood at that time.

ALEXANDER I feel there's a, frankly a lack of candor, either on the part of you with us, or on the part of the flight physicians.

JOHN COX I might have, well, there's no deliberate try to coverup or anything, or anything like that. I'm trying to be as honest with you as I can. I'll tell you everything I know and at that time that's the way I felt, and maybe I misinterpreted the question. But there was absolutely no problem with motion sickness, in conducting the flight or anything at that time.

ALEXANDER I frankly don't find that satisfactory, John, but that's myself.

PAO Jules Bergman, ABC

BERGMAN John, I think I asked you Friday night about motion sickness problems and you replied as George has said no we've had no problems. I'd like to ask you now about one of the quotes you just used about Lenoir, he's not doing anything special at the moment, at this time. Does that mean he's not taking phenigan, which is a sapository, and a known depressant? He sounded very depressed this afternoon, but completely coherent in the air to ground. Does that mean he's not taking the skopedex? Maybe we should have a flight surgeon here?

JOHN COX I can get one, if you want to know the exact medications or what not, that's not. When the flight surgeon reports to us their health and what not, they give us a pretty good run down of what's going on. We don't get any specifics of every single drug that they took, or what exactly is the time course here. We're more concerned about the impact on the flight and that part of it. It's just like, if I had a systems engineering problem with an ECOM or something like that and people needed a good explanation for that, I'd bring the ECOM in here, and he'd explain it. Well, if you want some more information, I'll bring a surgeon next time to talk.

BERGMAN The second part of my question, specifically, NASA using it's usual conservative flight planning, elected to put off the EVA one day, which I don't think any of us can challenge. Certainly I don't think anyone here would. Was this because Lenoir was still down this afternoon? You said he's responding properly, or words to that effect.

JOHN COX The report I had was that he wasn't up to a hundred percent yet. We didn't see, what we had arranged with him was go ahead and we can make the call tomorrow morning. Then the more we scratch our head thinking about it, why make them even worry about that tonight, whether or not he's going to do or not. Why don't we just let them relax and get a good night's sleep, we'll give them an easy day tomorrow, and we'll go ahead and make the change. So that was the reason we delayed the start of the conference here was we were just still conferencing trying to figure out what was really the smart thing to do tomorrow, and the smart thing is just don't push it. So that's what we did.

PAO Lynn Sherr.

SHERR I wonder if you could be more specific about today's events. Could you tell us what is the evidence that Bill is feeling better, did that come from the second private medical com today, and secondly, and what did he say. Secondly, you have said he's not up to a hundred percent, what percent is he up to?

JOHN COX 86.49

SHERR How bad is it?

JOHN COX I got the opinion that it was probably like, if you have the grade it, something like 90 percent or something. I don't talk on the private med, just the surgeon does, we get a feedback. There were three private meds, there was one this morning, there's a regular scheduled one, and there's one late in the day. The one this morning was the one the crew requested. And you heard all about that here. Shortly after that, there was another private med, and at that time the report back was, well it's too early to tell. He's taking his medications and everything seems to be on it's natural course. And then the one later in the day, was well he seems to have improved, but he still doesn't feel 100 percent.

SHERR Is it your understanding that that came from Bill himself, or from the some other crew members? That he felt better, but not perfect yet.

JOHN COX Well as far as I know, it came from Bill himself.

SHERR You don't know exactly what he said.

JOHN COX No, I don't know his exact words, no.

JOHN COX But in a private medical conference, everybody's talking, the surgeon and the full flight crew so, I'm sure there was probably a little bit of Vance Brand talking, and a little bit of Bill Lenoir talking and everything. You know, I can't tell you exactly what was said, I wasn't there.

PAO John Wilford New York Times.

WILFORD In view of the way you responded to questions about Overmyer's situation the other day maybe we should ask more specifically. You said that Lenoir is feeling better, not 100 percent, does that mean that he's had no more vomiting since the vomiting we were told about this morning? Also, you say he's not taking anything right now, are we to conclude from that that he's not taking anything right now literally, or that he hasn't taken anything since we last had a press conference.

JOHN COX Okay, let me go back in reverse order. The first one was the comment about Bob Overmyer's condition. I think you'll find if you track that comment down, that was in flight day one, and I had absolutely no information. Flight day two when I talked to you folks, nobody ask me that.

WILFORD Well, that's what I mean, I'm asking that. Cause you don't volunteer any information, we have to ask you specifically point by point as if we're lawyers.

JOHN COX Well, I wish you didn't feel that way, cause I'll tell you everything I know, if you ask me I'll tell you.

WILFORD Okay, well I'm asking now.

JOHN COX On Flight day 3, today I am not aware, me I'm not aware what the positions are of the exact medications that he is on, I have not been told that he's been on anything special. And so right now, they say he's on the mend, I believe he's back to eating lightly and drinking some. But I don't believe that there's been no overriding concern with them, and I say again, if you need to know some more I'll bring a surgeon next time. Or ...

WILFORD When is next time?

JOHN COX Well, the next shift briefing, or by the way they also volunteered that they can be contacted through the PAO office at anytime.

WILFORD We don't know whether he's vomited since this morning. We don't know what he's taking.

JOHN COX I don't know if he's vomited since this morning, and I don't know if the physicians changed any prescriptions on him. They just said he's feeling much better and he's not...

WILFORD Who's they? The Flight Surgeons?

JOHN COX Flight Surgeons.

WILFORD When did they tell you that? At what time?

JOHN COX This afternoon, after the afternoon private medical conference.

WILFORD Just before you told them about the EVA being postponed?

JOHN COX No, much earlier than that. It was based upon that comment a couple hours earlier whenever the conference was. I can look it up on the timeline, but based upon that discussion we just caucused and cacaused and talked and talked and, we had left it with, well you'll be able to make that decision in the morning. We said that doesn't sound real sharp why don't we let him get a good nights sleep and tell him tonight.

WILFORD I feel obliged also to ask you, are any of the other three, or are all the other three perfectly healthy? Have there been any....

JOHN COX To the best of my knowledge, what I've been told, nobody else is currently having any problem at all. I did have one report that Vance was maybe not 100 percent, but he was feeling fine and was having no problems.

WILFORD When did you hear that?

JOHN COX That was at the afternoon, at that middle one.

WILFORD Did he take medicine?

JOHN COX As far as I know he didn't.

WILFORD Did he vomit?

JOHN COX As far as I know he didn't, but I tell you, if you need those details, I'll bring the surgeon.

WILFORD I think the PAOs should know that we should of had a surgeon here.

PAO Okay.

PAO Next witness.

REID COLLINS (CBS) Well those were my questions also, and as we pointed out this afternoon, we got the same answers from Holloway. Was there anybody on the consoles who didn't know that Overmyer had been ill in day one?

JOHN COX I don't think that anybody at private med time and thereafter on day one knew that. See that's the problem were having. Dr. Pool talked to you and he explained the problem on day one. At the time the private med was held, nobody had reported one. After that on day two or subsequent when that was first picked up, he probably said, hey, back yesterday I wasn't feeling real good, and that's what delayed this whole talk with everybody.

COLLINS But don't you..

JOHN COX As far as we knew..

COLLINS Don't you know everything that is available knowledge in that area when you go on shift? When you take the console?

JOHN COX What we get from our briefing from the surgeon is what is a reasonable thing to expect from talking to somebody about their state of health. And what we're mostly concerned about from the Flight Directors point of view is am I going to

have a problem with the flight plan or changes that I should have to accommodate. The surgeon uses a little judgement and doesn't go through a blow by blow description of any particular problem that somebody's having, just like if you ask somebody else how they're feeling, they probably won't, they'll give you a yes or I'm feeling pretty good, or was a little puny yesterday, we don't get a blow by blow description of everything.

COLLINS This morning, the surgeon said he thought Lenoir could probably work today. Did he work today?

JOHN COX Oh yes.

COLLINS Was his schedule changed in any way to accommodate this?

JOHN COX No, he had a pretty light schedule as they all did today. But I think you'll notice in the TV today, and he reported, and sounded in very good voice this afternoon about he was doing the EVA prep work, and we took that as a good sign that he was feeling well and was headed right on planning on doing the EVA. We were the ones who turned that around on the ground.

PAO Pick up Paul Recer AP, and then then across to the other side.

RECER Just for the record, your response to the question about air sickness the other day was absolutely no problem at all. What I'd like to know, after the private medical conference, prior to your coming over to meet with us, with whom did you discuss what you would tell us, and what did ya'll determine what it would be? That's one question, now I got another follow up.

JOHN COX Okay well I talked to Ellen Schullman, the on console MOCR surgeon on the orbit team, and I just asked her how the crew was, I did not want to get involved with should I tell the press this or should I tell the press that.

RECER Did you get involved with, hey should I tell the press this?

JOHN COX No I didn't.

RECER Was there any discussion of that?

JOHN COX No.

RECER Was there any discussion about the level or the amount of candor that you would report to us?

JOHN COX The only thing that we did talk about is that there are certain things the flight director is told in these interviews with the surgeon and that's what I'll tell you. And anything else the surgeons consider is part of the private prerogative for patient doctor relationship.

RECER Did the surgeon at that time, tell you that there had been episodes of sickness?

JOHN COX Did not tell me, and I did not ask.

RECER He did not tell you that there had been episodes of air sickness.

JOHN COX I knew that there had were this morning. I was not told that there were any more.

RECER If I understand you correctly, prior to your coming over yesterday you were not told there had been any sickness?

JOHN COX I was told that Bob had some problems but he was feeling fine.

RECER Okay, but you were asked directly if there had been any sickness, and you said absolutely none.

JOHN COX Well, I didn't interpret that as being any sicknesses. As far as I was concerned.....

RECER Okay, are the results of these conferences, medical conferences passed along to other flight directors? I mean do all of you know essentially what went down during these..

JOHN COX Yes we leave some notes...

RECER Okay then, can you explain why Holloway gave a similar answer to a similar question after there had been in fact episode of illness? Do you guys get together and discuss what you're going to tell us?

JOHN COX No, it's probably what we all knew and we're handy to each other.

PAO Let's move over here to the next one.

MIKE MEACHAM If Lenoir's still ill on Monday will you do an EVA with one person? What is the contingency?

COX We talked about that some, as far as our flight rules are concerned we will press on and do that. We would like to be able to do it because he's key to the EVA and this is a developmental type EVA it's not a - you got to go out and do this. You must realize that in this point of time we've completed the priority flight and all the major objectives have been accomplished even though this is a neat thing that everybody would like to see done. The EVA, we're going to be doing flight after flight after flight so, with that as a preamble, we would like to do it we would like to do it with two men. As far as the rules are concerned we would go out and do it with one if we have to.

MEACHAM If you don't hold it, what's that going to imply as far as testing the space suit and also the solar max repair suit ...

COX It would probably mean that we would delay that evaluation for a couple of flights but it wouldn't have anything to do with the solar max. If you recall, the EVA was added to this flight, really late in the game has not been one of the basic things we needed to get done right now, but we thought well, the flight was comfortable enough as it was that we could put that in.

MEACHAM I just want to clear up. You have made the decision that you go ahead and do it with one man.

COX That's in the rules. That is the way we're set up right now but ...

MEACHAM You sounded like the decision had been made to go ahead and do it with one man.

COX No we haven't. The rules are written that way.

MEACHAM Okay.

COX The rules are written that we can do that EVA with one man.

MEACHAM That decision hasn't been made yet.

COX It hasn't. That's right we haven't come to that one yet.

MEACHAM When is the last time that you can do the EVA?

COX Flight day 5.

MEACHAM What time on flight day 5, early morning, ...

COX Early morning. We'd want to get right into it because of the long prebreath required. You'd have to get somebody in - suited up and in the airlock and on the oxygen so you need ...

MEACHAM So you couldn't do it late in the day on Monday, or

later in the day on Monday?

COX The EVA itself would be you know, is fairly late as far as the crew day is anyhow and you really can't effectively move that much earlier.

MEACHAM Okay.

PAO Paul Franchuck with VOA.

FRANCHUCK It's my understanding that you would not want to do any EVA with one man because it's terribly risky. That's what I was told by a PAO this morning. They like to work in a buddy system out there.

COX That's the way we like to do it. I mean, I don't have any objection to that. That's the way we prefer to do them. But we do have a rule that says ...

FRANCHUCK Then what would likelihood be of doing an EVA with one man on Monday?

COX I can't give you a guess right now. That would be the reasons why and all that. We don't feel like there is an overriding- Got to have 2 people, we prefer to have 2 people. Just as you said it's a good buddy systems.

PAO Let's pick up the couple in the back, Al Slogo, in the back there.

SLAGO New York Daily News So if you did a one man EVA, I assume it would be considerably shortened and you wouldn't be able to the solaral max experiment for instance. What all would you accomplish on a one man EVA?

COX Truthfully, I haven't look at it. I think we could probably do most of the tasks in the EVA but I have not looked at the one EVA crewman timeline is. We would be doing that if we began talking seriously about it.

PAO Next door over there.

CHAKENTI (DIGEST) Three questions. First, given the fact that we don't have a lot of detailed information on the precise state of the crew, the health of the crewmembers in question, does the fact that they went ahead and did their EVA prep equate with some level of recovery?

COX I believe that's - the way I interpret all that, they in fact they even pointed out to us and Bill's the one who pointed it out on the air to ground so. That was in the timeline today to do that and because Bill came up and told us about it I

assumed that he was trying to emphasize the fact that he was feeling pretty good or feeling a lot better. That's just my interpretation of what I heard.

CHANKINTI Okay, question 2 is the swap between flight days 4 and 5. How exact a swap is it and what changes are there? If any.

COX It's not a 1 for 1 swap. We talked about doing just a plain 1 for 1. Well let me see if I can remember all of them. We start the day off pretty much the same, here we go. And we do the test burns that apparently are on - what we're trying to do is keep the thermal attitude profile the same and do all the thermal test right on schedule so. You know, when we said that without looking at the changes we made, This is just an overview, it's actually probably a better flight plan and we kinda wonder why do we do it that way to start with to begin with. But we'll do the test burns and then we're probably going to pick up that DEU swap out that we're talking about. We're going probably to pick that up tomorrow. We'll do the PCS checkout that was on flight day 5. We'll just move that in their tomorrow. We'll do that LVH test that was on flight day 5, we're going to move that on in and then we're going to try and work in some cabin stow time that might have been dropped off by moving the EVA over to flight day 5. So those were for significant events. Most of the other small items that you'll see in the timeline will probably stay about the same the IMU alignments will stay in there the same. When we simulated the EVA day back in training, we noticed that it was quite a push to do the prebreath, do the EVA activities, get back on it and take the same 2 guys that's been outside, get all their stuff cleaned up and then have the commander and the pilot, one upstairs without helping them much more and perform 5 more test burns and in a row and we thought, you know, we pushed it everytime we trained it. This probably would have been a better way to align them anyhow so that's what we've ended up with and we're pretty confident that that would be what the crew will like anyhow.

CHANKITI My third question sort of relates to that and that is what are the possible aspects of this new change that would force a landing a day later. I realize that if you land a day later you lose your extra cushion day at Edwards but are there considerations on it if someone isn't feeling well that you would rather not have him come down when he's not up to full performance for the entry. Is there anything at all that you could think of that would push the landing forward or backup a day?

COX The only thing that we every carried in our minds as far as entry day is concerned is pretty much dictated by the weather. I think that you saw on flight 3 we can get wrapped around on the axe on that. And you begin to look where the fronts are moving

and what not right now. If things look pretty good for nominal end of mission landing but that's about the only thing we really see out there is any reason to change things. You're always open for some other reason but we don't see anything at the moment.

PAO Carlos Byars, Houston Chronicle.

BYARS In light of the problems we've had in getting situations started out on the medical situation. Is there anything else lurking back here that we might be interested to know. Any little lurking problems with any part, piece, or partial item or otherwise?

COX Well, I'll run down some of the little funnies we found today. We did have a water leak or we found some water. Don't think it's a leak, as it turns out we may have a humidity separator not working up to 100 percent, but they reported that this morning and we sent them up a plan to start looking for the water and we had then pull some panels off the bottom and look around. All around the water tanks was dry, it looked really good and over where the slipper plate and humidity separators are they did notice some - quite a bit of condensation built up in there. The slipper plate is quite cold and it's easy to condense. The separator you rely on to actually take the water out of the air and move it over to the waste tank. Looking at that data, which it has a very slow trend to it, looks like the waste tank water build up is not running as high as we would like to see it so, we say let's put 2 and 2 together and say let's turn on the other separator so we turned it on - we're running that way tonight, we're going to be watching it to see if water increases there but that was a fairly minor thing. Again, as far as the vehicle is concerned, we've been really pleased with it's operation. Which we had a circuit breaker pop. We thought the crew had bumped the other day. It was one of the comments I think - I made last night, that the crew thought they had bumped it. Well the circuit breaker was found out again today and happens to be the one with the Commanders COMM is on. So we took a look and found no current spikes on it, we'll probably reset that circuit breaker tomorrow and hopefully his panel will stay in good shape. We have a little cap that we can screw on the circuit breaker and hold it down to see if may be it's a mechanical problem, or it's just releasing itself since both times we haven't found in any current spikes. If it makes it to the end of mission we may just stay on it that way. We've also worked up an alternate routing for the COMM cables for entries in case we're not happy with what we see there. That's another thing that's going on.

PAO Carlos follow up.

BYARS What's the situation with your ailing CRT. I believe the crew did do some work on that today. Got that impression at

least. And what about a possible swap of that, which I presume would have been set for day 5?

COX That was what I mentioned earlier. We think the problem is in the Display Electronics Unit the DEU, as opposed to CRT itself. The reason why we were asking the questions today is the IBM folks that have analyzed the problem. What happened on the screen was that 1 quadrant had jumped from upper right to lower left and the rest of it went blank. It seemed like an awful strange way to flicker just before turning itself off. And so they began working on it and they did come up with a way that they can have a failure in the Display Electronics Unit that would have that signature on the screen, however, there was some question of, there's some other power supply funnies that may or may not influence the way that could happen and so we had a couple of questions that they wanted us to ask to see if we could isolate it and then, based upon the responses, it had to do with how sharp were the characters and how large were they and where did they go. Based upon those responses they feel quite confident with the problem if they didn't duplicate on the ground, must be the right one and so we're were pressing on. We went the teleprinter message up today with instructions ...

COX (garble) on how to do the swap out and that will be in tomorrow's flight plan.

That will be in (garble)?

JOHN COX No, that will be in tomorrow's flight plan.

PAO Okay, Jules.

JULES BERGMAN ABC NEWS John, if tomorrow afternoon, come mid afternoon, Bill Lenoir is still not feeling up to snuff, or 100 percent or any euphenistic you care to put it. Are you likely, is NASA management likely to decide to go the one-man EVA route Monday, or extend the flight by one day, to do a two-man EVA?

JOHN COX We haven't even hit that one yet Jules. I don't know of any special changes that we're to do at this moment right now everybody's expecting Bill to be at 100 percent and press on the way we got it right now.

PAO Lynn, do you still have a question?

LYNN SHERR ABC I've got more questions Dr. Pool, as long as your here.

POOL It's a privilege.

SHERR I wonder if you could start first with today. Could you tell us please everything you can about how Bill has reported he is feeling today and why John has told us that he believes he's feeling better.

