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SATURN HISTORY DOCUMENT
University of Alabama Research Institute
History of Science & Technology Group

Date ----- Doc. No. -----

APOLLO 4

PRE-LAUNCH PRESS CONFERENCE

Launch Complex 39 Press Site
John F. Kennedy Space Center
National Aeronautics and Space Administration

Wednesday, November 8, 1967

11:00 A.M.

Participants

Dr. Robert C. Seamans, Jr., Deputy Director, NASA
Dr. George E. Mueller, Associate Director, Office of
Manned Space Flight, NASA
Major General Samuel C. Phillips, USAF, Apollo Program
Director, Office of Manned Space Flight, NASA
Dr. Kurt H. Debus, Director, Kennedy Space Center, NASA
Dr. Wernher von Braun, Director, Marshall Space Flight
Center, NASA

Mr. King: Ladies and Gentlemen of the press, we'd like to welcome you to a windy Launch Complex 39 Press Site and I'd like to introduce these gentlemen to you. From your right: Dr. Kurt H. Debus, Director of the Kennedy Space Center; Dr. George Mueller, Associate Administrator for Manned Space Flight; Dr. Robert Seamans, Deputy Administrator for the National Aeronautics and Space Administration; Major General Samuel Phillips, Apollo Program Manager; and Dr. Werner von Braun, Director of the George C. Marshall Space Flight Center.

Dr. Seamans: I'd like to start in by making a point that what you see here today and what you'll be seeing tomorrow is a result of a long-term, hard-driving effort that has been sustained in a very large number of areas throughout the country. The engines that will be used tomorrow -- the S-I engine in the first stage with a million and a half pounds of thrust, the J-2 engine in the second and third stages gives 200,000 pounds of thrust -- the development was started during President Eisenhower's administration. During the first year of President Kennedy's administration, the decision was made first to develop a major new launch vehicle capability; and second, to develop manned spacecraft with

maneuverability, to have rendezvous and docking capability. It would have the ability to operate out to lunar distances for several weeks, and would have the capability for landing on the moon and returning astronauts from the moon.

Contracts were let in 1961 and 1962, both on facilities and flight hardware. This has provided the new launch complex which you can see here, Complex 39, and the Apollo Saturn V that will be used for the first time tomorrow.

But what you see here is backed up by many other facilities for manufacturing and testing of prototype and flight hardware. It's impossible of course to capture the space environment on the ground in one facility. So we have used vibration tables, vacuum chambers, solar simulators, static test stands that qualify equipment for this flight. For operational purposes, we've added communication aircraft, communication satellites, tracking ships, and ground stations for data acquisition and for communication purposes. These facilities literally go around the world, and they will permit real-time operational decisions to be made from the Mission Control Center at

Manned Spacecraft Center in Houston.

During the peak of the development activity, 300,000 people were engaged in this effort. And today, several hundred thousand people are still required to provide the hardware, the software, and to conduct the Apollo mission. This effort, directed by General Phillips, has passed many critical milestones. I believe that in our Washington Project Status Review we have followed over 200 of these milestones in the past three years, including the recent Countdown Demonstration and the Simulated Flight Mission Testing. But the Apollo 4 launch is, of course, the most difficult and significant milestone to date. We decided several years ago not to proceed incrementally, step by step, on the Apollo Saturn V, but to use an all-up concept to the maximum extent possible. We know we proceeded more rapidly on more fronts using this policy. But bear in mind that tomorrow we'll be flight testing the Saturn V for the first time. We'll be flight testing an Apollo spacecraft entering the atmosphere at lunar return speeds for the first time. We'll be live-testing our launch

and operational facilities for the first time, and we'll be testing our development and operational team in its first major mission attempt for the first time.

I am certain this team, headed by the people here with me today, will not be found wanting. I would now like to introduce Dr. George Mueller, Associate Administrator for Manned Space Flight.