POOL Alright, we talked to them three times today, which is unusual. The first conversation we had this morning, he indicated to us that the day before, first day he didn't have any problems. Second day he began to feel some malaise, and that evening he ate supper, went to bed, and got up the next morning, this morning, ate a little bit of breakfast, and shortly after that had an episode of vomiting, and that precipitated a call from the spacecraft that we'd like to talk, privately. And during that conversation, we got this story. We said, I think, we'd better consider the EVA option, if this problem continues today, we have to start thinking about that. And we mentioned at that point, that it was fairly easy for us to change the operational scenerio. Second time we talked, well, we went ahead the first time and advised that he take some medication, specifically Phenagan, and take it fairly easy. Second time we talked to them, he said he had taken the medication and that the symptoms, specifically the nausea, was gone. The third time we talked, well that was a very short conversation. The third time we talked with them, which was not very long ago now he said he was feeling much better. And that he had had some fluids today,

but had not eaten anything yet, this was before supper.

JULES BERGMAN Dr. Pool, is he on Phenagan now? Or how often does one take Phenagan and will he take Phenagan or Scopodex tonite or tomorrow?

DR. POOL No, he's had one as the best I understand it. He's taken one Phenagan and we recommended this evening that if he felt like it, he could take something for sleep, Dalmaine.

BERGMAN Valium?

DR. POOL Dalmaine. And he would, we would reevaluate the situation in the morning.

BERGMAN Supposing he's not feeling better in the morning. And the second part to that question, are any other crewmembers feeling motion sickness, space sickness, any other discomfort now that we should know about?

DR. POOL At this time, no. Let me explain something about these symptoms, I think there's a very important point here. The symptoms in the first few days of adaptation to space flight vary from individual to individual. They also sort of come and go, in ebb and flow in people. There may be times during the day when these people feel very well, and then times when they don't feel well. And that's a fairly consistent story that they give us. Now as far as Overmyer was concerned, I think he had a very good day today, and appears to have adapted, and is not having a problem. The other two crewman haven't had a problem.

PAO John Wilford.

WILFORD When you say, at this time, do you mean literally this point in time?

POOL Based on the...

WILFORD Do you mean that he has had something earlier in the day that we should know about? And have any of the other 3 taken any medicine. We find we have to ask questions like this, because otherwise we don't get any straight answers. You've not been forthcoming.

POOL Well I'll try to be forthcoming. Those were a lot of questions. First place, as to this moment in time, I'm not in communications with the spacecraft. At this precise moment, thereafter, I'm a little at risk in saying that things are all copesetic okay, but to the extend of my ability, in retrospect after these three discussions with the crew today, it is my opinion that these people, with the exception of Lenoir, are doing very well. And Lenoir is improving.

WILFORD Are any of the other three taking medicine?

POOL No.

WILFORD Today?

POOL I don't know, I was trying to be very careful, it's been a long day.

WILFORD So no, none of the other three have taken medicine today.

POOL I don't think so.

PAO Okay, let's take one or two more than go to the other centers. Way across the yard here, over on the table.

STEVE CROFT CBS NEWS I'm a little bit confused, this is for Mr. Cox. Jules just asked a second ago, if it was a possibility that the flight could be extended, and you said that we hadn't gotten to that. Is there a possibility that the flight could be extended?

JOHN COX Certainly, that's always an option. As a matter of fact, we carry consumables and we have alternate type of back up planning where we could go a couple more days if we need, and we can stretch if we want to powerdown and do things like that. So, there's an option as far as just a planning tool, we can always do that.

CROFT Is it a possibility that it could be extended to accommodate the EVA with two people? Rather than extending it just for weather conditions?

JOHN COX If looking back on what it took to do a one day, one man EVA versus a two, if we thought we'd get that much more that it was worth the trouble doing that, I think we'd probably opt for that. But at this moment, we don't see that.

PAO Take one right there.

Dr. Pool, you mentioned that the symptoms are somewhat quirky, they come and go. If this is the case, how long do you have to wait before you know that there not going to suffer from these symptoms, because if the man is in there, in his spacesuit and out there, he starts gagging he's in big trouble. How many hours do you have to wait before you know there is not going to be a recurrence of symptoms?

POOL Seems to be a good question. I think the experiences we've had to date, would say by the end of the fourth day, we're pretty certain that most people have adapted. In

fact by the end of the third day, most people are doing better, or pretty well, it's the first and second day, and part of the third day that we experience some difficulty in this.

PAO Okay, back to CBS...

CBS Have you been able to establish any correlation between the episodes of motion sickness and any physical activity, in other words, were they coming after periods of physical activity, is there or anything at all that you see that may be bringing about these episodes?

POOL Well, going back to the very early days of space flight we flew a fair number of people and hadn't had any overt problems with motion sickness, and I think perhaps that had to do with the size of the cockpit, the fact that they were pretty well tucked in, maybe. Again we're hypothesizing here, we have had several experiences in which the symptoms occurred after something like taking off the spacesuit, and of course, in taking off the spacesuit in that environment there is a good deal of moving around, so I guess the general notion is that movement may have something to do with the development of symptoms. And our general advise, if you have symptoms is to try to minimize your quick head movements. It means you can do much of what you need to do, and clearly our people do perform rather well, even though they're having these occasional periods of problem. But head movements, we think, do play a role in the development of symptoms.

(garble)

POOL I don't know, in the private MED COMMS, we've really not had time to get into that sort of dialogue with them. We, in the preflight period, talk alot about this with them during our medical training meetings, and we talk about the fact that people who've been there before say that rapid head movements in the early hours of space flight may precipitate symptoms, they know that.

PAO Reid Collins, CBS.

COLLINS Dr. Pool, does the pure oxygen environment have any influence, or any physiological influence on the condition of man?

POOL Yes

COLLINS You mean in the suits? Yes in the suits.

POOL Okay, let me see if I can....

COLLINS Well, what I'm getting at is.....

POOL ...try that on for size. There are a number of things that happen if you stay in a pure oxygen environment for a long period of time. And here I mean maybe days, it may effect the lungs, dry out the tissues and that sort of thing. There are some antidotal data in the system, pilots seem to like to get on the oxygen system after having a hard day the day before. (Laughter) And night as Jules says.

COLLINS What I'm wondering is, with specific regard to a man who is ill, or queasy or motion sick, does pure oxygen have any effect (garble) or beneficial to him?

POOL Well, the Russians did a study on just that subject, and we followed it up with a study in which we had people exposed in a provocative environment which would stimulate motion sickness, and we had them breathe 100 percent oxygen...

Dr. Pool ...oxygen at 14.7 psi, we could find no statistical difference in the incidence of motion sickness in those individuals. It was a small study, so I don't know that that's a final answer, but maybe that's an indication.

PAO Back behind Reed there, next row back.

Can you tell me how this type of motion sickness compares to other motion sicknesses, like from boat or plane or high altitude or you know various things, that kind of a comparison.

DR. POOL I can try, but one of the reasons we sort of caught space sickness, rather than, and then sometimes we slip and say motion sickness. The symptoms are not exactly the same, and that is a very interesting point. Some people in the space environment have had vomiting without the prodrome of nausea. And in most of the terrestrial exposures, people who are going to have the problem, have some nausea prior to the development of vomiting. And that has happened on several occasions in space flight.

Dr. Pool, I've got four questions, I believe here. Briefly, I think John had mentioned something about Vance having a mild set of symptoms, do you concur? I believe I heard you mention Vance having a little bit.

Dr. POOL I don't recall in any symptoms on the part of the commander with regard to motion sickness.

COX It might not have been motion sickness. You just characterized that he wasn't at a 100 percent today, it was a headache as a matter of fact.

POOL He might have said something about a headache.

Okay, when you had your final private medical of the day, did you ask Vance's opinion or Bob's or Bill's or Joe's opinion on the EVA, whether they ought to go.

DR. POOL Yes we did.

And what was their reply?

DR. POOL Vance thought that the planning might be an issue, and that in his judgement, if it would be easier from a planning point of view that we might ought to go ahead and trade day 4 for day 5, etc. Lenoir also commented on the subject and said he felt pretty good and he thought that from his perspective, at least, if he got a good night's rest that he would be ready in the morning.

So in your decision process, was Vance's view weighed fairly heavily as

DR. POOL Well certainly the commander's view is important consideration, of course.

Did you take it as leaning Vance's view that you should wave off for tomorrow and wait till Monday?

DR. POOL Well, I think we took the whole picture and looked at it and said, you know, it's fairly easy to trade out these days. The commander is concerned that perhaps that there may be a scheduling or planning problem associated with, you know, waiting until an hour after wake up in the morning to make this decision. And we decided to go ahead and make that decision now.

Okay, and another couple that are on the motion sickness issue in general. Are you looking to possibly to flying the Soviet designed head restriction cap on mission 6?

JOHN COX On mission 6?

Yes sir.

JOHN COX I don't believe that's in our plan at this point in time, it could be very easily in the baselined plan. I've seen pictures of that device, it looks rather simple, we could probably jim one up if somebody thought that were a particularly good idea.

And then the last one relates to the prebreathe, I do not believe, and correct me if I'm wrong, but I don't believe anyone has ever prebreathed, period in zero-g. And my question relates to circulation, do you think circulation in the no prebreathe in Skylab was off 5 psi?

JOHN COX Well, partially yes, partially no. I guess we've not prebreathed prior to an EVA, in space. But remember, we used to launch the spacecraft at 14.7 and let it bleed down, and that sort of thing. You know, there may have been some washing out of nitrogen in that process too. We used to prebreathe on the ground before we went up. So basically, yes, the answer is yes. You do not prebreathe in zero-g, yes.

Any issue on circulation? Blood to the legs, blood to the head, in this issue?

DR. POOL We've given that very careful thought, and we did a study in which we put people 6 degrees head down and did nitrogen washout. And apparently under those circumstances, the so called fast responding tissues, blood, fluids, basically washout very fast. Faster than they would in the horizontal STS-

position. So the conclusion from that was that perhaps in zero-g, the fast responding tissues might wash the nitrogen out faster. But there are confounding factors, there's the issue of the adaptive dehydration that you get in the nil gravity environment, say a 10 percent dehydration. We know dehydration adversely affects, nitrogen washouts. We have two confounding factors involved, nitrogen washout and zero-g, at least two, there may be more.

I think, to summarize this is to pre-breathe in zero-g ought to give you better (garbled).

JOHN COX No, I can't reach that conclusion, not based on the limited understanding we have of that process.

PAO Let's take Andy Chakins question, then go to the other centers.

CHAKINS Thanks. I won't ask, by the way, about the 18 and a half minute gap in the crew transcripts, but one question for Dr. Pool and one for John. Dr. Pool, are you getting medical eye movement data on Bill Lenoir, and does the fact that he is actually experiencing the sickness add to the value, obviously it must add to the value of that data, are you getting that data from him?

DR. POOL We have gotten good data on Joe Allen, and we have a short segment on Bill Lenoir. We're very pleased with the quality of that data. We are still in the process of analyzing it.

CHAKINS Okay, thank you. And John, is there chance that Bill would be allowed to do the EVA just for safety considerations and other. But, for example, required not to do the translation or anything else that might aggravate his recovery, or would it be a go/no-go?

JOHN COX I don't believe that there's anything special like that in the plan. He's not going to go out if he's not feeling well. And if he's going to go out, he's going to do the EVA.

PAO Okay, let's switch now to KSC.

KSC We have a couple of questions.

JOHN PINE (REUTERS NEWS AGENCY) Did Allen and Lenoir complete all of the EVA preparations as if they were going out tomorrow morning? And second question was, who's idea was it exactly to bring on the insignia commemorating the first balloon flight in France in 1783?

JOHN COX They didn't, as far as the EVA prep is concerned, they did accomplish all the things they were supposed to do the night before. It's getting all the gear unstowed out of the lockers and what not, and moved into the airlock and battery charging done or checked and what not. So being off the visors and so all that work has been done, everything that that were supposed to do tonight in preparation for an EVA tomorrow. As far as the logos go, I can't tell you a whole lot about that, they had it onboard and there it was. They did have a...

That was first manned balloon flight incidentally.

JOHN COX There you go, probably can't add anything more to that.

.....JACK (UPI) Flight director says that he provides the information at the news conference that he picks up from flight surgeon. He said earlier that he had understood that Brand had some discomfort. When did he get that and had he had it in any point in the mission?

JOHN COX Beyond that I made that he was, I didn't think that he was feeling at a 100 percent one day. I believe that was the second day. And as I've been sitting here, Allen told me that he had a headache.

DR. POOL We didn't relate that to motion sickness at all, and it was very minor.

PAO JSC, you still there? Okay, let's go to Marshall.

MARSHALL If the EVA is scrubbed on this mission, would Joe Allen be likely to be reflown on the next EVA opportunities, since you know that he doesn't get sick?

JOHN COX I don't if that's correct, I couldn't give you an answer, one way or another, as far as crew selection for what tasks are concerned. A lot of factors that go into putting together a flight crew. And I'm sure Joe will be considered along with anybody else that has the qualifications to perform the EVA tasks in mind has the training background and what not.

DR. POOL There's another point that might be made here. We've had very limited experience with flying people a second time in space. And I think it might be a very erroneous conclusion to draw to say that those who have been ill before will be ill again.

BERGMAN Okay, follow up on that, expanding a little bit. Dr. Pool has there been any discussion of, since the Shuttle can take 6 or 7 people at a time, has there been any talk of flying extra crewman so that you'd have a spare in case something like

STS-5 CHANGE OF SHIFT BRIEFING p007je 11/13/82 4:50pm PAGE 5

this happens on a time critical mission. We're talking about 4 days to adapt, if you've got to do something in 3 days, and everybody is sick, that just shoots the mission right there.

DR. POOL No, I don't recall any discussions of that. We've lobbied a little bit to put some extra crewmen onboard from time to time, but basically for our purposes.

BERGMAN And finally, on your earlier statement about being erroneous to assume that if they go the second time they'll get sick, and perhaps just as erroneous to assume that they weren't sick the first time, they won't be the second. Have you...

...we go the second time, they'll get sick and perhaps just (garble) to assume they weren't sick the first time they won't be the second. Have you (garbled) to get quick reflight of crewman. Reply then 1 or 2 times just to find out what happens in repetition.

POOL Nothing much discussion of that. But that's certainly a consideration.

PAO No more questions from Marshall.

PAO Okay, back here, Lynn Sherr, ABC, almost did it again.

LYNN SHERR ABC John, you said before that by switching the EVA to Friday that it makes it probably a better flight plan, sorry, switching the EVA to Monday. Why was the EVA to Tuesday, why was the EVA originally put in on the day it was put in?

COX Well, we had - originally the flight was a day shorter. Back when this was originally put together and sometime last summer we went ahead and added an extra day. So happened on the day before entry we had the FCS checkout where we check out all the systems that we use for entry, and it seemed like that was a, that along with the thermal timeline, seemed like well let's use our entry system checkout the day before entry. Sounds like a good time to check it out, just prior to using it. So it wasn't a whole lot of druthers and we said well, that's a little one. Let's go ahead and put it the day before that, you go back and scratch your head and say are we consistent in that. No, last night I think we did the FCS checkout on day 3 of the 7 day flight, or 4, or something like that. I that that was any major swing, it just had to go some day and it went that day.

SHERR So there were no constraints on the EVA in terms of time for preparing for landing, that made you put it the day before. You're saying...

COX No, we wanted to get the deploys off. That was the business, and then we had to, had these other days we had 3 days now left in the flight, and we said, well let's give them a day off after doing the deploys that was the high activity period, and let's do that, then we've got these other two days left and one of them would be good.

PAO Let's take one or two more then we'll wrap it up, Jules.

BERGMAN Dr. Pool I'm troubled by one thing, you've done all those other studies has it occurred to you that jalapenos might be an elimate is this?.

POOL Yes. (Laughter)

BERGMAN I'm serious. No they're very acidic, are they not, very spicy, are they not? And I'd like to know who approved Bill Lenoir taking them aboard. What dumb dumb?

POOL Well I guess Bill Lenoir and I got together and decided that, since he liked them, I'll take the heat for that. My guess is he hasn't eaten any, as a matter of fact I think some of the other crewmembers might, but I don't think he has. I don't know, I honestly don't know.

PAO Okay, back over here on the aisle.

POOL Today I don't think he's had any. (Laughter)

PAO Way back over on the side.

JERRY HANNASEN TIME MAGAZINE The first question to Dr. Pool, Dr. Pool does vertigol figure in this process of nausea, Malaise vomiting?

POOL No, there aren't many reports of vertigol from these crewmen, in association with these symptoms.

HANNASEN Okay, John, one for you, would you bring us up to speed on the state of the lakebed and predictions on the weather, does it look we can likely make it into the lakebed or will we go with the hard surface at Edwards?

COX Well, I think the decision's already been made that the lakebed will not be acceptable, we're not planning on going there. We're looking at the concrete runway at Edwards, that's probably the prime place we're headed right now. Looking at the weather briefing we had this afternoon in the control center, I recall Northrup is kind of marginal for a day or two here then it looks like it'll probably clear up, there's a frontal activity that'll probably move in towards the Cape and maybe cause a few problems in there but it looked like, keep your fingers crossed, on nominal end of mission landing day, things looking to be pretty good at all the United States landing opportunities, maybe a little bit of wind would get in there, but as far as heavy cloud cover, or rain in the vicinity, or what not, it looked like that part was gonna be okay, there was something that looked like it was building off of, up in the upper altitudes off the west coast, that, if that doesn't develop into anything, we'll be in good shape, if it does it may give us some problems out on the west coast, so it may be, asking a weatherman to forecast 3 or 4 days out is tough.

PAO Craig Covault, Aviation Week.

CRAIG COVAULT AVIATION WEEK Okay two questions, one for John, and one for Sam. John, could you review very briefly some of the more important points of Bob Overmyer's habitability four man in one spacecraft remarks?

COX I don't have this all word, for word but he commented on the restraints, I think you may have heard some of them on the air to ground awhile ago, the way they keep themselves positioned at a workstation, we have these little suction shoes that you can use, and there's also a tapedown system that the Mattingly crew last flight came up with that they liked, as a matter of fact, what they did was they just took tape and turned them inside out, hooked them onto the bottom of their feet so they could attach themselves to places and so we made up some little slipper-like devices, and those worked the best they said, and the comments afterwards, they wished they had a whole row of them they could just set up in front of the lockers and anytime they needed to work near a locker or get something out or unstow they would have a places to go slip their feet in. That was one of the comments they had there, they didn't think much on the suction shoes. They just don't seem to stay when you want them, and they seem to release when you don't want them.

COVAULT I was under the impression that perhaps you had a voice dump on a tape.

COX We did.

COVAULT Any comment about crowding or none crowding more comfortable than they thought?

COX Let me go through a few of these, there were some comments on that, but not adverse they kind of related to, for example, in the food system, they have these food trays that they use and they're attached magnetically to wherever you want to place them, and they had commented it was kind of a nuisance, because people would move by, you could bang them and then the magnets weren't apparently strong enough and they were getting quite a bit of contact with them, so that was sort of an annoyance type of factor and I kind of interpret that as probably due to the extra crewmen. They did take also a stab at explaining their sleep configuration and that you might conigure up a picture that would look almost kind of comical. Nobody is tethering themselves. Apparently they did try some techniques like that, but it sounds like, you may just find anybody floating in almost any position on the middeck, that's where they're sleeping, and they've tried the sleeping bags, and just letting themselves float free and I think they commented that Joe spent the night last night floated up near the top of the middeck. Bob had tried sleeping behind the DFI pallets I think the first night, and managed to work his way out into some free floating area the second night, and they gave us some comments about Bill

and Vance, but it was garbled and we went back tonight and asked them to go ahead and repeat that for us sometime, it did not come down clear, but the summation at the end of that was that all of them feel that they could sleep quite easily as long as they have enough warmth, even a sleeping bag or extra clothes, and just floating free. So apparently, nobody's tethering, you just look in there and see people just floating all over the spacecraft.

COVAULT Okay, and then the last one for Sam that I have I guess is, considering Shuttle is a multibillion dollar tax-payer effort and this is a free country, I'm curious in your opinion and what you think the crew's opinions are on an airing out of medical difficulties to the extent we've all drilled you on tonight, both from doctor-patient relationship, and secondly, on that fact that when these guys get home, more importantly I suppose the guys over in the astronaut office seeing this, do you have any concern that next trip up somebody'll be sick and say, I'll be damned if I'm gonna tell Pool this, and get back to the way things were in Skylab where we had a guy, had a crew, that wanted to throw it away and not tell you all?

POOL You know, I think, first I appreciate the question, it's a good question. It's one I've wrestled with a lot, and I think some of the crewmembers have wrestled with a lot. We go into some exquisite detail occasionally on this subject and by doing so, I think we make more of this subject than it's really worthy of. These people perform well, I think we've all seen examples of that in flight, extremely well, even when they're feeling these occasional episodes of illness, that's an important point to remember. We've been, I hope as honest and as open as we could be with you on this subject, but hopefully, in the mature operations here of the Shuttle we would adopt a more mature approach to this discussion, the subject of 50% of the people having motion sickness, we're going to probably have to deal with that for quite awhile until we find some effective counter measures. With regard to how the astronauts feel on the subject I hesitate to speak for them, but I can note that I have had several discussions with them on the subject, and there are those in the corp who say well, it's probably gonna be public anyway, so let it be. There are those in the corp who said, hey enough. This is too much, you know, why don't you just say a couple of them got sick and you can even name the names but we don't have to go into these details. Sometimes I think dosage of medication, how many times its taken, and so forth maybe we can, I don't know. My bias is to say that we make too much of it by doing that, and I that makes me uncomfortable.

PAO Steve.

STEVE Is this the biggest single medical problem you've encountered sending people into space and what's your priority in terms of solving it?

STS-5 CHANGE-OF-SHIFT BRIEFING p007jf 11/13/82 4:50pm PAGE 5

POOL Well, certainly in terms of the shorter missions this entity is an aggravation and on occasion, impacts the mission. We've been pretty fortunate not to have anybody really get, I would say, protracted illness in space. They all seem to adapt. So it's an entity with which we're concerned and we have an investment of resources in research and we're trying to find some countermeasures. There's also the cardiovascular deconditioning which occurs and certainly comes to ...

JOHN COX And certainly comes the play on the longer missions. We are testing some counter measures as you may know. On the last mission we tested a salt and water loading counter mission, counter measured toward the end of that mission and we came back with an orifice static tolerance which was far better than we had had on the previous missions. We're very pleased about that. If you look at the long duration mission such perhaps we may have in the space station environment then bone mineral loss becomes a factor with which we must deal. We're working on each of these entities in sort of that order of priority.

PAO Okay, Carlos, you've got the last one.

CARLOS And thank you for your response on that last one Sam, that was excellent. This has to do with that infamous old cross wind landing. Is there any possibility the weather patterns that are developing on the West coast for entry day might allow you to get your crosswind landing on the concrete?

JOHN COX Oh, I think if we end up going there, and it's available we have one runway to go for us. So if it's available we would have it.

CARLOS In other words, it will be just pretty much a matter of luck. There's nothing you can see in the weather, the weather people can see, that might indicate it's a decent chance for it?

JOHN COX Well, I think if you had to look at the weather we had today, and we were kind of heading, you might be thinking you'd have a nice really clear light wind type of day. The whole hypothesis was this thing that may be developing up in the upper levels, and does that turn out to be something and right now its probably too far away to guess.

PAO Before we break here the SBS 3 apogee kick motor was ignited at 4:45 local time, and the satellite is in a satisfactory near it's geosynchronous orbit, says here. Okay, thank you.

PAO Okay, all welcome, good afternoon. I think it's afternoon to our change of shift press conference for the off going flight team and with us is Tommy Holloway, flight director for the ascent/entry flight control team and he'll tell you about the proceeding, however many hours on his shift and what happened. Tommy?

HOLLOWAY Good afternoon ladies and gentlemen. It's a pleasure to be here. First of all I'm very pleased with the progress of the Shuttle 5 flight. At this point in the flight we're doing exceptionally well. The crew is performing exceptionally well and I believe the record will bear out at this point we're accomplishing 100 percent of our objectives and are doing exceptionally well. I would summarize the vehicle as being the best we have ever had and I'm hopeful that that's what we have to look forward to as the Shuttle program goes on. So at this point in the program the flight crews status is also the same; exceptional. All of the crewman are doing well today. We have had 2 private medical conferences this morning. The first one was at 2 days 19 hours 5 minutes over Orroral Valley, the second one was at 3 days 4 hours 58 minutes over Hawaii just a few minutes ago. Bill Lenoir reports that he is doing better every hour and he thought he was at 100 percent this morning so I presume that he is at a 105 now and we're really looking forward to the opportunity to do the EVA tomorrow. In terms of the kinds of things you like to ask about as it relates to medication and episodes with adapting to spaceflight, there has been no changes since Dr. Pool briefed you last evening and the day before and what I mean by that that there has been no further incidences of adaptation problems nor have there been any further medication taken by any of the crewman. As you know because we were interested in providing the opportunity to provide 100 percent crewman when we performed the EVA, we've delayed that till tomorrow. We expect that EVA going outside at least, start time tomorrow will be in elapsed time for 4 days 0 hours and 30 minutes. That 6:50 eastern standard time so you are going to have to get up early. I got up last night at 11:00 pm so that's going to be a problem for me but for some of you it might be. In terms of the - what has gone on today, we have executed the 6 hours of the flight plan that was scheduled on flight day 5, that's tomorrow. We're executing it today so we can take the same 6 hours and do the EVA tomorrow. Some of those things include an aft RCS thermal engine soakback burn that has been successfully completed. FCS checkout where we checkout the health - and status of the Columbia and I'm glad to report that the Columbia systems as it relates to the entry, flight control system is 100 percent. We found absolutely no anomalies and we anticipate it will stay that way. Additionally, we stowed the radiators today and they will remain stowed until we get on the ground. We successfully performed the inflight maintenance to trade the cables, swap the cables of DEU 4 and DEU 2 and have successfully regained the use of the pilot CRT. Probably at this

time we are checking out that CRT but it is already functioning and I'm 100 percent confident or at least 99.9 and that's pretty - that the kind of probabilities we like in the space business that the CRT is functioning at this time. We have accomplished some student experiments today. The convection current experiment and the young man who is responsible for that, in fact, is in the room today and if you would like to talk to him at a later time I'm sure he'd be happy to do that. The - we conducted an inspection of the vent system to see where we think the water is coming from that's collecting on the floor and believe it's simply a reaction to a clamp that's on a tube a vent tube of cold - of that vent getting cold and moisture collecting in the area. Additionally we performed a minus 2 COAS CAL a few minutes ago about an hour ago and calibrated the minus 2 COAS. That's the one that looks perpendicular out the top of the vehicle. Earlier today last evening we experienced a power failure over in the control center. I will briefly describe that for you since there is a couple of you I'm sure are interested in it. We have 4 power busses in the control center that provide power for the various equipments around the building. They're called A1, A2, B1, and B2. Well A1 last night experienced a short at the interface in a filter and that short had no impact on the remaining three busses. But as fate might have it, the computer that we were using to drive the control center systems were on that particular bus at the time and we lost the mock for a period of time which ended up costing us or not costing us anything. We were not able to monitor the spaceship Columbia over Dakar and Madrid for 2 passes. Very shortly after those passes, we recovered the system and played the data back off of the range into the system and looked at the data in realtime and playback. Since that time, the control center maintenance people have been going about their business of regaining the integrity of the system over in the control center and at this time, or very shortly we will be back to status where we have redundant busses and redundant systems operating in the control center. Now in anticipation of a question that you might have, I will - I would like to talk briefly about what would have happened had this been a critical phase of the flight and at which time we would have had what we call a dynamic standby computer online for us to fail over to should we have a failure such as this. Our DSC, our dynamic standby computer is online during periods that we consider critical. For example, during launch on Thursday, during the deploy activities on Thursday and Friday when we thought that the situation might be critical to the operation and or the flight safety of the vehicle we have both of these machines operating. Of course last evening we don't consider that flight critical and did not have those standby computers - standby computer operating. The - had we had the standby computer over online, the failure would not have impacted our operation at all and as a matter of fact if it had failed over, we would have switched over to that computer and continued with almost normal operations. Maybe a few seconds or minutes at the

most of dropout so if one of your questions is what would have happened if it happened during entry or launch the answer is absolutely nothing. Again in summary of where we are today, I think we could all look at the record of what has happened on STS-5 and be extremely proud of the confidence, the maturity of both the vehicle and the people, the flight crew, the flight control team and all that is involved in this flight and I'm extremely happy for the progress to date and I'm anticipating that it will remain that way till and after we land. With that, I'll open up with any questions.

PAO Okay, we'll take questions here at JSC, Wayne, back here in the back and then we'll move to the other centers.

DELCEFINO (KTRH) The thing I'm curious about is the fire or power outage or electrical short in the aluminum wiring, happened at 8:52 last night and there was no mention of it in the transcripts or over the audio boxes or in fact even the folks in the PAO office weren't informed of it until a little after 10 minutes after 10 which is a difference of about an hour and 20 minutes. I'm curious why it took so long to - I'm sure it was noticed in mission control I mean when all the screens go blank and the tracking map disappears one would expect that someone might notice it and I'm kinda curious as to what was the reason for the delay and notifying us.

NESBITT Wayne, I think that was probably our question rather than Tommy's since we would be the ones - we had somebody over there that was naturally would have noticed if the screens went out. And I don't know the answer to that but we can certainly ask John Lawrence who was on duty at the time, when he wakes up. But he - at the present time I don't have an answer for you on that. We can try and get one if anybody in the news room knows but I know you've been asking around already. I personally don't know the answer but we'll try and find one for you.

DOLCEFINO Even the folks in the public affairs office had made inquiries of it as long as half an hour - 45 minutes after it occurred and even they had not been told and I'm sort of interested why one PAO officer wouldn't tell other PAO officers of the rather significant problem and the other thing I'm curious about is to whether or not the crew was notified at all about the power failure and the fact that there was problems with tracking - whether or not there was any notice to them at all up in the ship and also one other question as to whether or not the fire department, the city fire marshalls been out this morning to look at the wiring.

PAO Want to play that back or what?

HOLLOWAY That was several questions. First of all, I believe the crew was officially asleep at the time. There was no need to notify the crew that, the Columbia has it's own system of fault detection onboard as your're familiar with. And, being without the capability to monitor for short periods of time, in terms of our concern is no different than being between two stations that are an hour or an hour and half apart. So, I think you're really in terms of our concern in the control center, assuming, and I have not in detail talked to Gary Cohen who was on that particular time. But, I'm sure that if he was told that the system would be back in an hour or so, as it was, that he would not have a great deal of concern. That's not a lot different from having a station pass from Santiago to Santiago, an hour and a half without any contact. So, in terms of the overall operation, I wouldn't get excited about that kind of failure during the time frame that we had it. Assuming that the people who are responsible for the control center facilities were telling me they were going to have it back in a reasonable amount of time. Now relative to your last question, I don't know who the city fire marshall is in this area. But we do have our own fire people and we do have our own facility people, and certainly they've been involved and I think our fire marshall was over in the control center during that period.

PAO George Alexander, right here behind you Bill. No up there in the Blue, oh you're over there, I'm sorry.

ALEXANDER Tommy, two questions. One, why doesn't the system automatically kick over to the second bus? You know hospitals have that kind of a, police stations have that kind of a system that kicks on to a secondary bus, when you have a short like that.

HOLLOWAY Well, first of all, we have a computer that is operating and it has to be continuously powered. Now the way we take care of our redundancy when we feel like we must have it, is that we have this dynamic stand by computer on, and we would have switched over instantly to it. But when the power went down, we lost the computers. So, at that point, it takes a certain amount of time to regain the power and re-IPL a new computer and get everything back up. So that's just the way we implement our operations during non-critical time frame, and we feel that that's an adequate way of doing business. Course the control center equipments are distributed across all four buses during these non-critical periods.

ALEXANDER My second question has to do with Bill Lenoir, can you tell us has he eaten a full breakfast today, or has he eaten

the last few meal periods have been scheduled in the CAP? Has he eaten full meals?

HOLLOWAY I can tell you that he has reported to us that he is eating well, and he feels like he's hungry, and he's progressing well with his meals. Now as far as the details of whether he ate all of the food that Rita puts onboard I really don't know, and am not concerned whether he did or did not. The primary, important thing is that he is hungry and he's eating as much as he wants to eat, and feels comfortable with his situation.

PAO John Wilford.

WILFORD This is a question for the Public Affairs Office. Mr. Holloway's done a commendable job anticipating our questions today. Why did the Public Affairs Office not do likewise, they had about 12 hours to find out why nothing was said about this incident for more than an hour. I think we need an answer to that.

PAO Alright, I was only aware that there was that time gap just before I walked in the room here. And, I don't know whether anybody in the newsroom knows the answer to that question or not. We did make an effort during the course of my shift over there to get the details of that information over here, but as to the time lag between when that occurred and when it was reported by our person on the console I was not aware of that until just before coming in here. And, did not have a chance to talk to anybody about it. We can certainly try and find that out right after the press conference if you like. Okay, Morton Dean, over here.

DEAN If Lenoir is not feeling well tomorrow, what is the plan? Do you go ahead with Joe Allen out alone? Do you extend the mission a day or what?

HOLLOWAY Well first of all, we are absolutely confident that Bill's going to be feeling better tomorrow. There are a couple of options relative to what we might do if he's not. And really I have not been worrying about that much today, and have not worked it with the NASA management. Those options are, that we could cancel the EVA, or we could do an EVA where Bill stays in the airlock and Joe goes outside. Whether we would elect to do the last level of activity or not would, those kind of decisions would be made when we need to make them and right now, no reason to believe that I need to worry about that.

DEAN Tommy, wouldn't the decision on that be made by now? You've been wrestling with that for the past couple of days.

HOLLOWAY Well, you know, we really don't want to do a one man EVA. So, it's a difficult thing to decide to do, and we are confident that we are able to do a two man EVA and we just haven't nailed that one down.

PAO Craig Covalt, right behind you.

COVALT Tommy, when you had your outage last night, did Goddard change it's operational mode to any extend? Or did JSC and Goddard have a little different relationship between that during that period that you were out at the MOCR?

HOLLOWAY Not that I know of.

PAO Olive, sorry Craig.

COVALT And a second question. Overall going into the flight they were going to do some work in terms of airborne tests in order to not have to do the same tests on the ground at KSC for re-flight again. Have they done any such tests and can you describe a couple three of those.

HOLLOWAY Are you talking about tests in the Columbia itself?

COVALT I know Columbia's going to be down for several months here, but there was the idea of going into this flight I believe to do some airborne tests to prevent retest at KSC.

HOLLOWAY Well, as a matter of fact, we do that. We have been doing that routinely for a couple of three flights. And I have forgotten whether we started on 3 or 2, or when. Throughout we call it step by the way. And that's an acronym in which I forget what it stands for. But, we've got lots of acronyms. We do a number of things throughout the flight. For example, we switch pressure control systems to verify that the second system will operate in the actual zero-g and zero-vacuum outside during actual flight. That has been done, it was done yesterday. We switched the ECLS components and make sure the other components are going to operate. On entry day, we're going to do some switching and some of our flash evaporator systems. And check out some of the systems that normally would not be required because of the backup systems, so to speak. Now in terms of a total summary of what all is done in flight, Craig, I can't give you that, I hope that satisfies your intent, and if you'd like an entire list I can get the flight control team to gather it up for you.

PAO Olive Talley right here, there you go.

TALLEY Tommy, just for clarification please, would you review the relationship between Goddard and the Johnson Space Center in light of this fire because I was told once this morning

that Goddard can assume all of that control and communications. If JSC gets knocked out, and then I was told later that it can assume some, but not all. One, did Goddard assume any communications control during the fire, and secondly, can they assume total communications in case of a problem at JSC, and if not, how much can they take over?

HOLLOWAY Okay, let me answer that question this way. Goddard is the heart of our communications network. That is one of their primary responsibilities in the agencies to put together the network and to run the network and to manage the network. As such data that comes to JSC is routed through Goddard, it's a switching network that sends data to the write place and then we have interface with them. They are the managers of the network. Now, in real time, the people in the control center, called ground controllers, I call them GC's when I talk to them, are the people who manage the network for me while we're operating, now in terms of your questions on what Goddard can do and can't do. Basically, we have at Goddard what we call an emergency control center capability or have had in the past, and if we had a significant problem in Houston such as a hurricane, or a major problem we could go to Goddard and effect the safe return of the Shuttle. But, there is no capability, nor has there ever been as far as I know, to operate for extended periods, out of the Goddard facilities.

PAO Okay, back here in the back.

DOUG MILLER (KTRH) Just a couple of questions, first of all for clarification, once again, how long was your power outage and during that time were you in affect out of touch with Columbia?

HOLLOWAY To answer your question about the power outage it depends upon what you mean. We brought the equipment back up in stages. Some of it came up very quickly, some took a little longer. And in terms of the redundancy we just now regained all of our redundancy or are about to regain it, and I'm not sure - for example, our computer, driven displays, I'm told were down 20 minutes, our loss of time displays were down an hour. Our loss of our 10 by 20 plot board, that's the big plot board up in front of the room that has the world ground track going, it was down for 3 1/2 hours. So if that gives you an idea - that's the kind of thing we're talking about. As far as our ability to talk to the vehicle, I presume, and that's an assumption, that we were unable - had we needed to talk to the crew we would have been unable to talk to them at Dakar and Madrid. But the crew was asleep and we don't talk to them while they're asleep anyway.

PAO Okay, Right here Pat Dolin.

DOLIN Has the routine for the EVA been changed in any way as a result of the day's delay? That's number 1. Number 2 - will space sickness be more of a problem on future flights when EVA activities may be lengthier and more complex?

HOLLOWAY Well, the routine for the STS-5 EVA is identical. We expect to do the scheduled plan tomorrow and I don't anticipate any changes at all. Your second question, relative to the space adaptation problem, space sickness, if you prefer to use that name. We have to come to grips with the fact that some guys - folks I should say, ladies are included too, or maybe they will be different. We'll have to wait and see. Do have these problems and therefore we have to be prepared to deal with them and I hope, I don't hope, I'm confident, that we will develop a routine and satisfactory method of dealing with this phenomena and eventually we will solve the problem and not have it. Now when? We'll have to wait.

PAO Paul Recer

RECER You mentioned the options associated with Lenoir not being able to proceed with the EVA. One was going out with Allen alone or cancelling the EVA. They mentioned last night a third option, that of extending the mission by one day to allow him more recovery time. Is that still a viable option? Is that still under consideration.