Dr. Mueller:

Good morning. This is the first time in some little while that we had a day before the launch press conference and I certainly am pleased to be back here at this time with the launch vehicle and the spacecraft in the kind of condition it is today. I would like to emphasize two points that Dr. Seamans has made. First of these is that the flight tomorrow represents one of the critical steps in our attempt to go to the moon and perhaps is the most difficult step we're going to encounter. What people don't recognize sometimes is that the unmanned flight which has to replace the manned with the mechanical or electronic device is a more difficult flight to pull off than a manned flight, from the standpoint of the hardware itself. That's particularly true because we also

are not able to use many of the redundant systems that are a part of the capability that we've built into the spacecraft for the manned missions. So this is indeed one of the most difficult flights that we will have to encounter. It reminds me of the Gemini II mission which again was perhaps the most difficult mission for us to get through, in a hardware sense, in the entire Gemini program. Secondly, I'd like to emphasize that there are, in the concept that we've adopted for the Apollo program of all-up testing, real possibilities that not all of the mission objectives will be met on each flight.

We are, for the first time in our experience at NASA, flying a vehicle in which the first stage and the second stage are being flown for the first time, both operating. We will be flying the S-IVB stage in a modified form from that used on the Saturn IB, because in this case we again have introduced for the first time, a restart capability on that third stage. And we're flying for the first time the spacecraft with a new heat shield and at the re-entry velocity characteristic of

the lunar mission itself. There is a risk then that we ought to recognize and yet we have carefully weighed that risk against the progress that we can make, and in our judgement, we will make more progress with less overall program risk by going to all-up testing than we can by the prior system of the individual stage testing, and in our judgement by any other means at our command.

I am looking forward to, and know that every member of the group we have on the program is looking forward to, a successful flight tomorrow. But, if we are not successful, we will still continue. Thank you.

Dr. Seamans:

I would now like to introduce the Program Director, General Sam Phillips, who has won milestones, and is concerned about many thousands of activities that all had to be pulled together and converged in proper sequence for the flight mission to be accomplished tomorrow.

General
Phillips:

Apollo 4 is a pivotal mission in a series of missions that will result in our achieving a manned lunar landing and return. It will tell us two

essential things. First it will validate that the development of the Saturn V launch vehicle has been done thoroughly and that it works, and it will validate that the heat shield which is required for lunar return and re-entry of the spacecraft has been adequately designed and that it works.

It will tell us another major thing which is very important to the program, namely that our operation organizations around the world are indeed adequate to carry out the missions that are ahead. The work in developing the Apollo/Saturn V has been done thoroughly, and has been done with great rigor by a very competent team. This mission is ready to go. The countdown is on schedule. There is some marginality to the weather forecast for in the morning in terms of wind conditions. There is one open failure report that I am going to be considering later today which developed during the night, a problem with one battery. The battery has been replaced and the count is proceeding on time. The open failure report needs evaluating. There is a problem also with switching in the

television monitors that is required to monitor the preparation of the vehicle for flight. This requires adequate resolution by this afternoon. So there are then three areas that are under consideration that bear on the flight - a battery, television monitors and a marginal weather forecast condition regarding wind. I am extremely proud and pleased with the performance of the Government and industry teams that has brought us up to a state of launch readiness, and I expect to see the results of this work successfully demonstrated in this flight tomorrow.

Dr. Seamans: The responsibility for Apollo activity is vested in four of our NASA centers in a major way. These are the Goddard Space Flight Center that has responsibility for the tracking and data acquisition network including the aircraft, the ship and the ground stations; the Manned Spacecraft Center that has responsibility for the manned spacecraft, the Apollo and the lunar module; the Marshall Space Flight Center that is responsible for the launch vehicle; as well as the Kennedy Space Center, responsible for the facilities you

see here. Two of the centers are represented here at this press conference and I would first like to introduce Dr. Wehrner von Braun, Director of the Marshall Space Flight Center.

Dr. von Braun: This is of course a crucial test. The first launching of a new and untested rocket. It's the actual test of the work performed for years and years preceding this launch. As Dr. Seamans just pointed out, Saturn V is the first attempt to test fly a 3-stage rocket of this complexity and of this size under the all-up concept. Unlike the smaller Saturns, where we first flight tested the first stage with water ballast in lieu of the second stage and went stepwise from the simple to the more complex configuration, we are trying the whole thing here on the first attempt. And we are convinced that the obvious additional risks that we are courting by doing this is compensated by the fact that we provide much better visibility into the innards of the rocket prior to takeoff. We have placed many thousands of electrical eyes and ears into the rocket that permit us to monitor the speed of every component and every vital subsystem prior to launch. So it is very unlikely

that we will launch this rocket with any sick component or any sick subsystems. On the other hand you pay a price for this also. The more you know about the status of all the components and subsystems within the rocket the more likely it is that you encounter what we call the redline value; that you will find out that there is something objectionable, some components that must be replaced or repaired before we can launch. So while we are reducing the risk of launching a faulty rocket, we are also increasing the risk of not being able to get it off on time. Now we are confident that we will be able to launch it tomorrow but keep in mind that this is the first try and should we run into a redline value I can assure you we will not go ahead and wave it off, we will just do what must be done even if it costs us a day or two. We are confident that this rocket is well designed, that it is well built, and that once it is safely off the pad, that it will fly well.

Dr. Seamans:

I have already indicated that Dr. Debus is responsible for the facilities that you can

see here. He is also the recipient of all of the development hardware, the various stages and modules that are the responsibility of other centers. His job is to take this equipment as it comes in from these many sources, from contractors and from NASA development centers, and put them all together and make them work and be able to so conduct the countdown that he is sure that they are all working. I give you Dr. Kurt Debus of the Kennedy Space Center.

Dr. Debus:

Good morning ladies and gentlemen, I would like to welcome you to your new facility here as host of this establishment and hope that you find it functional and comfortable. As you know, in the past year there was a very massive construction effort that brought in the facilities you see here in front of you. During the past year we have activated this facility. About a year ago we had a vehicle here looking like a Saturn V, but it was essentially for the purpose of exercising our facilities. We have learned from this and in the past year our main attention was focused on building up the total team that was required to do this operation. As you know this is a mixed

team. A new concept is being exercised; that is that the various contractors and the Government form a team which, like a team, has to work together. The contractors retain their full responsibility as to the hardware performance, under the guidance and direction of the development centers, of course. But here at this place, from top to bottom of the launch flying configuration, spacecraft as well as launch vehicle, and into the ground equipment, the total team must work as if it were composed out of one group, loyal to one cause--that is to make it safely fly. The past major test (countdown demonstration test) showed that we were successful in building this team and the rest of the rough edges are being polished off and by the time we go into the final count tonight, if you could participate actually in this count you would see a total whole team and not individual components. The countdown demonstration test took a long time. It was anticipated because we wanted to learn. We have learned some very major lessons. One lesson was that we can now afford to break the final count

at a time that permits the actual launch team to have some six to eight hours rest before they take their positions. We are now, or we were at 11:00 a.m. at the point of 12 hours and 30 minutes in the count. At 5:00 p.m. or 1700 today, we will enter a 6-hour hold. We will resume the count, then at minus six hours and 30 minutes tonight at 11:00 p.m. There will be another one hour and a half, 90 minute, hold at T-4 position, which will be for continuing a slow fueling activity of the S-II stage. If everything works well we will plan a liftoff at 7:00 sharp. The final count is essentially fueling operation and final preparation and there will be a fresh team in position. I am confident that, weather permitting, we have a very good chance of getting Apollo 4 flying tomorrow morning. Thank you.

Mr. King:

In closing this part of this press conference, first I would like to express again that we in NASA are not only indebted to contractors for the many many efforts required to place this equipment here in working order, we are also indebted to other agencies, particularly the Department of Defense for assigning extremely able people to the program such as General Phillips, for supplying the work required from the Eastern Test Range and for providing the Navy Recovery Team which will retrieve the Apollo capsule out of the Pacific Ocean tomorrow.