HOLLOWAY That is an option that is technically possible. There's a lot of things that have to be considered and I'm going to be wishy washy on this answer, by the way. There are a lot of things that have to be considered when you decide to extend a day. You have to think about the weather, you have to think about the status of the vehicle, and you have to think about schedules. There is not any plans to extend the flight at this

time to accomplish the EVA. And we're not making any plans to do that. Now we reserve the right to change our mind.

PAO Paul, you had a follow up?

RECER Yeah. The follow up is about the weather. How does it look at this point in time for landing on Tuesday? You have any guess?

HOLLOWAY Well if Dick Solly was here he would tell you that predicting weather is difficult sometime. But right now, if he delivers what he told me the weather was going to be this next Tuesday I will be delighted. He is predicting that the weather will be good at Edwards. Perhaps a little touchy at Northrup Strip and will be good at KSC. and if we get 2 out of 3, I will be delighted.

PAO Mark Kramer

KRAMER Tom, I'm told that if you were to extend the mission by 1 day to accomplish the EVA, that would mean that your landing would - there is no landing opportunity at Edwards for the extension.

HOLLOWAY You're almost right

KRAMER It's a night time landing. If you can't land at your primary landing time you've got to go around 24 hours?

HOLLOWAY Not quite. I'll review that briefly for you. If we - we've just taken an opportunity that came to us during the flight to improve our lighting a little bit at the end of mission we just changed the orientation of a couple of the thermal test burns this afternoon. When we land on flight day 6 we're going to land about minus 6 minutes - plus 6 minutes after sunrise instead of about sunrise. So we'll be landing a few minutes later than what we've been advertising, simply to get a little better lighting conditions. Additionally, we do have an opportunity to land at Edwards on plus 1 day. It has been there from the beginning in the plan. What we do not have and what you're referring to, we do not have an ability to land plus 1 day - 2 days at Edwards. So if for weather reasons or whatever, we were required to go in - to wait 2 days, we would be looking at landing either at Northrup Strip or at KSC.

KRAMER Is that a major factor in your not really wanting to extend to accomplish the EVA?

HOLLOWAY Relative to the EVA. Well, I think one of the considerations is that you'd like your extension possibilities open to deal with weather or other problems. I have a certain set of criteria which I will not deorbit for because I'd rather

wait a day. And I'd like to keep those options open to me rather than using them to extend the flight.

KRAMER So what is the landing time as you see it now for a normal end of mission.

HOLLOWAY 4 or 5 minutes later than it was preflight.

PAO Louie Alexander. Right here.

ALEXANDER Has there been a power outage previously during a mission and if so, was the DSE online.

HOLLOWAY Shucks, I don't know. Haven't been while I was over there. Of course, I've only worked there as of - well, I've been over there a lot in the last 20 years. I started to give you some data on how long I've been a flight director, but I don't ever remember that occurring on an occasion when I was in the control center, but I don't have the history of that.

PAO Okay. You had - yeah, you've been having your hand up for awhile. Back over here in the corner. Make you run all over.

JAMES WILKONSON (BBC) It's still not clear in my mind, I think it's because you haven't said it, exactly how long were you out of touch with Columbia during the power outage?

HOLLOWAY I don't know the answer to that question. I know we missed 2 station passes, but, you know we had a station pass here and we had one here, and we had 2 in the middle, and we missed the 2 in the middle, and how long it was from point A to point B, I don't know, but if you'll tell my friends over at the Control Center that I want an answer to that, I'll give it to you as I'm leaving.

PAO Okay. We'll take one more here and then we'll go to see if we have other centers. Craig Colvalt, and then we'll come back to JSC after the other centers.

CRAIG COVALT Tommy, my question concerns the burns which you just made reference to. You did do one this morning, correct? And you have another this afternoon. And describe how you set the 2nd one up to help you a bit more with your lighting on Tuesday.

HOLLOWAY Okay. This afternoon, we have 5 burns scheduled 30 minutes apart, and it sounds like you're familiar with those. 3 of those burns were already retrograde, numbers 1, 2, and 4 were retrograde and numbers 3 and 5, and that's just the order of sequence, were out of plane. Now, what we did was move numbers 3 and 5 posigrade and effectively increased our period of

the orbit, the time it takes to go around the world, for the next few days and change the conditions at the end of mission. Now, we have an interesting thing going on. We make lighting better and cross range gets bigger and we're carefully watching cross range to make sure it doesn't get too big while taking advantage of obtaining as much good lighting as we can. And the reason we're concerned about this business preflight was, and didn't make the lighting even better by doing similar things, was because of the concern about cross range.

PAO Okay. I think we'll go to... I think we have a question at Marshall, or one or more questions at Marshall, then we'll check around at the other centers.

DAVE DOOLING (HUNTSVILLE TIMES) Tommy, have there been any even minor anomalies in Columbia's subsystems since yesterday?

HOLLOWAY Not since yesterday. The only anomaly that I would consider of significance was the one of the CRT on launch day.

DAVE DOOLING Okay. Since I don't have access to him up here, could you briefly get Scott Thomas up there to describe what was seen in his experiment or could you describe how it went?

HOLLOWAY I'd prefer that we let him do that right after this press conference is complete.

DAVE DOOLING Tommy, that's my problem. I don't have access to him up here in Huntsville.

PAO Can you arrange that?

PAO Okay. I was trying to hear whether we had questions and I missed what that one was about.

HOLLOWAY He would like to talk to Scott and if you can arrange that...

PAO I don't think there's anything we can do about it. Dave, we'll just have to have you call him up on the phone I think.

DOOLING Okay, no further questions from Marshall.

PAO Okay. I understand there's no further questions at other NASA centers. We'll just come back and finish up here. Olive Talley.

OLIVE TALLEY Are there any plans to tell the crewmembers about the power outage?

STS-5 CHANGE-OF-SHIFT BRIEFING p008jc 11/14/82 12:00 pm PAGE 5

HOLLOWAY Have I told them or will I...

TALLEY Let me rephrase that. Have you told them anything about it and are there any plans to tell them about it?

HOLLOWAY No and No. There's really no need to tell them about it. Everything is back in business. It has not impacted their operation one bit and we're pressing on and all is well.

PAO Okay. Right...

If you had to extend the mission, how long could the mission be extended at maximum considering your consumables and so on?

HALLOWAY If, under normal circumstances, we can comfortably extend the flight 2 days and I shouldn't say anymore than that because I don't have the data, but I know that we have 2 days and that's what I require from all of my subsystems engineers and I'm very comfortable with that amount of time so I really don't know what the maximum might be.

TALLEY Would you extend beyond, beyond the ...would you go to 2 days beyond the regularly scheduled mission?

HALLOWAY I'm not sure in what respect you're getting at. Normally, we're going to deorbit on Tuesday like we planned and we're going to land at Edwards 4 or 5 minutes after sunrise and STS-5 will be complete and we'll get on with getting ready to fly another flight.

TALLEY For the EVA though?

HALLOWAY For the EVA, we have no plans to extend the flight to accomplish the EVA. We expect to do it tomorrow, Monday, and deorbit on Tuesday.

PAO Okay. There you go. John.

JOHN BISNEY (RCL) And I just have sort of a policy question for you which is, last flight they weren't told about the SRB's falling into the ocean. This flight, you're not telling them about the power outage, but you'll tell them football scores. Why can't they know this sort of stuff. You afraid they're going to get nervous or what?

PAO We just do the interesting stuff.

HALLOWAY Back on the control center power outage, the crew was not told because it does not impact their operation at all. Did not affect them. We do not expect that it will affect them, and there's absolutely nothing they can do about it. It does not affect how they would op... (garble) and there's nothing they can

do about it. It doesn't affect how they operate nor the diligence of which they go about their business and so we just don't tell them about it. Relative to your question about the SRB's. I'm not confident that we didn't tell the STS-4 crew about the SRB's sometime during the flight. But again, if we didn't, my answer to your question would be the same. It does not affect them and postflight, if they're interested, they'll have more than an ample opportunity to find out about it. And, frankly, I doubt if the crew would be interested in a power outage in the control center that lasted the duration of this one.

PAO Okay. Right back here.

Surely, there's some sort of a rough idea as to how long the pass, Dakar, Madrid, we're trying to get some rough idea of how long you would have been out of touch with the Columbia.

HALLOWAY We'll give you more than a rough idea. We'll give you the facts as soon as I get them.

PAO Okay. Do we have any other questions? Okay. John Lawrence was the guilty party involved here. We weren't able to reach him in time to tell him not to come in and he showed up in case you do have a question about the notifications over (garble). And also, for everybody except Dave Dooling in Huntsville, Scott Thomas will be available for interviews afterward and Dave, that just goes to show where you ought to cover the mission from.

LAWRENCE Let me just see if I can answer some of the questions before they get started by saying that as soon as the power outage occurred, my first act was to understand it, try to understand it real well which means understanding whether or not we'd lost comm with the vehicle or whether we had data, whether we had command capability because I've worked with you people enough to know not to make an announcement prematurely before it's understood real well and before we've got the answers to those obvious questions that are going to come immediately. From the time the power outage occurred to the time I made the announcement, I got in touch with the Flight Director with the flight controllers with the Flight Operations Directorate, our representative in the control center, with the Director of Public Affairs at JSC and to assure that the Director of Center Operations was aware and just to make sure that we were all speaking with the same voice and that we understood completely and comprehensively what the nature of the problem was to anticipate those kinds of questions. And as soon as I understood

that real well, I drafted up the announcement which was broadcast at Mission Elapsed Time 2 days, 15 hours, 52 minutes and that's as quick as I could get it to you with confidence in it. Yes sir John, (garble).

But there are cases, there have been cases in the past where an anomaly develops on a spacecraft or something untoward happens and it comes pretty much live, that we know there's a problem before you know what the problem is or how to fix it or how extensive it is. Why was this an exception that general policy by NASA?

LAWRENCE I think the general policy is to give you maximum information as quickly as we could. That was the maximum information I could get to you as quickly as I could get it to you. I'm not going to go out with imperfect information at a time when it's not completely understood, while we don't completely understand the dimensions or the potential impact of it.

Granted, but screens went blank in Mission Control. You knew that. Right? Why could you have said the screens have gone blank in Mission Control and we're the problem.

LAWRENCE Because you're going to ask me, right away, you're going to say well what does that mean? What impact does that have on the mission, and for me to stand at that point and say well I don't know what the impact on the mission's going to be is not going to be very comforting for you or for me or for any of the participants. My first reaction is to understand what's going on so I can help you understand what's going on.

When Apollo 13 had its explosion, we didn't know immediately what the impact that was on the mission, but we were told immediately that there was a problem in the spacecraft.

LAWRENCE Well you were told at 2 days, 15 hours, 52 minutes, and now 9 hours later the question comes from you. I fail to see your sense of urgency when...

I really have no great sense of urgency, but I do not like to feel that this is going to be the policy of NASA on cases that may be embarrassing or untoward. That's all.

LAWRENCE If there were any indication it would have been embarrassing or untoward, it would have gotten to you more quickly. I can only tell you again that I'm not going to go out with partial information and at a time like that, naturally the flight controller's attentions are rather passionately directed to other areas and it's a real interesting challenge some times to get people's attention and tell them, hey, I got to tell the

press what's going on. And, granted, Jeess, it took longer than I would have liked it to have taken, but that was as quick as I could get it out.

PAO Wayne Dolcefino.

WAYNE DOLCEFINO John, 2 questions. First of all, understanding that you're here now 9 hours later, but the flight briefing that's held in the middle of the night, whether or not everyone would show up, if it was going to be ever held, but that was cancelled over the PAO audio because of the explanation here and it was after the power failure report because there was static over night and there was nothing to talk about and that was hours after a power failure that had some parts of the Mission Control out for 3 hours. Now, if that means that everything was static, that's what the problem here is. Now we should have had a briefing in the middle of the night to get that explanation then, so we wouldn't have to wait 9 hours because, not even John McLeaish knew 2 hours ago that there had been a fire or a power failure. Like, that's the problem we're having here. And also an hour and 10 minute difference. The second question I have, and the first was more of a statement than a question, but the second question I have is whether or not you got the impression that there was any concern because we've been led to believe by Tommy that it was like no big deal, even though all the screens were out and the tracking maps. And why, in that particular instance again, and I think this is the problem we have, why you'd have to spend an hour and 10 minutes getting the story straight unless there was some concern about exactly what was lost and what wasn't.

LAWRENCE To respond to your first statement. The press conference this morning was cancelled, I would guess without looking, about 2 hours after the power outage incident occurred and when I cancelled the press conference, I called the news center here, found out there were no newsmen hanging around. I announced the cancellation of the press conference about an hour and 1/2 ahead of time so if there was any interest or anybody wanted a press conference, there was ample opportunity to come into the news center and to say that we want to talk to the Flight Director, INCO, or somebody.

STALL Let me respond. I think that's right. As a matter of fact all the clock lines went out in the press working area, Wayne. Anybody working there would have seen it immediately and apparently nobody was. As soon as I learned of the event, I talked to John, he got his announcement out within about 12 minutes from the time I talked to him and he's quite right. If you, if that announcement was important, the timing of it being 50 or 45 minutes later than you thought it should have been, it would have had no impact on our having a briefing that was

scheduled and was later cancelled. We cancelled it because nobody was interested. The announcement had already gone out.

Granted, we could have advised you that the displays had gone down a little earlier if, in fact, the mission commentator hadn't been personally and intimately involved in that thing and had been dispassionately sitting aside and watching it as he does with the flight in progress, you probably would have gotten it that way, but since the information provided to him is essential to what he does in reporting, it would have been better perhaps if I had had two men on the console at that time so one could go shag the story and one could tell you that we were shagging it. It's unfortunate, we apologize for it, and it should have been quicker and, but there's nothing, I think cynical about it. It was just a little longer than we'd like for it to have been.

LAWRENCE The second part of that was there was no apparent sense of alarm in the control center which doesn't necessarily mean there's always no apparent sense of alarm. Underline those impressions so to see the flight directors sitting there calmly.

STALL I think we ought to clear up one other thing to. We didn't lose communication with the spacecraft. The capability to uplink commands was impaired. We had no communications problems and the crew was asleep. We don't wake them up to tell them, "there's no problem, but just in case you hear about it when you get on the ground, there wasn't a problem fellow." That's why they weren't informed. Why wake them up to tell them there's no problem and there really wasn't any concern.

NESBITT Here's a couple of figures here that Terry White called over from the console on the time you wanted to know the total time covered between the time that they could have actually talked to them had there been ground station coverage and all that sort of thing. Lost 10 minutes and 23 seconds of ground station pass coverage in which they would have had an opportunity to give the data had the capability been there. And there was always voice capability, never lost voice capability. There was 1 hour and 19 minutes of data processing capability was out and 2 hours and 20 minutes total window which I assume - assume means everything involved from the earliest time to the latest time. Morton you don't have any more?

PAO Okay, Mark

KRAMER Hal, I have a question based on what John said a little while ago. I'm a little disturbed because I think other representatives of the press would probably agree. We prefer to have a fast word that somethings wrong in (garble) later and I hope that will be the policy ...

STALL That is our policy. I think it was just an artifact of the situation. John was part of the story and it's hard for him to step back from the story and report on it and get back into the story in that sense, Mark and as I say it was unfortunate and it would probably have been different had we had another guy who could be reporting on his story and that's really I think what accounts for the time delay more than anything else.

PAO Lynn Sherr

STALL But he did get it out.

SHERR Just getting back to the story itself for a moment, could you go through just chronologically John or Harold or whoever, exactly what happened when it happened and what we were missing at that point. You just said that we didn't really lose communication with Columbia.

STALL I don't know that any one of the three of us could tell you in all it's technical glory what happened. At 8:52, according to the records, the power failure, the partial power failure, if you will, occurred and that was restored at 10:12 pm central. Now in the intervening period, there was a time, and it could have been the whole period or some part of the time, that these things happened: Some of the displays went down in the mission control center which included the clock lines and some of the data displays. And we lost our capability to uplink commands from MCC to the spacecraft. NASA did not lose it's capability to uplink commands if such were needed and none were. There may have been - if this had gone on longer we may have wanted to have Goddard uplink a command to avoid any unnecessary crew wakeup alarm but that wasn't the case. So in essence, andx as far as data coming down from the spacecraft, it was coming down to the ground stations. It just was not being displayed in mission control center and the moc wasn't getting that data. The assessment of the problem was made pretty fast by the people who looked at the problem and they felt they would be back online within an hour or so and that assessment being made than there was nothing critical going on in the mission and people felt comfortable with waiting for that to happen and bring that computer back online. They got the data back from the ground stations and tracking stations. They got it, had a look at it, no anomalies and everything was back online so there really as John just characterized that I think there was no alarm. It was one of those things that was an annoyance.

SHERR And Harold, I could again, the fire, what kind of fire were we talking about?

DRAUGHON Well fire is technically correct. I think we should characterize it by saying that whatever was flaming if they were in fact flames was simply insulation on some cables in a cable vault on the first floor of the mission control center building. Back in the northwest corner near the freight elevator. It was mostly smoke, a lot of heat from overheating because of that short to ground.

SHERR Any reason for the flames or for the smoke ...

STALL Well, they will do an analysis of that. As much as they know right now they had a short, short to ground in a splice where that power comes into the building and that was apparently an aluminum to copper splice. Whether that has anything significance I can't say. Another question?

NESBITT No, I'm sorry, you go ahead and do it ...

Steve, there was something you said about when you read the information from Terry that they did have voice

capability. That confuses me a little bit. Who had voice capability?

LAWRENCE Not voice from Houston I think but voice - not - I don't think they retained voice from Houston but had voice from the other stations.

NESBITT I don't know ...

I don't understand that.

STALL My understanding is that we did have voice communications during that time. Now I may have made an improper assumption, John, that we had communications from Houston, and if we did not I'd be glad to check that for you and we'll be sure. My understanding of that when I came up here is that we had the capability for voice capability if we needed it. Of course we weren't communicating with it.

NESBITT That's what Terry just relayed to us is that at all times we had voice uplink capability, assuming we would be over a ground station. Apparently it's some separate deal you know, we use S-band and UHF and this - the voice is generally UHF.

But earlier, Holloway was saying that you had loss of capability at Dakar and Madrid. I don't know what you mean by loss of capability now.

STALL We'd have to ask Tommy about that.

NESBITT I'm not sure of the distinction there.

I'm not either.

STALL Communications sometimes is one of those words that's ambidextrous. In the engineers mind he's communicating with a data stream in the telemetry and in our mind we're talking about words passing between people and I think that may have been part of the problem. Certainly we had that interruption in the data stream, uplink from MCC to the spacecraft during that time period. However, there was nothing in the mission to require it, there was nothing planned for it and we had no reason to need it so that's why it was not a cause of alarm. And we had the backup at Goddard if we needed to do that.

RECER This is the second day we had an incident similar to this regarding release of information and I wondering if you could state for us exactly what your policy is in the timely release of information when an anomaly occurs man or machine on earth or space?

STALL I think our policy is pretty well established and we work pretty hard to maintain it and that is we tell you what we know when we know it. We abstain from speculating on what we think might be the case when we don't know that to be the case. Certainly the public affairs people do. Now in the case of an expert who is paid to speculate on the matter, that's why we give you the experts, Paul.

Then are you saying that incident last night with the power outage just did not precisely follow that policy?