Mr. King:

We will now proceed into questions. Out in each aisle we have somebody with a mike. We will try to identify you and then take your questions.

Mr. Snyder:

Arch Snyder of the Chicago News, for General Phillips. Would you please discuss more fully the wind requirements limitations; also, how it affects the spacecraft and also, the cloud cover requirements.

General
Phillips:

The launch mission rules set a peak gust limit of 28 knots at the time of hold down release. That is the critical time in the launch sequence so far as the effects of winds are concerned. The requirement is that at the time of the release of the hold down arm that the wind not be exceeding a condition

of 28 knots peak gusts. This requirement is set by the structural configuration, with the interaction with the hold down release and the vehicle's very long structures. The actual point in the structure at which the limit emerges is in the region with the connection between the launch vehicle and the spacecraft. You asked about cloud cover. It is very important for us to obtain optical photographic coverage with that portion of the trajectory that can be gotten from cameras on the ground. The Air Force will be supporting this mission tomorrow with the aircraft which has on board long range photographic equipment. We want to be able to get camera coverage, and cloud cover which reduces that coverage significantly could give us a problem.

Mr. King:

I would like to remind you before proceeding that we do have a second conference this afternoon concerned with a number of the principals concerned with the actual countdown and the mission itself from the point of view of launching and flight operations. You might consider some questions...at least save some questions for them, is the point I am getting at here. We also would appreciate, for transcript purposes, if you would identify yourself. We expect

to have a transcript for you this afternoon on this. Mr. Lewis.

Mr. Lewis: Richard Lewis of Chicago Sun Times. If there is a postponement tomorrow morning because of wind when would be the time for earliest time for launching? Assuming that the wind would die down for 24 hours would it be possible to launch the vehicle 24 hours later?

Answer: Yes, it would be. The critical point would be somewhere in the middle of taking on cyrogenic load. If we decide tomorrow evening that the chances for favorable launch conditions do not exist, then we can recycle for 24 hours.

Mr. King: Mr. Hines, right over here.

Mr. Hines: Bill Hines of the Washington Star. I would like to ask one of you gentlemen to give us an estimate, if you can, rounded off to five to ten million dollars, of the total cost of this operation, and break it down to rocket cost, spacecraft cost, operation support cost, and overhead.

Dr. Seamans: It is impossible to provide a unit cost figure for a booster and a spacecraft during the initial phase of any development program. We have indicated that the total cost of the program will run to around

23 million dollars. This includes the Saturn IB and the 15 Saturn V's. This of course includes the cost of the facility here at Complex 39, which I believe comes to roughly half a billion dollars. It includes roughly 7 billion dollars for the launch vehicle development, the Saturn V and the IB, and roughly the same amount of money for the spacecraft development. I believe that cost to date is of the order of 16 billion dollars.

Question: Just to follow up would it be fair or just to put a price tag like 500 million dollars on what is going to happen tomorrow?

Answer: No, I am not willing to say that that is the cost of the launch tomorrow. I don't think you can assign such a number to it.

Mr. King: I am going to hop over to the next section. We will come back to you fellows who have your hands up. Right over here please.

Roy Neal: Yes, I wonder if Dr. Debus could give us a little of the policy pertinent to the fueling operation, in view of the marginal weather. I am not quite clear on that point.

Mr. King: Would you identify yourself, Mr. Neal.

Mr. Neal: Yes, I am Roy Neal, NBC News.

Dr. Seamans: Well, I would like, if I might, to refer that to General Phillips, who is the director of the Apollo Program, and who will be responsible for making the final decision tomorrow.

General
Phillips:

The critical point in the timing is the beginning of the cryogenic loading, and that occurs tonight when the countdown picks up again, as Dr. Debus indicated, at eleven o'clock. We have the initial actions after the starting of the count our chilling and preparation for cryogenic loading. The launch director has scheduled a weather conference forecast situation at that time and the immediate decision that has to be made then is whether or not to proceed with cryogenic loading. The weather forecast, as it was given at our readiness meeting at eight o'clock this morning, indicated that in the early part of the morning there would be winds in the region of 18 to 25 knots. If that forecast holds up in the briefing tonight, I would expect that we would decide to proceed with the cryogenic loading.

Mr. Neal:

If you do decide, General Phillips, to go ahead with the cryogenic loading and are not able to launch tomorrow morning, would you still be able to go ahead with this 24 hour turn around period once you have loaded?

General
Phillips:

No. Once we have loaded and have to detank cryogenics, it is a 72 hours turn around.

Mr. King:

Right in this section.

Carl
Abraham:

I want to ask a question about priorities under the all up concept. If you developed a problem with some secondary system in the spacecraft, would you automatically hold this launch indefinitely until that problem was solved? Or is there some class of problem you would ignore to achieve the launch vehicle flight test?

Mr. King:

Would you identify yourself, Mr. Abraham?

Mr. Abraham:

Carl Abraham of the Philadelphia Bulletin.

Answer:

Our mission is designed with certain objectives stated as mandatory and in order to achieve those mandatory objectives certain systems and instruments have to be working and they therefore are also mandatory. We have in addition to these mandatory objectives a list of secondary objectives which are highly desirable. As a matter of policy, we would expect to hold and correct for malfunctions that would deny us a secondary objective, but would not scrub. Our mission rules say that for a mandatory objective we would scrub the mission if it was necessary to correct something. I would make the

observation that this work as I think we have outlined it, is the right way to proceed in planning for and conducting a launch. It is not uncommon that in the final minutes of launch readiness that other factors will come to bear that would require some final real time decision. But as far as policy and practices are concerned I have indicated how it goes.

- Dan Partner:
Denver Post Assuming an on-time lift off during the window, at what point in the flight would you consider the flight a success in the all-up concept?
- Gen. Phillips: The complete success is when the capsule has been recovered and all the data has been returned and we've had a chance to analyze and evaluate the performance of all equipment.
- Dan Partner: Now that would be a complete success. At what point in the flight would you be satisfied?
- Gen. Phillips: I think that's really kind of a hard question to answer. You could take it through sequences. After the first stage has worked, you know it worked. I could take you on through the rest of it -- I'm not real sure how to answer your question.
- Dr. Mueller: Let me take a crack at it, Sam. Actually, the reason we went to the all-up test concept is to provide the maximum amount of information from each one of these test flights. In a very real sense, it is a continuation of our basic philosophy in the program of open admission. So we hope that we do not have a failure. We expect, if we do, to learn a great deal from each failure that occurs. I think that is characteristic of the program up to this time. I would consider it successful, then, in any event, in the sense that we would be learning from our experience, but I would also hasten to add that the all-up test concept permits us to move forward when we have successfully

completed every phase of the mission. After each mission we then go back and evaluate what more we have to learn before we undertake the next mission and modify whatever the mission profile is to provide us with the ability to learn the next increment of information we need before we are willing to embark upon the lunar landing mission itself.

Dr. Seamans: COMMENT. ' I can assure you that no one in the program will be satisfied unless we have complete success; however, the break-even point, if you want to think of it that way, I believe it's already been achieved. I believe that by the efforts that have gone into the preparation for this flight, we have moved all the hardware and software and training ahead much more rapidly than if we had gone at the program on a step-by-step basis.

Walter Cronkite: I would like to ask a couple of unrelated questions. The
CBS first one is for Gen. Phillips. Regarding this loading of cryogenics -- you begin advance preparation for loading of cryogenics at 11:00 P.M. You're getting a weather briefing at 11:30. At what point can you stop the loading of cryogenics and still make the 24-hour turnaround?

Gen. Phillips: At around midnight.

Cronkite: Thank you, sir. And now I would like to ask Dr. Seamans if the new scheduling of two additional unmanned Apollo shots indicates any lack of confidence in the earlier stages of testing? What is the actual reason for those two extra shots and would they be cancelled again if

the immediate subsequent flights are successful?