I think we'd call that a PAO anomaly, yes.

NESBITT Well, if we're all reasonably satisfied, haven't anything else to say. Call an end to that.

END OF TAPE

PAO Good evening. Thanks for coming again, and tonight we have Orbital Flight Team Director Dr. John Cox, with him is John Cools, from our Mission Control Center operations sections to talk about burning buses and that sort of thing. John why don't you run down through the Flight Director log there, and then we'll go to questions unless John Cools has something he wants to discuss.

COX Okay. This afternoon's shift was a little shorter than usual, since we ended up staying a little bit past the crew's sleep time. Shift scheduled (garble) set up assuming the EVA today, and so our portion would end up normally being a little bit shorter. The prime thing we did on the shift was completed the LTU burn sequence, it was a thermal test where we fired the upper (garble) of the jet on the left OMS pod 5 times, 30 seconds apart. Test went quickly, we had figured that test so accurately that I think we ended up with a total of four pounds out of 1400 difference in our pre-test computations and those that we actually achieved. We took a look at the aft station COAS CAL data, the COAS CAL was added due to the problem we had earlier in the flight with the dirty windows we used a brighter star and it looked like that COAS CAL worked super so that COAS calibrator was both forward station and the aft station and both of them seemed to be very good. The analysis isn't all completed on the aft station cal yet. We did some more of the PAM ASE thermal test where we looked to see what the thermal environment is inside the closed shields of the two payloads and they seem to be holding well, heaters are working well so that again verifies that the design of McDonnell Douglas's provided us for deploying these payloads. And as you understand one of those is going to be reused again on flight 7, I think the other one is planned to be turned around and used again on flight 8 or sometime real soon. So, everybody's keeping a watchful eye and seeing how well those are doing. The heater anomaly we had seen on GFR4D earlier in the flight which appeared to be a heater system failed off, is probably some sort of thermostat problem or something we don't quite understand it, but right now the heater's failed on and it just so happens we're in a cold attitude for that jet and you'd want a 100 percent duty cycle and lo and behold that's what we're getting, the failed on heater, we can turn it off with a switch so there is no concern and it seems to be holding the temperature's nicely for us, if you can have your failures that's the way to have them. We got a sponge growth started today right on schedule, I think we saw a little TV of that. I think earlier today you saw the convection experiment and talked to the investigator there so I won't cover any of those topics. We had experienced a problem yesterday with the communications unit for the wireless headset, this is the unit that plugs into the wall and interfaces with a transmitting device on the crewman. It was with the commander's we had a problem with it yesterday and it looks like it failed hard today, and we had no communications, so he has switched to

the backup unit that we have carried, designated as unit E, and everything seems to be working fine on that, and we don't have any idea what caused the problem, but it seems right now to be working fine with the back up. We reported on the DEU swap out this morning that worked fine, COT seems to be fine and the crew had not completed the checkout of the CRT but it was in process, just prior to going to sleep and we didn't get any report back from them, so I assume it all went well. As reported by Tommy earlier the crew health is super, they're all in good shape. There have been no extra PMCs or no additional PMCs since Tommy's briefing so there is no new information to report in that area. We are planning to press on with the EVA as planned tomorrow morning. I have a few comments, the ANIK or apogee motor firing has been delayed until noon Tuesday and I don't think there's anything special about the fact that it's delayed, they have optional orbits that can go on and that's the time that their picking. The SBS folks, you know did their apogee firing yesterday and tomorrow they'll be deploying the solar panels and the antennas and that all seems to be going on schedule. We've taken a look a little bit at the entry weather conditions. For the nominal end of mission again, it's looking pretty good, all sites which are not in really super shape but acceptable shape were all but CONUS sites, KSC, Northrup and Edwards for the nominal end of mission and probably end of mission plus one. The only concern is that will be Edwards and Northrup's sites, there may be some high clouds, we don't expect that to be a problem though. Talking in the order of 20 to 25 thousand foot conditions, but that all seems to be probably in the ball park of good. The winds all seem to be reasonably mild in the order of 10 knots predicted for end of mission of mission plus one. If we had to do a landing tomorrow we would have some marginal conditions at the Cape, probably some high winds. There is some frontal activity expected to give us some problems, but other than that things are looking pretty good there. We did take a look today since we did the LTU burn sequence. The LTU burn sequence is used to set up our entry conditions. Those are actually test burns that we fire in the direction to be most favorable for achieving entry conditions and I have some quick numbers on those. The first we've run for nominal end of mission burn times and landing times. For Edwards the nominal end of mission time for landing would be 5 days 2 hours 14 minutes and 47 seconds. And you notice that's about 5 minutes later than originally predicted. What they did with the adjustments that we did in the LTU burn sequence today gave us about 7 more minutes of lighting after sunrise, so it's a little bit better condition there. The deorbit rev will be rev 81, the delta V required will be 268 ft per second with about a 580 nautical mile crossrange. And the deorbit TIG would be 5 days 11 hour 17 minutes and 2 seconds. For those who want some additional information I have the Northrup, the KSC, and the end of mission day one and day two conditions. We will, if we do not do the deorbit burn, on the end of mission day, we will require a burn done at apogee of that

deorbit rev, we're working right now to find out what would be the magnitude of that adjust burn, but it's probably somewhere on the order of 40 ft per second, and that will be in an effort to help approve cross wind conditions for end of mission plus one, and end of mission plus two, both of those two days are on the higher end of the crosswind scales. As far as the power problems in Bldg. 30, we all seem to be reasonably stable since the big hit earlier, or yesterday, late last night. The system is up and running and it's been up and running all day long, we're tired on a single string type basis. The A bus was reported earlier, Mr. Holloway reported those. The A1 bus was the one we've had the problem on, the A2 bus is now being examined and while we moved modes around during the day today we experienced control interruptions of some capabilities from time to time we saw the lights go down for a while, we lost some comand capability for a little while, but nothing that affected any of our operations or necessary commanding at sites or anything. Mr. Cools here, he's here to answer questions in that area if you have any beyond what Tommy presented in the earlier briefing.

PAO Okay, please wait for the Mike, Craig Covault, Aviation Week.

COVAULT John, correct me if I'm wrong, were you not going to go into nose sun tonight?

COX We are in nose sun.

COVALT You are in nose sun, and earlier your EVA would of been in starboard sun.

COX That's right.

COVALT You might discuss the new geometry relative to Earth views that the crew will have on out tomorrow and whether or not nose sun is better for Earth views on an EVA standpoint as opposed to starbard sun.

COX You'll see the Earth about the same cause you're holding an inertial attitude and going around the Earth so the bay will see the Earth part of the while as you go around whether your're pointing the nose or the side at the Sun you're still going to get everywhere you're going to get one good look at the Earth and one good look at the other side. So that's not too much different. There will be a little more shadow effect than the no sun since the forward bulkhead will cast a shadow over most of the payload bay but we don't anticipate any problem with that. I think if we'd had our druthers back when just doing the EVA we'd probably like to been in an ZLR or some attitude like that. However, as part of the EVA desires they wanted to do an EVA testing the EMU in both a very cold condition, where they're completely covered like they are, they will be in most of this case avoiding sunlight except when translating along the handrails. And they wanted to do a top sun one to see how the EMU works before sunlight in the bay. Well we won't be able to do the top sun and we still weren't planning to do that even if we had been in the starboard sun. So I think probably we're satisfying one end of the testing requirements probably a little better in this attitude than we would have done in the starboard sun attitude, but it's no problem and no impact to the EVA as far as that's concerned.

COVAULT Thermally on the suits they will be a little cooler than they would have been in starboard sun correct?

COX That's what you'd probably expect. They wouldn't get as much heat input for sure.

COVAULT Even if they had gone EVA in starboard sun they still would have been in a relatively cool bay.

COX That's right.

COVAULT All things equal. Okay thanks.

PAO Question. Way back over here in the corner.

Mr. Cools have you traced down what caused the fire last night? I think we have a lot of assumptions but no one has actually stated it. What caused that fire last night?

COOLS No, we're still not certain. The best we can say now is that there is a short in the A1 power system.

Was it a short where there was a connection between aluminum and copper wiring as mentioned earlier.

COOLS I don't know that. Don't know that at this time.

You do have an aluminum and copper wiring splice somewhere

near there don't you?

COOLS No, I really don't know. I'd like to refer that question if I can, to the facilities' folks who are doing that work right now. The thing I'm involved in more is MCC operations and that is the aspects of the power bus itself.

COX I think just to characterize where we are in this whole thing is just a little while ago a couple of hours ago, we finally got all the loads off the A2 bus and finally got some people in there where they can get their hands on the system and start pulling everything apart to look at it so everything you heard earlier was best guesses and conjectures. Now the people are in actually pulling all the cable apart and taking a look to see what they actually have so. I think the best thing to do is just wait until we get a good answer from the folks.

Do you have any places where elsewhere on the facility you have aluminum and copper connections?

COOLS Not to my knowledge.

That's the only one then?

COOLS I really don't know. Like I say, this not really my area of expertise, so we'll have to get that answer for you.

PAO Andy Chaken.

CHAKEN Assuming that some problems may continue just on the outside chance that you may not get that bus back before landing, does that impact at all the resources that you have for the MOCR or is this much more redundant than that?

COOLS We have been lose some of our redundancy by the fact that we don't have the A bus but we will be able to support landing.

CHAKEN Would you still have, for example, one system to fall back on in case you had another failure at a critical time?

COOLS Another bus?

CHAKEN Yeah, my understanding of the system is a little foggy but just in terms of what the most ...

COX Probably what we would do (garble)....

COOLS We have redundant computer systems but not power buses right now.

COX You'd have to pick your failure in that case. We could probably have the computer systems up that we normally had

running in hot standby with each other and be able to operate that way. Would not have all the redundancy in the power distribution that we'd like to have.

PAO Carlos Byars Houston Chronicle.

BYARS HOUSTON CHRONICLE Since you have backup computer capability to support launch or landing, why did you not have that up and running today when you're shifting loads around to avoid the loss of the downtime that you did incur?

COX What you're talking about is we've had a hit in redundancy system right now and to be able to get into the A system which has its bus distributions you had to get all the loads off it and put it over - put all your systems on the B side which you could go in and investigate that. We have enough equipment that way but you kind of overload busses if you put everything all on the same power circuit. It's just like in your house, you wouldn't want to stick all your electric light plug in devices, and toasters and what not all on one circuit just while you went over and checked another one. You probably wouldn't plug them all back in, you'd just do with what you had to and we had nothing critical going on today that would require having hot standby's for anything.

BYARS I understand that you did not but I get the impression that even though you've got all these different busses that you can use it takes a great deal of time, trouble, and effort to switch from one to the other when we've been given the impression that this is virtually an instantaneous thing when necessary and I'm pretty fuzzy now. I've got the distinct impression that part of it you can switch, part of it you can't switch, some of it maybe you can switch tomorrow or next week.

I think you're confusing that with critical power between the (garble) light company and the ...

COX ...critical power comes up right away and we've been up on the generators every since the problem happened. When you talk in terms of the computer systems that's just a matter of a push of the button and we're up on the other alternate system. That's not the problem. Today we didn't want to load down the few buses that we did have with all the redundant computers and components. So we chose not to have them on there when we did the bus load distribution changes today. And this has all been with Johnny's folks. They have been recommending what's the best way to do this - split the loads and there's a team of folks trying to do it safely and let's not create another problem while we're trying to fix this one.

BYARS If you had a problem like this during a launch though, and you lost A1, and had to switch to your backup computer

system, your backup power for your backup computers, wouldn't that put the same kind of load on the system that you're trying to avoid today?

COOLS No, the backup - the computers are on different power buses for critical phases by design. They're not on the same bus. You have one computer on A and one on B.

BYARS I'll give up until I can go look at a schematic.

PAO Any other questions here. John Bisney RKO radio.

BISNEY There was a wire story that moved in advance of the mission that described Joe Allen as being a clown who might try almost anything on the EVA as long as it doesn't endanger himself or the spacecraft. I don't know how well you know him. Are you expecting any shenanigans out of him tomorrow?

COX We're not really expecting anything. I think they'll probably go out and do an outstanding EVA. Probably hear more of a commentary from him or maybe holding up a picture or something like that but I expect the EVA to go pretty straight forward.

PAO Any further questions here at Houston? Let's switch to Marshall Space Flight Center. I understand they have some questions.

DOOLING HUNTSVILLE TIMES Have the other 3 crewmen reported any even minimal signs of discomfort today?

COX I think Tommy Holloway covered all of that in a previous - we haven't had any BMC since then and if I recall from the briefing I had and from Tommy's briefing there have been no further incidences of any sight and everybody is feeling for it.

DOOLING Okay, doing the EVA with the spacecraft nose to sun on the day side, will Earth light be adequate for lighting in the payload bay or will the floodlights have to be turned on?

COX I'm certain that in parts of the orbit when you're on the dark side, you're going to have to have the lights on to do much out there. While you're on the day side, they may or may not help. That'll be crew option. Bob Overmyer will be inside and he will have access to all the controls to turn the lights on and off and he'll be working that end of it. They had previously worked out whatever their lighting requirements were for the starboard SU EVA, so they're going to have to make some adjustments for this one, but I don't anticipate that's any big deal. It's just a matter if you need some lights, you turn the lights on.

DOOLING On the COAS alignment, you mentioned that the windows apparently were dirty. I recall during countdown that we were told that one of the last steps being made on the launch pad was that the windows were being cleaned off. Where did this dirt come from and has the problem been reported to this extent on previous missions?

COX I think it's, we asked the crew to take pictures of it and we're just conjecturing now what's on the windows, but there is some, some buildup that hasn't been removed from flight to flight. You do clean them but you don't get them all back to factory clean and even sitting out there on the pad waiting for liftoff after they've been cleaned, you do pick up salt spray and what not on them, so we don't think it's much more than that and the reported problem was, we were just using some fairly dim stars and looking through a window that wasn't all that clean was a little bit difficult, so we went to the brighter stars, the crew had no problem and it's just a matter of just slight haze that seems to be on the window. Nobody really thinks there's a big deal with that.

DOOLING Has the condensate problem that was reported earlier been tracked down and resolved?

COX We have, there's kind of a bunch of suspicion or discussion going on seeing who can best guess the outcome and we've gone to another configuration tonight that will give us another clue in the mystery. It appears that the condensation is a lot less than it was yesterday and what we had done yesterday was run with both humidity separators on for the night and then all day today. By doing that, we noticed that we were filling the waste tank at a higher rate which seemed to make sense. It says we'll probably either be a - first of all, one - the first humidity separator B that we were on was not performing up to par and when we put A on we got a boost or maybe it wasn't working at all, or the message might be that with 4 crewmen onboard and exercising and what not

there's a lot more moisture in the air and it just might take 2 humidity separators to run. Now today when we turned B off, we watched the amperage drop on the busses and it looked very much like the right amount came off indicating that the B separator was running properly. So, that being the case, we'll run all night tonight and see what the water buildup is in the waste tank. If we still get a very slow buildup, kind of like we had when we only had B on before, we will probably conclude that it takes 2 humidity separators with a 4-man crew.

DOOLING Okay. A final question. Is the helium regulator that had caused some concern prelaunch still performing like a new one?

COX Just like SPEC. There's been no problem at all with it.

PAO That's all from Marshall.

PAO Okay. Back to Houston. I understand the Cape is down. Any more questions here in Houston? Carlos.

BYARS How much time did you lose due to the various outages and what have you today, while you were switching your power busses around.

COX Well, during my shift none. We had some times in the building where things were - like lights went dim for a while, but that didn't bother us, or what not. We had a command capability that was going to be down for a little while, but we didn't have any command activity required, so I think that went over 1 Guam pass is the only time we had station contact in that condition, but we knew that there was a possibility it wasn't going to be restored prior to Guam and we knew we didn't have any command work in there, so didn't bother with it.

PAO Paul Recer (AP).

PAUL RECER If I understand your bus arrangement, it appears that you could not operate 2 Shuttles at once from this mission control center and have your redundancy up. Is that correct?

COX That's not my opinion, but John can probably...

COOLS Well, to be able to fly 2 Shuttles, it would take some modifications. There are modifications going on in the building, of course, to support DOD flights and STS flights or NASA flights. Currently, we would not be able to support 2 Shuttles without some modification.

PAUL RECER Are those modifications planned.

COOLS Excuse me, for NASA, 2 NASA flights? I believe there are

STS-5 CHANGE OF SHIFT BRIEFING p009jc 11/14/82 5:50 pm PAGE 3

some studies going on now to see what we can do about 2 Shuttle flights. Yes.

PAUL RECER Could you support a NASA flight and a DOD flight at once?

COOLS Yes. Not right now but -

PAUL RECER But those MODS are in the make?

COOLS The MODS are in the make for 1 DOD and 1 NASA.

PAO No more questions. How many of you are going to be around at 2:20 tomorrow morning? No takers. Okay. That's when Gary Coen comes off shift so I doubt that he really needs to hold a change-of-shift press conference. It turns out we have a question from KSC. Let's go to them.

KURT FRANK UPI I'm just concerned about the arrival coming back that there will be some sun glare coming off the windshield. Will that cause any impact with that time coming in?

COX We don't anticipate any. It's been a nominal condition that we've been heading for for this flight ever since it's been in the planning stages and with the practices we've done on all that, we don't anticipate any problem at all.

PAO Okay. Well, I guess that wraps it up. Thank you all for coming.

END OF TAPE

PAO Okay. We have with us this morning Glynn Lunney, the Shuttle Program Manager and with Mr. Lunney is Harley Stutesman of the Crew Systems Division. We'll open with a statement by Mr. Lunney.

GLYNN LUNNEY Ladies and Gentlemen, good morning. We have some disappointing news on the planned space walk today that I'm here to here to talk to you about. I'll try to help you to understand the technical considerations and some of the further mission considerations that apply to the decision that we made this morning to cancel the space walk as of today, and I'll let you understand what our other options are as we go forward. This morning, and by the way, I don't have an exact timeline of all the events, but let me recap them. This morning, in the checkout of the suits, and I'll probably refer to them as suits a couple of times here this morning and by that I mean both the suit and what is called the back pack, what we call the back pack, is where a lot of the supplies and the regulation, etc. for the suit system where those systems are housed. In the checkout of the suits we had a problem with Joe Allen's suit. There is a fan in there which is used to circulate the oxygen. It is very important that, necessary even, that this fan works. In the preparation for the EVA, it is necessary for the astronauts to prebreathe pure oxygen for about 3-1/2 hours in order to eliminate residual nitrogen from the body. In the course of this prebreathe, as we call it, while this elimination of nitrogen from the body is occurring, and we do that by the way to avoid the occurrence of bends when the astronauts go outside in a lower pressure suit, we find that a fan, in the course of the checkout, we found that the fan which would provide the circulation in the suit during this period of time, was not working properly. Though it was attempted to start the fan a number of times and there were a variety of symptoms, but basically we just couldn't get it to work. We have had some history of experience with that once and a while and it would generally clear and Harley Stutesman here who is the manager for the extravehicular mobility unit can talk to you more about there if you technical questions. However, we found that problem and despite the later problem that we had with the regulator which I'll talk about in a minute, in Bill Lenoir's suit, the fact that we could not properly arrange for the prebreathing in the suit in order to prepare really the denitrogenation process in Joe Allen's body, really to get the nitrogen out. That was the basis for deciding that we could not go forward with the planned space walk today. Later on in the course of the morning, we found that there was a shift in the regulative pressure that the primary part of Bill Lenoir's suit operates at. It shifted from, our range is 4.2 plus or minus a tenth I believe, it shifted down to 3.8 plus or minus - well, 3.8 psi's. So, we had a shift of about a half a psi in the regulation, that is of the oxygen that is applicable in Bill's suit in the primary system. That is not fully understood at the present time and makes us slightly

get back in the airlock and repress the airlock. But we don't, would not expose ourselves to that kind of possibility, just for the demonstration.