Gen. Phillips: This does not represent a change in confidence in the progress of the program. We were already preparing 206 for the second LM launching. We were already preparing the 503 for a possible unmanned launching and we felt that in considering the program we should not represent it in terms of the most successful steps that might be taken, but that we should represent it on a basis of flights we feel may very well might have to be taken, that is, a higher probability type program. However, if we do not require 206, then we will convert the 206 launch vehicle over to some other flight. If we are very successful with 501 and 502 and require no additional data we will then use 503 for manned flight, but the present program -- the present official program calls for two unmanned LM's and three unmanned Saturn V's.

John Wilford:
New York Times

From what you know and what you can surmise, what would a Saturn V success tomorrow do in putting you ahead of the Russians? What would be the comparable capabilities in Russian rocketry?

Dr. Seamans:

Of course, the Russians to date have demonstrated capability beyond the Saturn IB with their so-called protone launch vehicle which was the launch vehicle used to put the protone spacecraft into orbit. We believe with this launch vehicle we'll have a capability of the order of 35

to 40 - 45,000 pounds. They have not as yet demonstrated a launch vehicle with greater capability. We have every reason to believe, however, that in the wings they are working on bigger boosters so that time will only tell how their capability matches up with the capability we hope to demonstrate here tomorrow.

Mr. Bertman:
ABC News

I would like to ask Dr. Mueller or Dr. Seamans...In programming for success and if indeed we are successful on 501 and 502, then it becomes possible for a 503 to become a manned flight -- what is your best feeling without trying to pin you down to a hard date -- what is your best feeling as to when the first Saturn manned flight might be, on 503?

Dr. Seamans:

It's not now planned for 503. The first manned flight is on 504.

Mr. Bertman:

Didn't you just say, Dr. Seamans, that if 501 and 502 were both successes that 503 might then indeed become a manned flight, sir?

Dr. Seamans:

I made it very clear the NASA program calls for three unmanned Saturn V and that the first manned Saturn V would be 504 and this is currently scheduled for the next calendar year.

Mary Fairchild:
Publications

Dr. Mueller, in this revised schedule you have the first lunar attempt on the ninth Saturn V. If the program were entirely successful in the early stages -- the unmanned and the manned flight shots -- what would the earliest

vehicle that you might accelerate to be for the lunar landing attempt?

Dr. Mueller:

We do not have a firmly committed vehicle to the lunar landing mission. As you know, our basic philosophy in programming is to move forward as rapidly as we can from flight to flight. We are in the process now of preparing the detailed timeline that goes with the early Saturn V mission -- until we first of all know how much we can accomplish in principle on each mission and then until we are able to measure how much we are actually able to accomplish versus what we think we can accomplish, we are not in a position to pinpoint any particular vehicle as being lunar landing vehicle. I think that with reasonable success we have a reasonably high probability of achieving the manned lunar landing before the end of the decade. I don't know which vehicle that is likely to occur on.

Dederer: Doug Dederer with the New York Times.

Who will make the decision to commit the vehicle for launch tomorrow? Will it be one of you gentlemen, or will it be somebody in the upper tier over in the LCC, or will you just set a regular go and carry it right down to launch?

Answer: The decision tomorrow will be made by General Sam Phillips.

Answer: I think if, I may, Dr. Seamans, we've established our mission objectives and our mission rules, and a mission organization. The organization has its marching orders and its plans, and as long as things proceed in accordance with the plans and the rules, the mission organization will be making the minute-by-minute decisions.

Question: I'm a little confused by Dr. Seamans' answer to the question about the 503 flight. Are we to understand that under no circumstances of complete success on the 501 and 502 will there be a manned flight on 503?

Dr. Seamans: What I said on that is that the present NASA program calls for two unmanned LM's and three unmanned Saturn V's. This kind of a decision isn't a paper decision. It involves preparation of what Dr. Mueller called the electronic equipment that has to be placed in the spacecraft in order for them to fly unmanned. These are difficult missions to carry out unmanned, but we feel that we should have provisions for this in the program, both for the LM as well as the Saturn V. However, if after 501 and 502, we have all the data that we need, all the equipment has worked satisfactorily, we will

certainly consider then using the Saturn V vehicle for a manned flight. But that's a decision we'll reach at a future time and it's not a commitment that we could possibly make at this time.