PAO We've got a follow up over here with John.

WILFORD Would there be any difference in his ability to function at 3.8 psi versus 4, whatever it was?

HOLLOWAY No sir. In fact he might, because of the reduced pressure, he might get along a little better, because it would be easier for him to move around. But 3.8 is perfectly adequate pressure for him to take care of the physiological situation.

PAO Okay, we'll get Lynn Sherr and Paul Recer and then we'll go to the Cape for questions.

SHERR Two questions, Tommy, why are you convinced that, as you just said, something happened after you launched on Thursday? And secondly, did you consider a backup back pack and would you for future missions?

HOLLOWAY Let me rephrase what I said earlier. Something happened after we tested the back pack at KSC, and it was very close to launch and I don't know the details, but can find those out for you. And so I don't know whether it happened during launch, after launch, or somewhere on the pad. But the back pack was tested at KSC a few days prior to launch and obviously, something has happened, apparently something has happened. Secondly the back packs, we would expect to solve this problem, provide enough confidence in the back packs that these kind of things would not happen again. From payload considerations and room in the airlock and so on and so forth, we really don't foresee any plans of carrying a third standby back pack.

Okay, I've got 2. Were the spacesuits, where they were stored, subjected to unexpected stress of any type, humidity, pressure, thermal inputs, or anything like that that you didn't expect during the mission?

HOLLOWAY Absolutely none, that we can speculate about at this time. I can't even dream of anything that might have caused this to happen while we were on orbit, along the lines of what you suggest.

Okay, the second one, as a flight director, would you feel confident in having an EVA using the MMU without first testing the suit in some less ambitious spacewalk?

HOLLOWAY Well, you're put me on a spot. Obviously, I would like to see a program, the Shuttle flow that evolves to the EVA situation where we would use the back pack, including an EVA to do a demonstration type activity like we did today. But with the right kind of training and the right kind of program getting ready on the ground, and confidence that these misses are going to work properly, we might be willing to take small steps, one at a time, during an actual flight and go execute an MMU type flight on the first actual EVA. But that's the kind of thing that will have to be decided by a number of people, which I'm only one of.

PAO Okay, we'll go to KSC now for some questions.

Going back to what actually happened today, was Lenoir on his own in the airlock when making his last attempt to get the suit working, or was Joe Allen in there with him helping?

HOLLOWAY The, during the preparation period for this last period where we depressed the airlock to 9 psi, there were people in helping him, and I suspect Joe Allen was doing that, although normally Bob Overmyer would have done that. But when it came time to depress the airlock, whoever was helping, close the hatch, lock the hatch, and got out of the airlock and he was in the airlock by himself during this period that we spent at 9 psi checking out the suits.

PAO Any further from KSC? Just one.

JOHN PINE (REUTERS NEWS AGENCY) I might have missed something earlier, but did you get into the area about what the exact impact on future booked flights, I mean the next 5 or 6 flights, missing this EVA well here?

HOLLOWAY No sir. I really didn't. I punted on that one. I said that I couldn't do that for you simply because I've not been involved in that planning and I don't have the information at my finger tips and also at this point, I think it would be speculating to try to say what NASA will do about the future flights.

PAO That's all from KSC.

PAO Is that all? Okay, we'll go to Marshall now for questions.

This is Marshall. We do have questions.

JIM ADAMSON (CHANNEL 31 AT HUNTSVILLE) Have there been any more reports of any illness or discomforts among the astronauts and also do any of them plan on taking any medications before reentry?

HOLLOWAY No sir. There's been absolutely none since the last time Dr. Pool spoke to this group, and I've lost track of time. I can't remember when that was, but there's been absolutely none and there's no planned medication during the entry prep nor entry, unless you count lots of fluids and salt tablets and salt on your food which is a normal thing that we've been doing for 2 or 3 flights to make sure there's a lot of fluids, the crewmen have lots of fluids, unless you count that as medication, and I certainly don't. Any others?

DAVE DOOLING (HUNTSVILLE TIMES) One, the final check on that helium regulator, how has the display electronics unit been operating since Overmyer did the change out and have there been any other even minor anomalies in the Orbiter subsystems?

HOLLOWAY Well, we've been operating on our infamous regulator for the last couple of days. You know, we ran on the A regulator for the first half of the flight, we've been running on the B regulator, so it's actually been regulating the pressure in the tank and it's working normally, so, to answer your question, we ought to forget about the B regulator in the RCS. It is okay. The CRT, we changed it out yesterday. Bob Overmyer reported that it's working well and we haven't heard from the crew so I presume that it is still 100%. Relative to the other failures, the crew did report this morning that the aft mission timer and CRT timer had failed or apparently perhaps never worked after launch, so, and they only told us about it this morning, so you get an idea of how important it was. They waited until day 5 to even tell us about it, so it's not a terribly significant piece of hardware and it has apparently failed.

There are no further questions from Marshall.

PAO Okay. We have a report from the MOCR that the EMU's were checked out onboard the vehicle at 12 days before launch.

HOLLOWAY Twelve days.

PAO We have some questions at Dryden. We'll go there for those before coming back here.

Yes, we have a question from CBS.

JUDY MULLENS (CBS) NASA has cancelled the autoland and it's highly unlikely you're going to get a crosswind landing. Is NASA still requiring those 2 factors a the shuttle will be allowed to land at Kennedy, and secondly, when do you see the first opportunity for shuttle landing at KSC?

HOLLOWAY No we do not absolutely require a crosswind landing nor an autoland before we land at KSC. Both of those are highly desirable. On the crosswind, Mother Nature has not cooperated with us very well and may not, so other factors will determine when we will land at KSC. Currently, we are scheduled to land at KSC on flight 7.

PAO Anything more from Edwards - Dryden?

ROSS BECKER (KNXT, LOS ANGELES) I'm, back to the space walk question for just a moment. Are there any efforts at all going on right now to troubleshoot those suits or if the problem would happen to clear up with the suits, would there be a consideration to extend the flight 1 more day and therefore extend the landing 1 more day. Is that still, could that be a possibility, because I know how much you want to get that done, that walk in if possible.

HOLLOWAY The troubleshooting of the EMU's or the back packs has been completed. As I explained earlier, we did go through some troubleshooting early this afternoon, this afternoon being with respect to the crew's work day, and we did not improve the status of what we understand to be wrong with the back packs. That troubleshooting has been terminated and the crew has been instructed to prepare the airlock for entry. We fully intend to deorbit tomorrow morning on time and there are no further attempts to determine - work on the back packs nor are there any thoughts of delaying a day to accomplish an EVA.

PAO Okay. We'll come back here now. Jules Bergman.

JULES BERGMAN Tommy, how important is EVA to the shuttle program and after you answer that, I have another question.

HOLLOWAY Well, I think the EVA has its place in the shuttle program and will evolve into an important function as we go along. Certainly, as all operational capabilities must, we'll have to evolve and learn as we go. It will be important and I think will have a role in the overall program through the next 10 to 15 years.

JULES BERGMAN The second question, speaking personally for yourself, and I know it's very soon after the failure, when is the next flight that you think an EVA is possible? Not planned but possible.

HOLLOWAY Well, it's possible to do one on STS-6, but if NASA management would determine that it's - that we desire to do one bad enough on STS-6, technically it would be possible to do one. It's not clear to me that that would be the right decisions, and I don't believe, based on what I understand right now, that I would necessarily want to do one on STS-6, but it's possible.

PAO Right there.

What elements of his own and Joe Allen's suit did Bill Lenoir take with him into the airlock? Did he wear his whole suit and take Joe Allen's whole suit in, or just Joe Allen's back pack, ...

HOLLOWAY Your last phrase was correct. Joe Allen's back pack and the bottom torso and the helmet was taken inside the Orbiter, or on the middeck and was left in the middeck, simply to get it out of the way because it didn't have anything to do with the testing that we wanted to do.

What about his own outfit?

HOLLOWAY Joe had all of his back pack and his space suit, and in fact got in it and went through the basic procedure that you do to don a suit and get ready to go do a space walk. The only difference is that he did not spend 3-1/2 hours breathing 100% oxygen before he accomplished this procedure that I described to you earlier.

PAO To correct the transcript, that was Bill. You inadvertantly said Joe. It was Bill that had the (garble).

HOLLOWAY Bill was in the suit, by the way.

PAO Okay. That gentleman right there.

JOHN BISNEY (RKO) Tommy, what is it about 6 that would lead you to believe that you would not want to do an EVA and number 2, what does the rest of the afternoon look like for the crew?

HOLLOWAY The rest of the afternoon is going to be spent stowing the spacecraft, reviewing the entry procedures, and basically getting ready to get up in the morning and do the entry prep. Back to the STS-6 question, STS-6 is delivering a deployable payload that's much more complicated in terms of the work that has to be done than even the STS-5 deliverables. It's a short flight, it's a high performance flight in terms of the payload required. We have to consider how many oxygen nitrogen tanks we can carry, how long we want to fly, the training job that the crew has to do, and all of those things have to be looked at at an integrated level to determine whether the crew can train to do all of the tasks that we want them to do, whether we can carry enough consumables to stay on orbit long enough to do all of the things we want to do and so on and so forth. So if you look at all that on an integrated level, if you wanted to pay the price and you might be able to do it, but on the other hand it might be better to wait til a later flight than, of course, that's what Dr. Lunney and others like him get paid for, to look at all those things and decide what we're going to do.

PAO Okay, let's go right here and move around.

Tommy, what was it that Bill was concerned about when he said they were stowing some of their clothes in a trash bag and they would certainly be unloaded, he says they couldn't refold some things, and get them back where they were meant to be.

HOLLOWAY I really don't know what he was, unless he was worried about what if he had to use them again, while he was on orbit. I really, that's the only thing I can think of, I really don't know what he was talking about. It didn't concern me, so I didn't worry about it.

PAO Craig Covalt, Aviation Week.

COVALT Could you speak briefly to the cabin pressurization issue you were getting some high cabin pressure alarms, and that was a consideration in some of your activities.

HOLLOWAY Well, we don't like to get the cabin pressure too high, although we were a long way from being in a situation where you'd have to be concerned about the structural integrity of it, but we were just being extra cautious and making sure we kept the cabin pressure from getting too high, and I have a - Milt Heflan does an outstanding job, looks after those systems very well. And he is a very conservative individual. And that's the way I'd like for him to stay.

OLIVE TALLEY (UPI) Tommy, over here in the corner. Can you confirm that this is the first time that a failure of a space suit, itself, has caused the cancellation of an EVA or a moon walk?

HOLLOWAY Let's back up a little bit, the failure of the backpack, the suit itself did not fail, unless you look at the entire system suit.

TALLEY Okay, did either the backpack or the system....

HOLLOWAY Yes, I think you're correct in what you've said. This is the first time that I can remember that we have cancelled an EVA because of a failure of hardware. Now, in fact I don't remember an EVA being canceled in flight, although as you remember when we were first learning how to operate outside, in the Gemini program, we went through a series of flights where we had some difficulties and did not accomplish all the work that we would of liked to have done outside, but I don't remember cancelling one before we got outside, because of hardware problems.

PAT DOLAN (CNN) Tommy, you flew basically a perfect mission for 4 days, only to be tripped up by the failure of two relatively small pieces of equipment. I wonder if you can describe the mood of your flight team when it became obvious that the EVA had to be cancelled?

HOLLOWAY Well, I think all parties involved were disappointed, but in terms of our overall mood, we are still focusing toward tomorrow and we still consider that to be another milestone and soon as it became obvious that we're not able to do the EVA we started thinking about tomorrow, getting the crew, getting the testing done to help the program get on with the EVA program and secondly, what did we need to do to be ready to do the entry tomorrow, so we have our options available to us and deorbiting and so on, and so forth, so I think probably, it will dawn on me in two or three days, and then I'll be more moody than I am today.

PAO Reed Collins, CBS

COLLINS A couple of questions. Had you not had the failure in Allen's suit, given the condition of the pressure in Lenoir's, would you of gone out? If you had a perfect suit in Allen and low pressure in Lenoir, would that of stopped you?

HOLLOWAY No sir. My plans as we were preparing Bill to do his thing was to depress the airlock to zero psi, open the hatch and maybe we would of given you a view of him sticking his head out the hatch, that would of been about it.

COLLINS That wasn't my question. If you had a good Allen's suit, and had low pressure as you had in Lenoir's suit would you still have a two man EVA?

HOLLOWAY No sir. But that is speculating too. Sometimes it's much easier to speculate sitting over here in front of you than it is to implement when it comes time.

STEVE CROSS (CBS NEWS) Is the defective fan a brand new piece of hardware, or was it also present in the, was it an identical or similiar in the Apollo suits?

HOLLOWAY Well, Harley could answer that question better than I, but as I understand it, these (garble) are effectively new type hardware. And if you'll read the transcript of this morning's briefing I think it'll answer those questions for you. But as I understand it, it's a new piece of hardware, I'm sure the technology of what we have done previously are used and are a lot of similiarities between the various componenets but these are new pieces of hardware.

PAO Okay, get Jules up here.

BERGMAN Looking backward Tommy on this morning, is there anything you would of done differently?

HOLLOWAY Not at this time.

BERGMAN Two, let's say it's an EVA vital mission, where this kind of failure, can not be countenanced is there no way of putting a second or spare space suit aboard, stowing it somewhere airlock, or locker or somewhere, so each crewmember has a spare.

HOLLOWAY Jules, I'm sure there is a way to do that, if you elect to do it, and are willing to pay the price in ascent performance and stowage space and so forth, there is a way to do it, if you're willing to pay the price, and a place to stow it and the ascent performance to get it to orbit.

PAO Paul Recer.

RECER I wonder if you could help us out a little bit on, give your thoughts on this. The Columbia's going to be retired before long, on 11 month vacation, almost 11 months, what are some of the mods that are going to be performed, and why is it taking so long?

HOLLOWAY Well you know, I very carefully avoided the last five months following the modification that have been reviewed numerous times by the program, and in terms in what's going to be done to Columbia between now and the time that it flies on the next flight. So, I'd rather not answer that question.

PAO I think the (garble) complete run down from the program office, and you had the distinction of asking the last question. Thank you very much.

END OF TAPE

PAO Okay, welcome to our, what will probably be our final change of shift press conference for flight number 5. We have the off going orbit team flight director, John Cox with us and he'll review the things that we had during the last shift, and perhaps we may have a little bit more information on entry numbers here, John.

COX Okay, thank you very much. This flight has really been a pleasure. I've enjoyed it and I think the crew really has. We've really demonstrated a very trouble free flight flying system, even though we did have the problems with the spacewalk today. I think we all learned from it and we gathered a lot of engineering data, rechecking and retesting. So, I think, all in all we even got something out of that episode today. As far as the flight accomplishments are concerned, I just ran a quick list, or run down the list of primary objectives and the secondary and touchirary priority tests on the flight and that list just looks superb. The primary objectives were all accomplished, though they had to do a deploy and the payload and those systems. The secondary level objectives, the only thing we didn't finish on that whole set, that we finally end up scheduled doing for the flight was the EVA. And the touchirary set, we virtually finished everything that was actually doable. Some of those things were shopping list, or if you could get around to them. And we probably could have picked them up today, except we spent the time troubleshooting the EVA, which if you go back to where we were that was a higher priority thing to do anyhow, so. We had a very successful flight, and I could give you a quick run down of the things that we did accomplish today, and then go down some of the entry information. The crew spent most of the afternoon and evening stowing the vehicle and getting all the EVA gear put away. We had a little extra stowage job for them today, because they had to put all the EVA gear today, away as well as the normal stowage. So we basically gave them their own time to accomplish all that activity. We finished up the evening with another good IMU alignment. We finally finished analyzing the aft station COAS cal data, and that turned out to be superb. We really liked that system, it has been repeatable now within a tenth of a degree and that's about as good as you can do with that system. We did another smoke detector test, which we do on a routine basis throughout the flight. One of the anomalies that we had been logging against the flight cleared itself, the light, the test hadn't been held in long enough and we asked the crew to make sure they hold it the full time and low and behold that light worked so. As far as the vehicle is concerned, it's just tough to find that many problems with it. Little update on the SRS, they have gone ahead and put themselves in their normal configuration, they've despun the portion that despins, they have the antenna deploy and their solar panel are raised, or deployed now, so they're in normal operating configuration, they'll do a few more com check before they go operational now. And the ANIK is going to go ahead and do their

burn tomorrow, I understand, sometime around 1:30. Another test we did complete today which was mostly ground operated, was the hydraulic interaction test, where we tried to use the cold hydraulic fluid to do a little extra cooling in the freon loops. That data was all collected, and preliminary results indicate that it did have a good effect. We won't know exactly how much until the numbers all get run, but that looked like it went pretty well. We did pick up one more problem with the wireless headset system, which we don't use anymore, we're back on the wire version for entry. But another one of those units stopped performing today, and that was unit B, so we've had a failure with A and B, and we'll be looking at those that maybe battery or antenna problems or something, and take a look at those. As far as building 30 is concerned, that system is all up and operational. We have full redundancy restored. During our EVA today, we had our standby system up and operating at the same time. And then during my shift this afternoon, we tried some of the dynamic switch overs, and they worked all right, so that's the type of capability you want to have for entry. I think they still are doing some more load balancing and some bus reconfigurations just to make sure they've got everything as optimum as they can get it tomorrow, but all in all we're real happy with the way the fixes went in there. The vehicle is currently in a 155 by 148 orbit. Just before I left, we were able to make the final update to the state vector, which will hold it, should we have any problem or anything, it will hold it clear until Edwards opportunity in the morning. Crew health for today is great, there's no problem with any of the crewmen. And as far as the entry is concerned, we're all planning to head for Edwards runway 22 tomorrow, we're going to load the mini table with 22 in the primary slot and secondary being Edwards 04, and the alternate would be Northrup 17. As far as the winds and the weather at Edwards, that all looks super. We're going, the wind is out at 240 at about 8 knots right now, so about all you're getting is a head wind, and that's only 8 knots. There won't be any chance to get crosswind, we're not going to get helped out on that guy, even on this flight. The upper winds, I had that data here, but just a quick summary of that. The winds are lighter than normal, and looks like there should be absolutely no problem with that. We didn't, just for the precaution, that we might need to use the, and we can't understand why, cause you can't imagine the weather would change as much. But if we did come in on the other end of the concrete runway and used 04, we've moved the pappys from runway 23 and we have a balbar set on that end also. So both ends of the runway are configured the same for the visual landing aids. I could give you a little bit of data on the weather. We have some high broken clouds somewhere around 22,000 feet, but they look like they'll be acceptable and no real problem, the visibility is in excess of 7 miles, gave you the wind information already. And then the burn times themselves, the deorbit burn time will be, in MET, it'll be 5 days, 1 hour, and 17 minutes, or converted to central standard time it'll be

7:36 tomorrow morning, with a landing at, an MET of 5 days, 2 hours, 14 minutes and 43 seconds, or 8:33:43, tomorrow morning, central standard time. And the one other thing as far as the entry is considered, concerned. If we do have to do a wave off, we will be making, phasing a just burn 6 minutes after the normal deorbit burn time, which will be at 5 days, 1 hour and 23 minutes, and it will be a 60 foot per second magnitude. And what that does, is brings in the landing site opportunities for day 1 or 2 past the nominal. It brings them, the crossranges down to something that is a lot more flyable as far as their entry test maneuvers are concerned. As far as the crossrange tomorrow, we should see at Edwards about a 579 mile crossrange, the deorbit delta V will be 267 feet per second, and we should land at sunrise plus about 7 minutes.