Question: Alright, to go back to Bergman's original question, that given success on 501 and 502, if you decide to fly men on 503, what would be the earliest time that we could look for a manned flight?

Answer: It occurs, as I remember, it's still at the end of Calendar 68, perhaps one or two months earlier.

Dave Benman:
Newsday Dr. Debus, the Space Center staff has seen many shots. How is it reacting to this one? I'm thinking of the work crews now. They've seen many shots. Now, how are they reacting? Is it just another "ball game" or is this a real big one for them?

Dr. Debus: It's really a big one for them, a very major ball game.

Dave Benman: What I mean is, what about the overtime they've put in? Is this getting to them right now, the hours they're putting in? I understand 60 hours for some of the men.

Dr. Debus: Well, many, many people have put in a very considerable part of their total time. I don't think it's getting to them in the sense that they are overfatigued. They are tired, as they should be. We watch very carefully that we do not overfatigue people, or put them in a fatigue status that they would not be capable of reacting right

in the right time. What's ahead is a very major effort.

Robert Richards:
Oregonian

Some have called this shot man's greatest technical industrial achievement. Dr. Seamans, how do you evaluate the overall importance of this shot, and more specifically, how it might affect the timing of the first landing on the moon?

Dr. Seamans:

I tried to emphasize in my opening remarks that this is an extremely important milestone in a program that has many difficult milestones. This will be, certainly, a great accomplishment for a large number of people, if it is successful. However, this is just the beginning of a flight program and since it is a developmental flight program, we know that if we run into major difficulty that it could cause a serious delay. But even complete success is not a guarantee that all the remaining steps will move along sequentially as they're now planned. We still have a long way to go to develop the capability that we started back in the beginning of this decade.

Ed Delong:
United Press

First, if we do have cryo loading, will it be a 48-hour or a 72-hour turnaround period. I understood both to be given as answers.

Answer:

After cryogenic loading is completed, the turnaround time is 72 hours.

Ed Delong:

And secondly, does NASA have at this time any plans for either a circumlunar flight or an elliptical earth orbit

flight with an orbit large enough to pass around the moon.
If so, at what point might that come?

Answer:

As you know, we do have a sequence of flights that lead up to the manned lunar landing. This one tomorrow is one of these steps. The next class of flights are low earth orbital flights on the Saturn I. The next class are low earth orbital flights on the Saturn V, and the next step towards the moon landing are high altitude, high apogee flights, which carry out lunar mission simulation. There is no plan to extend this flight beyond 10 to 20,000 miles. The final step is a flight to the moon itself. Now in the lunar flight, and each of the flights before that, there are a series of plateaus, each one of which provides us with the opportunity to re-evaluate whether we should proceed with the mission or return to earth. So that one of the mission plateaus is in fact an orbit of the moon. If we were not then prepared to continue to the lunar landing, we could and would return from lunar orbit. Our present plans, however, call for missions that go to the lunar landing once we get to the vicinity of the moon.

Harry Peese:
Milwaukee
Journal

Some government employees have made unofficial statements that there will not be a flight on Friday because it's a double-time holiday. Is there any truth to this, and if there is, how many people involved in the launching are on hourly wage status and would draw doubletime pay?

How long can you hold once the cryos are loaded?

Answer:

If the question was whether we are constrained by double-time, the answer is no. We will not be constrained because of double-time or overtime.

Harry Peese:

The other question was -- once the cryogenics are loaded, if we get down to a few minutes before launch, how long can you hold in that condition?

Answer:

We can hold in this condition to an extended time but we cannot of course hold any longer than the window provides because it would not make sense. The window is now 5 hours. We can easily hold over this window. The constraint does not involve the impact area, the recovery area, the Pacific.

Mr. King: Does that complete the questions from the News Center? I believe we had two more questions here. We will take those and I am afraid these will complete the conference. Right up here, Mr. Bergman.

Mr. Bergman: I have one for General Phillips. And I trust that it will be somewhat easier to answer than the one for Dr. Seamans, which was not meant to be difficult to answer. If you get in a position tonight, General Phillips, where you have a small mechanical type thing bothering you and not a major weather thing or major mechanical thing, will you slip on a day-by-day basis through Friday, Saturday, Sunday, and Monday or would you, if you couldn't go Friday or Saturday, slip to Tuesday or whatever, Sir?

General Phillips: It's my plan that we will slip on a day-to-day basis. Friday, Saturday, and so on. It's such a major undertaking to get this vehicle up to a point of launch readiness. We have devoted so much of the effort to this point in the count, it would be my plan to, problem permitting, to proceed on a day to day basis.

Mr. Cronkite: General Phillips, Walter Cronkite, CBS, again.

I hate to belabor this issue, but after midnight when you have gone beyond the 24-hour recycling possibility is there a point between then and when you get to a 72-hour recycle at which you could stop the count and recycle at 48 hours say?

General
Phillips:

Well, I think that yes there is. The time line shows that you go from 24 hours and there is a short period of limited cryogenics during which a 48-hour recycle would be feasible. But the loading moves fairly rapidly to the point where 72 hours to drain and recycle is required. There is a short interval when 48 hour cycle would be feasible.

Mr. Cronkite: Can you say what that interval is, sir?

General
Phillips:

I'd have to actually check and refresh my memory. It's a fairly short interval, shortly after midnight.

Mr. Cronkite: Like just a few minutes?

Mr. King:

Walter, I am sure we can get that for you if these gentlemen don't remember. We'll do our best to get the answer for you. This gentleman right here please.

Question:

London Evening Standard. I am sorry to end on a note of pessimism, but have you calculated the destructive effect on the firing pad if this does

blow up at liftoff and how much would it delay the lunar program if it did?

Answer:

Well, we did in laying out this complex, of course, consider the possibility of explosions. That is the reason that the pads are distributed the way they are one to one another and with respect to the Vehicle Assembly Building. It would be impossible to estimate the exact damage to the pad. However we have carried out rather detailed and comprehensive studies of how a liquid hydrogen/oxygen stage might explode. It's very very difficult to estimate, however, how such a large volume might explode, but this has been investigated. The extent to which it could delay the program, of course, would depend on what the findings were following such an accident, and it's impossible here at this time to predict what the impact would be.

Dr. Debus:

It's a very good maximum possible equivalency of one million pounds of TNT. However, this was never achieved in any major tests. The spontaneous combustion of test mixture indicates it is impossible to mix these fuels and then ignite them to bring about this equivalency. In our tests so far the combustion occurs shortly after start of the mixture,

which means that the total explosion equivalency is much less than this. But even if it should come about, you are perfectly safe here.

Answer: Just to clarify the answer about the time of delays if it were just limited to pad damage, then we, of course, have under construction Pad B, and it would be available within about 6 months.

Mr. Bluhm: I would like to know, if I could, from Dr. Debus just what the cost of a 24 hour scrub into Veterans Day would be and what it might cost for 72 hours delay through the weekend.

Dr. Debus: Well, the total cost for the launch is 450 people directly involved in launch control activity here in the Launch Control Center and approximately 5000 people total in this center in support functions. A delay will have to be specified in detail, to know who has to be on shift for what function and there may be a 48 hour delay which requires only a minimum force, or a 48 hour delay which requires a large number of people. So I think you can figure it out. Now I have eliminated cost of gases, cost of fuels, because most of the fuels can be recovered by defueling. However, helium and hydrogen will be expended. And I have not given you any numbers as to support

efforts by the Eastern Test Range or the
global deployment of people.

Mr. King: Thank you very much. Our next conference
will be at 3:00 this afternoon at the news
center.