PAO Okay, we'll go to questions here at Johnson Space Center and then we'll try the other ones, Andy Chakin, right behind you there Joey.

CHAKIN John, assuming that you can answer this question from data that you get in flight. After 5 missions can you say anything about overall orbiter systems settling down to some kind of baseline, are you still in infant mortality on any systems? Did you have any anomalies, systems wise that didn't show up on other flights? Just a general question, is the orbiter settling down now?

COX We've been saying that, just ourselves, we really are pleased with the vehicle, and we feel like the systems are really approaching maturity.

JOHN COX We don't seem to see any more surprises. Another little thing along that line as we saw a slight pressure drop in APU pump drain line on Unit 3. Back on flight 1 or 2 when we had one of those things show a slight decrease and what really happened was a relief valve that has some contamination probably and it's just not seating exactly right. We got all excited about that back then. That's happened 2 or 3 more times since then and in this flight it happened and nobody has any concern about it. It was not even reported as an anomaly. It's just a little something, little funny in itself. We feel like we understand the systems real well now. We're very pleased with the way the vehicle's performing and all in all we're very happy with this system.

Just one other thing. Did the crew, did Lenoir and Allen express their disappointment about the EVA in any way today?

JOHN COX Did you - I don't know whether you heard the comment, but I can't remember if it was Bob or who all it was that called down, but they said they had a rough time getting Bill out of the airlock. Looked like he wanted to stay in there and keep trying.

I did hear something about Joe going into the airlock tomorrow morning.

JOHN COX It was Joe. I'm sorry. Joe was the one. Well, that was a followup to the comment. It was Joe was down in the airlock and the comment was well, if he wants to stay in the airlock, we'd go ahead and take him out tomorrow once we get on the ground.

JOHN BISNEY (RKO) You're not going to use autoland. You've landed at Edwards on concrete before. What is there new and different about this landing? What are you going to learn? You're not even going to get a headwind apparently.

JOHN COX No. We won't be - that's one of the things we won't be picking up is the actual landing itself. We will be flying test maneuvers during the entry profile and that will be new information. We have a continued series of those and we'll be able to add to that data base but as far as actual landing conditions themselves, we won't be picking that up. We do have a breaking test and we'll be learning something about the breaking, adding to our knowledge based on that.

JERRY HANNITHON (TIME) John, is there a lesson in these 2 separate anomalies that emerged in the ham standard suit? I've heard some discussion from airforce people that this prebreathing period is maybe something they would care not to deal with in the future, but here is a blower in one helmet and an oxygen

circulation system in another which didn't work. What's the bottom line? What's the message on this to us?

JOHN COX I don't think we've analyzed anything far enough to give you the bottom line. I wish we had. If we had, we probably would have taken a shot at getting it fixed and trying to do the EVA today, but I think until we get the problems, or the funnies that we did see anyhow, the regulator shift and the fan incident analyzed, I can't really tell you. There may be a bottom line but we haven't found it yet.

HANNITHON A quick correlary, is this the way to go with a 4 psi system requiring this long prebreathing?

JOHN COX The prebreathe is not the suit type of thing, while, okay, if you had a high pressure suit and that is one thing that the program has been looking at down the line and I think maybe someday they'll consider that, but at the moment we - you know, until we understand what these problems were that we had on this one, I don't think anybody thinks that the system that we have isn't totally adequate and will do the job as planned. It's just a matter of finding out what these problems were.

PAO Okay. Paul Recer.

PAUL RECER Speaking of lessons we have learned, did you pick up anything regarding habitability onboard the spacecraft with this gang of 4 in there?

JOHN COX Well we did, as far as the 4 people were concerned, I think we found it's quite livable. I think we also found that as far as the humidity separators are concerned, we may be pushing the operation of one to the limit. You may want to have 2 running most of the time. One does the job but it has appeared that we're kind of up on the edge of what I will do. We did notice that after checking humidity seps, the B1 probably was running a little bit degraded so that was the reason we did end up on 2 for a while and then back when A worked, it seemed to be holding it, but we hadn't ever seen that before as far as whether it could keep up with the 2 man crew, so that's a little thing there. We learned a little bit about sleep restraints and the fact that they can all float around down in that lower area, I think it's a funny looking type of system, but they all seem to comment that that was no problem sleeping, even with all 4 of them in there. They did comment from time to time, they thought they may have bumped a few things and I think 2 crewmen can do that, but obviously 4 can do that a little more. They did not comment that they had any problem, it was just a matter of - we had worked out the logistics of it in advance and I think it worked all right of preparing food and being able to eat together. Using the waste management system turned out to be no

problem. As a matter of fact, the modifications that were done on it appeared to work real well. They did make the general comments and that's the reason we had gone to the wireless headset things. Anytime you use devices that had cables or what not that you strap up for experiment reasons or what not down there, that does get in the way and with a 4 man crew, that even gets more in the way. So, we're looking at attaching things on the walls and trying to keep the cables out of the way, but I think other than that, we found out that 4 men working together works out real well. We have found that in training and in flight, that you give the crew a difficult task to do and 4 men can really do a super job getting that task done. There's almost nothing that - you know you might push 2 men to the ultimate limit and when 4 people are there, it's a piece of cake. It's really easy.

PAO Okay. If we don't have any others here, we'll move to Marshall and then come back here after we get the other centers.

DAVE DOOLING (HUNTSVILLE TIMES) Did the crew give you any kind of readout or indications of what activities they were involved in today besides stowage. Did stowage take up all of their time?

JOHN COX From the time I came on, stowage was the main business. We did have some just normal business. At the end of the day we do the IMU alignments, we change out the lithium hydroxide cannisters, we took data on the temperatures on the 2 pams, the cradle information that's there to see how those temperature profiles and they've been holding flat. All the heaters have been working just fine on them. We did complete that hydraulic interaction test. There's not much crew involvement with that other than just making sure some switches are in the right position so that the ground could operate them. And they did the smoke detector test and the IMU alignments, so there was the normal routine type of business that we do normally at the beginning of each day and the end of each day but primarily what they were looking at doing this afternoon or this evening was to get all the EVA gear stowed, get the normal stowage done that you do prior to entry, and then they spend the evening going ahead and reviewing the entry procedures and checklists and we did have those changes as minor as they were uplinked. One of them was to give the Commander a good comm system for entry. We did have that one circuit breaker pop earlier in the flight. We had reset it once and it popped a day later so that was for the Commander's ATU and we thought well, why mess with it. Let's not chance it. We'll just run a longer cable and hook it up to the back and so we sent him the message to tell him how to do that, and that's about the gist of the changes that we had for entry.

DAVE DOOLING If you did have to, for some reason, whatever that did require a lot of activity aboard the Orbiter, had to take a waveoff. What kind of crew activities would the crew be involved in tomorrow? Say what if they had an extra day on their hands.

JOHN COX Well, we do have a flight plan day in the cap if you have a copy that covers the waveoff and basically, since, the crew is up for quite some time before you even get into that, we would probably take it on down close to burn time and then you have to do a backout and getting the payload bay doors opened back up again and getting radiator flow established in the proper way and get back over onto the vernier jets and turn the water spray boilers off and all that to get yourself ready to go back on orbit again, get out of the seats, get out of the entry configuration and then pretty much relax. I don't know whether we would have any shopping list topics. There are some things like the - we would have the medical DSO EOG gear out because Bill Lenoir will be wearing that during entry.

COX There's been a strong desire all throughout the flight to pick up that as a catch as catch can type of thing. So that's one of the activities they all can participate in. Almost for free that year would be out. We would probably find a few other items like that, but you'll also have to understand that there's not a whole lot of time left in the day once you do back out of the deorbit configuration. We do have to press right on and do a phasing burn, so you can't exactly stop that timeline early, you've got to proceed right on through the timeline, go ahead do the phasing burn and then you start your backing out activities, so a great deal of the crew's day has already been consumed by that time.

DOOLING And back on the habability subject briefly. Did they make any comments about problems with all four of them working up in the flight deck and having the ejection seats in the way? Or more properly, the backs of the ejection seats?

COX I didn't recall any problems, you know that that does add to the volume that is consumed in there. They didn't comment specifically about that, they've been living with that problem all through the training, so they understand it's there. Everybody realizes it be a lot nicer to work without those ejection seats in there. But, they have worked out, the only time that they have to all work together like that was during the deploy operations, and that had been practiced so many times that I don't think there was any problem associated with it at all, they just reported normal operations.

PAO Okay, thank you, no further questions from Marshall.

PAO Okay, I understand there are no other questions at other centers, we'll come back, John Bisney.

BISNEY Besides wearing the gear that you just mentioned, what will be Bill Lenoir be doing during reentry and landing?

COX I believe he'll probably be doing some eye motions, I don't remember all the exact things, he's worked it out with Bill Thorton for that medical DSO, but he also has a little pad where he'll be doing the kinesthetic repeatability type of thing, only just using a knee pad, he'll make a mark on the pad, and then try to repeat it with different g levels as the gravity field comes back onto him and see if he gets a difference in the motor reflexes. He'll also be doing a partial test of the eye motion part during the entry because he'll have all that gear on. He gets a lot of that for free, just moving his eyes around anyhow, the data is recorded.

BISNEY I guess what I'm getting, trying to get you to tell me is, what he won't be doing, he's the first fella who won't have any primary flight duties during a landing is that correct?

COX Yes, just like Joe sat downstairs going up, Bill will be sitting downstairs going down. And we've always wondered how long he'd really hang around up on the flight deck. We'll wait and see when the first time we get data turned on from that EOG experiment, but it's kinda tough not to be up there and watch the entry, but there is no seat up there.

PAO Okay, over here.

Could you explain a what will be involved in the major mod that is planned after Columbia lands.

COX Well, I haven't spent any time with that mod. The only thing that I know they have to do, is try to get it ready for the next flight, which apparently is headed to be the Space lab flight. So, that's the type of stuff you know has to be done, there has been several things that people have wanted to add to the kitty of things, but I have no idea at this time what's in and what's out, what the options are.

PAO If you need that we can set you up with an interview tomorrow with some of the program officials. Just check with the interview desk.

Do you know of any problems, perhaps you don't know this either, but do you know of any problems with the Challenger so far? Have you been kept informed on that?

COX No, I don't know of any specific problems. And I haven't made an effort to try and keep up with them. The last several months preparing for this one has kept me plenty busy.

PAO Okay, Olive.

TALLEY Are you going to have beer and burritos waiting for them when they come home?

COX I expect so. That's a favorite, during the training sessions, it's been very popular during our SIMS to have somebody volunteer to run out and pick up an order of Burritos or something else like that, and while they were over in the simulator, it's been a joke, you can call up on the air to ground and you can take their order for burritos also, and then run them over to them. t doesn't work quite that way, the way we're set up now though.

STS-5 CHANGE OF SHIFT BRIEFING p012jc 11/15/82 6:00 pm PAGE 3

PAO Okay, I have one announcement here, the commentator called over and said that we would be cancelling the 1:50 am briefing tonight, so you can know that now so you can plan on not having to stay up and find out whether we're going to cancel that. And unless there is any great demand, I'm sure we would reinstitute it if somebody really wanted it, unless Craig just has a technical question in the middle of the night keeping him awake. If there's no other questions, we'll call this one to a halt and thank you for coming. And we'll see everybody tomorrow for entry.

END OF TAPE

DRYDEN (PAD) Good morning, a couple of notes first, if you didn't get it, we have approximately 55,000 people here today to watch the landing, I would remind you of the orbiter status briefing tomorrow morning at 11:00. Same procedure that we would, please hold your questions for the mike when it comes please give your name and affiliation. With us this morning is Lieutenant James A. Abrahamson, NASA associate administrator for the Space Transportation System, Jim.

ABRAHAMSON Well I don't know how all of you feel, but I thought it was a great mission and a fabulous landing again. And it's probably best summed up in a way that Vance, his first words after he touched down and he came through to us and I think to all of you, and that's "We Deliver", and of course, if you don't mind, I'd like to spend just a minute and try to put the mission in perspective, at least in my perspective. And then obviously you can ask any kind of questions that you'd like. The perspective that we've approached this mission is of course, this is our first operational mission. And by that, I see it as the beginning of, it was an inaugural flight in a sense. It's kinda like the first train that went the golden spike in Utah back in the old days, that doesn't mean that the test program was done by any means, it doesn't mean that this particular flight from a safety or a success viewpoint was any different than anyone else, but was important because we are inaugurating the real service of the shuttle and we're starting what I consider to be a revolution, and I hope it will be a revolution in space. So, our first job of the space shuttle was to deliver the two satellites. We did that, just in a flawless way, and the team, of NASA people industrial people, and in this case, McDonnell Douglas in a commercial development of the payload assist module which of course put the communication satellites from the low earth orbit that the shuttle has very successfully up to the synchronous orbit that the communication satellites demand. That all operated very very successfully, and I'll give you just a quick preliminary report on that. Remember that the first day, the first satellite out of the bay was the Satellite Business Systems communications satellite, made by Hughes, both of them were made by Hughes, but one was slightly different than the other. That first one, is up, I got a report from them last night, they had deployed all their antennas, they had made some of their initial checks, they don't have an operational service, but they all felt great enough about it to go out and have a great party last night, so they're feeling good. The second Spacecraft that we put up was the Telesat Canada ANIK, and of course that was later in the timeline, they today, they will be going through their apogee kick motor, or where they inject into the synchronous orbit at the top, and all their telemetry indicates of course that they also have a good satellite. But they're not quite as far in the procedure of getting it ready to go into operational service. But they're very happy, they're just, sometimes the Cananadians are very careful, and they have

their parties afterward, but they really have good parties, too. So, I think the key at least as far as we're concerned is this was a first initial operational flight, and we did do what the commander said, we deliver. Now, that doesn't mean that there weren't some problems on the flight, and of course the one that disappointed us, all of us, very significantly, and I think the two crewman, Bill Lenoir and Joe Allen, most of all, and that's that we didn't get to go out on the EVA on this flight. And I'd like to try to just put that in context as well. Through the four R & D flights, or the OFT, we call it, the Operational Flight Test phase of the shuttle, we were working on many test objectives just to ensure that the shuttle itself performed the way it was designed, and those were a sequence of those kinds of tests. Now on those flights you recall, we did have some payloads. And, those payloads were secondary to that flight test objective. That's now changed, but we still have some flight test objectives. We're building to, and this is part of the revolution that I talked about. We're building to a time when the shuttle will really change the way we do business in space. And, one of the first demonstrations of that will be next spring, not this coming spring, but in 1984, where we'll go up and repair a sick satellite the scientific satellite, the Solar Max Mission. And we'll put flight crewman out, we'll use a Manned Maneuvering Unit go over to the satellite which has several failures in it, we'll stop it from doing a slow rotation which isn't very good for a telescope, and that's what it is, it's a scientific telescope. And then we'll change out several of the modules. In an attempt to fix it in orbit, and by the way, again with the flexibility the shuttle, if for some reason we have a problem with that, we'll just put it back in the payload bay and bring it back down and fix it on the ground. So that's what we're doing. Now, what is the relationship to the EVA on this particular mission to that one and to the whole subsequent future of the shuttle program. Just like everything else that we do at NASA we try to approach it in little logical steps. Today's EVA was important, or rather this mission's EVA was important. It was important and in fact, I accelerated it in the EVA schedule for this mission because I wanted an early look at the kinds of problems that we might have. An early opportunity to check out the suits, the procedures, and to begin to mature our EVA operations. And, I think that it was a wise thing, because of course, we found a problem. We don't know as of yet just what kind of, how serious these problems are, we already have an investigation team formed, and as soon as we get the suits back to Johnson, we'll proceed with that investigation. It's my hope, and I think the highest probability is that that those are probably some fairly simple problem areas because the suits have gone through a very careful and very extensive checkout over a long period of time. That doesn't mean that we're not as I say, both disappointed and concerned that we had this particular problem. But all we'll do is that, on the next available flight, we'll start again. And we'll do another EVA again to work on

these same objectives to begin to improve our procedures and to make sure the equipment and the people are working right, so that we'll be ready for the Solar Max Mission, and the other EVA systems or EVA activities. The shuttle is a manned system and in order to exploit the shuttle as a manned system we want to be able to use the man effectively, inside the vehicle and simply and effectively outside the vehicle. So, this was a loss, and I don't want to try to make that loss any less or to down play the problem. But we'll get up again very very soon. And in fact during the flight as soon as on Saturday, we made the decision that we would not be able to go EVA on the flight. We got the crew in from the sixth flight, and we looked at their training status and tried to see, can we fit that into their flight, and there is an opportunity and provided we know percisely what's wrong and we have it corrected and we have confidence in that correction, then I believe we have a slightly different EVA activity on the sixth flight. If for some reason the solution to the problem takes a little longer than that then we'll get it on the seventh. So it's a process of building up that experience for our STS-13 mission, the Solar Max Mission, and that's kinda the way we look at one particular problem. Now, if you look at all the rest of the mission, in fact it was a really rather boring mission in that from the viewpoint of the equipment working, we had minor minor problems, and what we're seeing here are two things. We're seeing the maturation of the space shuttle as a system, but we're also seeing something that every pilot and every maintenance man knows very well, and that's when you keep an airplane in the air and you fly it over and over again, then it stays healthy, and in fact the most dangerous thing you do in an airplane is you keep it on the ground, so what we're doing is we're getting our re-usable Spacecraft, we're working out all of the bugs, and they're working effectively, so we're delighted with this mission, we're specially delighted with the performance of the crew. And of course the team that backs up that crew. And with that, I guess I'd like to open to any questions.

PAO We'll take questions now. I guess everybody thought it was a good mission, right? One back in the corner.

BOB LOCK

PAO Bob Lock from AP.

BOB LOCK AP First look at the ship, any damage, tile damage, the general, the shuttle itself, what kind of shape are we in?

ABRAHAMSON We do have two little chips on two tiles back in the OMS pod, I haven't gotten the final report from the walkaround on the ground at this point, we knew about those two

STS-5 POST LANDING BRIEFING p013da 11/16/82 10:00 am PAGE 4

little chips in the air, we didn't consider that those are any kind of a serious problem. It's beginning to look a little bit more like a used space ship all the time now.

ABRAHAMSON on the TV, if you notice you know, it's beginning to have a few streaks on it here and there. We'd like to have it look shiny and new, but I'd rather have it perform in a reliable way, that we all know about. So, if it looks a little used, it doesn't bother us.

PAO Okay, let's come to JSC for questions.

RECER On the EVAs for, on 6 or 7, do you plan to make any changes in the prebreathing system that was planned for use on this mission?

Who have we got talking, please.

RECER Paul Recer of the Associated Press.

ABRAHAMSON Paul, for the immediate future, we'll probably be using the same general protocol that we had on this mission. It's one that we have confidence in, and it's one that the, both the proper relationship between the pressure of the orbiter and the pressure of the suit. We'll work and we're confident in. We are progressing with a set of additional tests to look at alternate modes which might give us a little more flexibility in the future, but that's a long term program. And for our immediate flights we expect that we'll use very close to the same. There might be some minor adjustments, but we'll try to stay within a medical protocol that's been established based on large number of tests in chambers, with a large number of subjects.

PAO Craig Covalt, Aviation Week

COVALT Abe what type of EVA are you looking at on STS-6?

ABRAHAMSON Okay, Craig, thank you, you're a good straight man, sometimes. One of the most precious resources we have on any of our flights is the flight crew's training time. You may not all realize just what a job we have in getting them trained in each of their tasks. And remember, we're not just training one flight crew at a time now, we're training many flight crews, in the sequence of missions. So we're going to have a slightly, if we do indeed get the problem solved, and if we are then able to get up on STS-6, we will change the specific objectives. Remember this time we had a set of simulator tasks associated with the solar max mission. On STS-6, the crew is already been training in the backup mode of going out and making some repair actions and corrective actions for the deployment of the T-DRIS satellite, the Trackina and Data Relay Satellite, that we'll be putting out on STS-6. And even if that is a successful mission, and we surely expect it to be. What we'll do is we'll go out, utilize the training that the crew already has and we'll exercise some of those procedures that are associated with the cradle that

spins the inertial upper stage and the satellite. So that's why I say it'll be a slightly different protocol. And the reason it'll be that different protocol, is because the crew is already trained and we can utilize their effective training. Now if we do it on STS-7, which has a different timeline, it's quite crowded, it'll probably be still different.

PAO Carlos Byars, Houston Chronicle

BYARS Abe, will this entail an extension of either STS-6 or STS-7, and could you tell us how many days that would be?

ABRAHAMSON We haven't decided that yet. We'll look at it and I'm very willing to extend the mission and I think we have the capability to do that. But what we have to look at is just how crowded the timeline will be, and we just haven't done that yet. But I'm willing to and I think we can easily extend it a day or two, if that's necessary, and useful in order to have a well optimized timeline.

JERRY HANNISAN (TIME MAGAZINE) This was a max breaking performance out there on that runway, and could you give us some basic data, sir, on the temperature generated in the brakes, maybe on the tires? And how long was the roll out, it looked fairly short down the runway, was it the shortest?

ABRAHAMSON I only have a preliminary look at the rollout data at this point in time, Jerry. And it looks like somewhere between 9,000 and 9,500 feet. Now that is very preliminary and I don't have back yet the detailed temperature readouts. They're going through that process, and right now on the brakes, so I'm sorry. We'll try to get that to you by the way, as quickly as possible, but it's just not available at this time. They schedule the press conference here to early.

CARLOS BYARS (HOUSTON CHRONICLE) With a follow up to that question. Do you have preliminary readout for us on the touchdown itself? Was it over, under or spot on?

ABRAHAMSON It looked just about on to me. Again, preliminary it looked like between 1,000 and 1,500 foot down the runway and that's just about the right place.

PAO This gentleman here.

MIKE MECHER (GINNET) Are you still on the January 20 STS-6 schedule?

ABRAHAMSON No we're not, Mike. We have had trouble, I think all of you know in completing the qualification of our engines for the Challenger. The Challenger's come along well, but we have kind of nurse the engines through it. We now have all three

engines down at the Cape and installed in the Challenger. There are a few parts yet for changeout and some followup work that we're doing. The way we have now set the timeline is what we've indicated is that the mission can't be before the 24th of January. And the key to it is just how fast we can safely move into doing our flight readiness firing. I felt that it was important on this first flight of a new vehicle and first flight of a whole new set of engines, engines that are intended to go to a much higher thrust level, that we do get the confidence that goes with the flight readiness firing. Now what that has done is that has inserted an extra two weeks of activity into our timeline for this flight. And it was of course, never planned for until that decision was made, and that's just being a little conservative. So, our estimate of the timing is no earlier than the 24th of January, and hopefully no later than around the 4th of February. But we won't make the final decision until we know a little bit more about our success in approaching the flight readiness firing. And we're also looking to get some information on what happened with the inertial upper stage telemetry. We want to understand that, just so that, because of course this will be the first flight of the inertial upper stage in the space shuttle. So when we get both of those information, we'll make that decision, and that'll probably be early in the December time frame.

CHAKIN General Abrahamson, Andy Chakin from Sky and Telescope. Two questions: Would any delay in STS-6 affect the downstream missions? And also, would the driver on a EVA for 6 or 7 be, how long it takes to figure out what went wrong with the suit, or how long it would it take to train the crew?

ABRAHAMSON Okay, let me answer the second question first. The driver is, we've already on number 6, picked an EVA protocol that will be, or a procedure that the crew is fairly well trained in. So the problem is to fix the suit and to know that we've got in fact a good solid solution and that we have the reliability of the suits at the level that we have a high probability of success on the mission. So that's the important parameter for the EVA on 6 and 7. How about repeating your first question for me.

CHAKIN First question was, would any delay in 6 force slippage of downstream missions, or can't you tell yet?

ABRAHAMSON If it were a major delay of course, it would have an effect on 7. But we can absorb a minor delay.

PAO Okay, we'll go to Marshall for questions.

Jim, let me ask you a question that I asked Glynn Lunney yesterday, and I wasn't fully satisfied with the answer. NASA has touted the Shuttle as the most flexible space vehicle to come along yet. Why can't you simply add Lenoir and Allen to the

STS-5 POST LANDING BRIEFING p013db 11/16/82 10 am PAGE 4

crew of STS-6, and the work station and simply go ahead and fly the EVA that was attempted this time?

ABRAHAMSON I'm sure Bill and Joe Allen will really be delighted to have you touting them, or helping on that. Surely that is a possibility, it's one of several. And what we're trying to do is look at the balance of all of the missions and how we use our flight crews for those missions. And while I can say that that might be a good way, there are also several other good ways in terms of how we fit that in, and we just haven't made that decision yet.

Okay, so the EVA that Muskgrave and Peterson might do, would simply involve cranking the IUS cradle back down into position. And there would be no solar max really to repair task on that?

ABRAHAMSON In all likelihood, that would be at least the primary source of it, yes.

No further questions from Marshall.

PAO Let's go to Kennedy Center now.

BARBARY General this is J. Barbary at NBC news, I have 3 questions, I'll ask them in order, first: If you don't get your EVA on the next mission, STS-6, will you consider using mission specialist Sally Ride on STS-7 for spacewalk?

ABRAHAMSON You know, it sounds to me like several of you are all in the employ of several of our flight crew. We're going to have to check that. Surely, we'll consider Sally along with everybody. The crew assignment process, let me just try to be serious about this, the crew assignment process and how we allocate the, best allocate the crew's skills into the overall time line is a very complicated thing and we'll, we consider everyone of those kind of options. We're considering adding crewmen to some of our flights that are already in training but we haven't made those final decisions yet and it's just too early for me to comment in any detail on it. But I'm sure all of the astronauts that you've mentioned will be delighted for your interest.

Joe, my second question is, you mentioned the other day while you're over here at the Cape. That STS-9, Columbia's next flight will be a night landing at Edwards Airforce Base. Are there any plans to put anti-collision lights on Columbia for its entrance through the atmosphere?

ABRAHAMSON No, there are no plans at all. However, this morning I was going over and looking at, since we were up pretty early out here in the dark, looking at the lighting scheme that we're working on and it looks like a very effective lighting scheme. But, no plans to put collision lights on.

And finally, how many flights on the schedule right now in 1983?

ABRAHAMSON I'd like to comment about that. You've given me a very nice thing. Let's not just talk about the flight. Let's talk about what we're doing at this point in time and I think it's helpful for you to get a feel for the fact that we're moving in 1983 into a very, very challenging, full activity base with a lot of, in addition the operational character which is obviously our first and primary activity is to deliver satellites and to do those things, we're doing a whole series of others and let me just read a few to you here. It'll be the first flight of a new orbiter, and by the way, I'm including in this base now the first year of operational flights. That's starting with the flight that landed today up through STS-10 which should be back down on the ground just about 1 year from now. So here is 1 year's of activity. The first flight of a new orbiter, the Challenger. The first use of our higher performance engines, the ones that are qualified all the way up to 109 percent thrust. The first use of a light weight external tank, one that gives us a great deal of increased payload capability both on the east and west coast. The first use of a high performance solid rocket booster motor and that's now been checked out in Utah at what I call very, very successfully. We're looking forward to the use of that. First use of an adaptive first state guidance scheme. And out of that what it means is just by more adaptive use of the

trajectory itself, we can improve our payload throw away performance itself. The first space lab. That means our first six man mission itself, six person mission. The first dedicated FOD flight. That's STS-10. We'll deploy 5 commercial satellites using the payload assist module that McDonnell Douglas has developed. We'll deploy 2 TDRSS, our tracking and data relay satellites. Those are important to the space lab missions, but more than that, that'll save us a great deal of, we'll simplify our worldwide tracking net and it'll save us all money in the process and give us better coverage including for some of the news activities. The first demonstration of an around-the-clock crew operations aboard the orbiter so that we have people sleeping and working in a three shift kind of operation. We'll have several EVA activities. We'll have the first proximity operation meaning we'll have a small satellite. It is the German Spaas, which doesn't look like a satellite at all, which will be operated out of the shuttle bay, fly around the satellite itself and then we'll go get it with the arm. So that'll be the first arm (garble) scapple of the prefling satellite. We'll have the first, we hope if we can resolve some of our problems, the first automatic landing. We'll have the first night landing here at Edwards on STS-8. On the sixth flight, the first use of a heads up display which we think will help us even more although we've got some really great and accurate landings at this time. We'll continue developing a short field landing technique which we would use if we were going to go into our transatlantic abort site. That kind of thing. So you can see we have a very challenging schedule for those 5 flights that will go ahead in this, in this next year. We should have a minimum, and notice I stress a minimum, of 32 NASA astronauts and 3 payload specialists or 35 total that will have flown in the Space Shuttle Program in from STS-1 through that STS-10. If you want to compare that to Apollo, that was some 33 astronauts that flew in a period of 4 years and 2 months under the Apollo program. And I stress minimum because we have just approved a policy of expanded payload specialist operations so we'll probably be adding both to our own crews, with our own crews - our own mission specialists, and some, we hope, some people that otherwise may not have had a chance to fly. We're trying to expand the Shuttle Program. Remember the Shuttle Program is something that belongs to the American people and to our friends and it really is something. It belongs to everyone of us and we're trying to expand it and make it commercially useful, scientifically useful, important to our Defense Program and just make it more and more accessible to every aspect of the American economy. And that's what it's all about. By the way, we'll also have a great number of student experiments on this and I think many of you know that I'm very interested in that part of the program and I do happen to have one of our experimenters on this flight and if Scot, if you wouldn't mind and Gil, would you mind coming up and you might like to just comment briefly on what you've done. Mr. Gil Moore of Utah who was the sponsor of one of our students on this flight

and Scot Thomas from Utah State, perhaps you'd like to say a word for all of us, Scot.

SCOT THOMAS I had an experiment in the middeck on this flight to study circulations in a heated liquid and it was just mixing in the heated liquid and on the earth, that's caused by gravity like hot air rises. But in zero g other things can cause circulations also. And it's going to be important to understand those for the future materials processing industry. So my experiment was conducted by Joe Allen on Sunday morning and we had 2 boxes, a control box and a pan assembly, and the pan assembly had 7 experimental pans. They're aluminum pans with heaters in them and Joe would take some syringes that were prefilled with an oil and squirt them into the pans and then turn the heat on to the pans. And we had some unexpected results. The liquid behaved unexpectedly in the pans. It didn't spread out evenly on the bottom but we still did get some results. We did see some circulations and we were able to fix the problem and get the pans filled up correctly later but we're not sure what the circulations looked like after that so we'll be anxious to look for the final results.

ABRAHAMSON Anybody want to ask Scot a question. I can assure you that his, that none of us can keep up with him in terms of his technology. Thank you Scot.

Bill would you like to...

GIL MOORE I just wanted to say one thing about the operations. We were blessed by the fact that NASA gave us an opportunity to sit in the MOCR. Scot got to sit at the payload station in MOCR and Joe was having some difficulty trying to get the circulation established and Scot had the opportunity to watch this on a video downlink and then to communicate through the mission controllers through the CAPCOM to Joe and say Joe I would like to suggest that what you do at this particular point is tap this dude and get it to shake a little bit and break up that problem and Joe says I promised you I wouldn't do that, I wouldn't bounce this thing around but I'll do what you say. And he also was able to show Joe a technique for injecting the fluid underneath the rim of the package in order to get good adhesion on the base and the data that we would have gotten may not have been so great, but this opportunity that was provided by this system allowed him to make this man/machine interaction. It's a perfect example of what can occur when you have man and machine and it was neat to have it happen with an 18 year old kid dealing with a very talented and a very dedicated astronaut and we would like to thank NASA for that fantastic opportunity.

SCOT THOMAS I would like to thank NASA and Marshall and Johnson and Kennedy for all their help and also Fikol for making the experiment possible for sponsoring. It was a fantastic

opportunity.

DRYDEN (PAO) Okay, small commercial for one of my favorite parts of the program. Anybody else have any other questions?

(garble) Kennedy we're still you.

BRIDGE TURNELL (BBC) General Abrahams this is Bridge Turnell, BBC. Two questions. First, practical one. About space sickness you're very naturally full of optimism but the fact is we've had half of the crewmen, 6 out of 12, have suffered from nausea. This seems to have reappeared as a major problem. Do you feel that?

ABRAHAMSON Yea, I'd, your number's about right. We have had varying symptoms with approximately 50 percent of our people. And, by the way, if you go back over the history of space flight including some of the activities that the Russians have had, at least to the extent that we've all shared data - and by the way that has been an area where we have had good communication with the Russians particularly in the early days when they did a lot of experimenting as we did - that percentage somewhere between 30 and 50 percent of the people having varying degrees or/of symptoms of space sickness. Now this is, this is something that is a rather complicated phenomenon but I believe that, and I don't want to downgrade this.

ABRAHAMSON It is a problem for us, it clearly is and it's one that we're paying a great deal of attention to. But you also have to put it in a larger perspective. So far, even though it has been a problem, it has not impacted in any significant way, our ability to do the job. It's just like, well every Navy in the world has a similar problem, and although I'm not a sailor, somehow they get the job done even when they've got part of the crew that's sick and we have too. We've got some dedicated flight crewmen, who even if they're not, have not fully adapted yet, they get the job done and they do it right. Now we do make some accommodation for that, we try to keep the activities in the early part of the missions, well spaced, and the kinds of things that don't require a great deal of movement, so that we try to minimize it. And obviously we do have a very careful program of an examination of the right medication for each individual crewmember, so that we know the side effects of those medications and so that if a person does become ill, or it does begin to interfere, and we give him medication, or her medication. We have confidence that we're not going to get any side effects, that again will interfere with the mission. So it is a problem, and we're not dealing with it lightly. It's going to take, I believe, a lot of research to solve. But the important part about this problem is that we're going ahead and doing the missions and we're getting them done properly and well. Sometimes there may be some minor affect, but it isn't interfering. Therefore, and we don't anticipate that it will interfere and we're going to do our best to avoid that. I suspect you've gone to work sometimes, either with a feeling pretty bad, or maybe even with a hang over, and I suspect that you've done the job. Well these guys do, under the most toughest job in the world and they do it and they do it well.

And could I go back to the human angle for a moment. Presumably by now, you've got an STS-11 crew preparing for the first exercise with the MMU. Can you help us to speculate who's likely to be the first man or woman to use that manned maneuvering unit on STS-11?

ABRAHAMSON Actually, we're looking at variations on just how early it may be possible to exercise the MMU, and we have not yet announced the STS-11 crew and would be premature for me to comment on that at this time.

PAO Okay, we'll go back to Johnson for one question.

BERGMAN Abe, I have two questions. I'm a little puzzled about how EVA could have gone from being a minor goal on the STS-5 flight until this past summer, to now being a major mission objective?

ABRAHAMSON Okay, I think that's a good perspective question, Jules. We've had on our, in the OPT portion of the flight

program, we had very, if you recall, very full time lines of a whole series of test objectives associated with the machine primarily to making sure that the machine worked. And throughout all of those four flights, we did recognize that we might have to go outside for EVA activities, but the training that was done was with the EVA concept that EVA was to solve a very critical problem during that time. Now as I say, we're trying to look ahead to a time where I would like, and I think all of us who really believe and understand the potential of the Shuttle, want us to be able to operate both inside and outside with equal ease, and to be able to utilize man's ability on the spot, and therefore it's just the time in the program that we should now begin to exercise that, buildup our experience base, and improve our procedures, improve our equipment. As you can see, we need to improve our equipment, so we are moving into that phase and it's just the right time in the program, that's all Jules.

BERGMAN Secondly, supposing you had had a critical failure, let's say the payload bay doors refuse to close, and you had to send a crewman out wearing one of those suits on the first four test flights, the OFT phase, and the fan failed on his suit, the way it did on Joe's, Tuesday, wouldn't that have left us up the creek with a dead crewman?

ABRAHAMSON Well, I think going so far as a dead crewman, to make that conclusion I think that's a little dramatic. Let's take this flight specifically. Remember we had two suits in there and they both had a malfunction, they were different malfunctions. One of them, of course, was the fan, and the problem with the fan is that that allows CO2 buildup, and it by the way interferes, primarily with the prebreathe procedure and the whole objective of the prebreathe procedure is to avoid, or minimize the potential for the crewman to get a case of the bends. Under an absolute emergency condition, we would perhaps, accept some of that risk associated with bends, just as in the past in diving, if there was an emergency sometimes they had to accept the risk associated with that. And by the way, we have a hyperbaric chamber on the Space Shuttle, that if in deed we did get a case of bends, and that hyperbaric chamber is the airlock in combination with the suit. So, that was a troublesome kind of problem, it's the kind of problem that, in an emergency, you treat it differently than you do on a test program, where you don't want to accept those same, that risk level that you have to accept when you have an emergency. Actually, on this flight, we wouldn't have chosen Joe Allen's and Joe Allen's suit, we would have chosen Bill Lenoir's suit and Bill because the problem that he had with the regulator was a lesser problem. But we didn't think it was the kind of problem that we should go out with now, just to meet this particular test objective. But as Glynn Lunney explained, when we announced our decision on Sunday, had there been that kind of problem, we were fully prepared to send Bill out to go latch down the payload door and we would have done it

STS-5 POST LANDING BRIEFING p013dd 11/16/82 10:00 am Page 3

with confidence and I don't believe we would have been faced with a dead crewman.

PAO

One final question from Dryden.

FRANK GREMO (LOS ANGELES DAILY NEWS) Do you still expect flight 7 to land at Cape Canaveral, or have you delayed?

ABRAHAMSON We're still looking at that. There are a whole series of points in data that we want to gather in that. The most important point is the performance of the new orbiter, the Challenger on flight 6. And if everything looks quite good and correlates to the data that we have at this point in time, then 7 is the most likely opportunity in the near term to go to Kennedy. But that's why we're just not arbitrarily making that decision at this point in time. We do want to see to some of that data.

Thank you very much General.

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