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Media Roundtable Teleconference

Panelists:

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JEFF HANLEY, Constellation Program Manager
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[Moderated by Melissa Mathews, NASA Public Affairs]

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P R O C E E D I N G S

MODERATOR: We are going to go ahead and get started here. This is Melissa Mathews at NASA Headquarters in Washington, and we have a few reporters here in person.

We have several reporters at NASA centers, and then we also have reporters who have dialed in on their own. When we do questions, we will go around to each of those in the order that I just indicated.

We have with us here Rick Gilbrech who is the Associate Administrator for Exploration Systems. We have Doug Cooke who is the Deputy Associate Administrator for Exploration Systems, and we have Jeff Hanley who is the Constellation Program Manager.

I will toss it to you, Rick, and let you get started.

MR. GILBRECH: Thanks, Melissa.

Good afternoon, everyone. I guess it is afternoon in most places. This is my first Media Roundtable here. So I thought I would give everybody just a snapshot of myself.

I have been on board now for 30 days. I took over for Scott "Doc" Horowitz, October 1, and I have had a

16-year career with NASA from different centers. I have been at Stennis, Johnson, and Langley in various capacities, and I was very excited when Mike Griffin asked me to take over the baton from Doc Horowitz.

One thing I am very excited about, I have always been a moon buff and always dreamt of being an astronaut and getting back to the moon. The first one didn't work out for me, but the second one, I am right in the middle of and very excited about.

I am thankful that I walked into a program that I think Doc has done a really good job of getting a stable set of requirements, getting a really good team together, and making a lot of progress. We have had a lot of major accomplishments on our way to get Ares I and the Orion stack ready for initial operating capability in 2015.

We have gotten all the contracts in place on that particular vehicle. We got one left with the instrument unit, but that has helped put a lot of clarity to the program. We have also made a lot of physical progress in facilities and hardware. We have got the A3 test stand, which will test our J-2X engine at altitude, well on its way. We have had actually a power pack assembly which is

some of the early turbo machinery testing that is actually installed at Stennis. It is the A1 stand, and we will be making some smoke and fire, hopefully, before Christmas.

We had some real impressive parachute drop tests out at the Yuma Proving Grounds with both first stage parachute systems in the Orion system, and we have broken ground at White Sands Missile Range on the Pad Abort 1 test and some of the other abort tests that will be taking place out there.

Programmatically, we have also completed our internal preliminary program approval review, which is a NASA key milestone that we have made through, and now we are launching off into our fiscal year '08 activity of getting to a preliminary design review.

Jeff Hanley and his team are working hard on the Orion and the Ares requirements, and I have a world of confidence in the team that has been assembled.

We do have a lot of challenges. There is funding stability that is always a challenge, and we have gotten good support out of the administration and the Congress, and I look forward to that continuing.

We also need to maintain credibility which is

part of what comes with maintaining the confidence of the Congress, the administration, and the public, and that means we deliver on what we say we are going to do and not overreach our grasp.

We do have some technical challenges with J-2X and the upper stage in the Orion, but I see those all as manageable with the approach we have taken as an evolved system and not really overstepping our technical challenges.

One thing I always want to do is keep the moon in mind as we are doing this. That is really why I accepted this job from Mike Griffin and moved my family up here to Headquarters. I just want to send a simple and clear message to the team as Mike Griffin's coin, and he has allowed me to say this. He has said he wants to set NASA on a clear path to build towns on the moon. That is a pretty simple and easy-to-understand concept. I added my own footnote that I also want to put footprints next to tire prints on Mars. So I am trying to keep the team focused on lunar activities, but lose sight of our end gain which is really to set up an architecture that can eventually get someone to Mars.

With that in mind, we are here today to talk about some of the lunar assignments that we have been working. What we are really trying to do here is explain and lay out themes of activity across the 10 field centers, and this is a little bit on the edge of our budget horizon, but we feel like it is early enough that we should give the centers an idea of what their lead roles will be, so that they can start developing strategies on which centers they would like to partner with, which skills they need in the house at their particular center, leverage across the other field centers, also to be thinking of contracting strategy, physical assets that they may need to keep in mind.

While we don't have crisp clarity at some of these events, they will come into better focus as we mature the program, and this is just an early step to let the particular field centers know what areas of responsibility they can look forward to in the exploration program.

A lot of this was based on looking at what they are doing for us now in the Orion and the Ares arena and leveraging those capabilities as a natural flow into the upcoming assignments, and those fall into regions of Ares V work and lunar lander which will come on in the budget

arena in the 2011 time frame, and then looking a little further down the road to the surface assignments, the lunar surface work that we will need to start developing, which is a little further into the future in the 2012-ramping-up-to-2015 time frame.

The main thing is to identify those themes, give the centers a bit of an identity of what their particular roles will be.

This was an agency effort, and it has the Administrator's thumbprint as far as his motto of having 10 healthy field centers. We try to look at the centers, what potential new roles they could have that would give us a balanced portfolio across all the skills in the agency. So I think you will see that we have done a thorough job there, and I think we have come up with a good mix.

With that opening statement, I would like to turn it over to Doug Cooke who has done a lot of this work. Doug has been a long-time exploration advocate/expert and has done a lot of the real leg work going through where these assignments fit and working with the centers. So I will turn it over to Doug.

MR. COOKE: Thank you, Rick.

As we get into this, we are actually beginning from a lot of effort that has gone into the current assignments that we have, and that begins with the Constellation program.

There is widespread support from the centers on that program and system engineering integration and architecture development for out through the lunar outpost.

There is also widespread participation in the various projects, such as Orion with the crew module led out of JSC, the service module responsibilities are at Glenn, as well as environmental testing that is to be done, and the development of the spacecraft and the oversight role on the contractor.

The launch abort system is led by Langley, the thermal protection system at Ames. Abort tests are at Dryden for that vehicle.

For Ares I, we have assignments. That, of course, is at Marshall Space Flight Center, but they have strong support from Glenn as well on the thrust vector control system, the power system, and development of the upper stage unit for the Ares 1X test.

We also have leadership for the operations for

mission ops at Johnson Space Center, for ground operations at Kennedy Space Center. The EVA [extravehicular activity] responsibility is primarily at JSC, but it has support from other centers as well.

In advanced programs, the technology program is led out of Langley. LRO [Lunar Reconnaissance Orbiter], our first lunar mission, robotic mission, is led out at Goddard. LCROSS [Lunar Crater Observation and Sensing Satellite] is at Ames, and Human Research Program at Johnson Space Center.

Our challenge this week as we go forward is to continue to reach out beyond these and into the future programs and projects to understand responsibilities in a way that helps our workforce planning.

So, as we get into those, beginning at Ames Research Center, in a lot of these areas, these are progressions from current work they are doing on Ares I and Orion, and it is informed by the architecture work that is being done in planning for the lunar outpost. So all of that comes together as we look at where the skills are and where the responsibilities should go.

For all the centers, we have support to the lunar

architecture work that is led out of the Constellation Program. That particular effort in architecture work has been led out of Headquarters and now is transitioning to the program itself.

In mission operations, Ames will be working to build our mission ops simulation capabilities. For Ares V and other elements, you will see that they are the lead for integrated system health management. That is a progression from what they are currently doing. They have that role for the lunar lander and the lunar surface systems as well.

On Ares V, Ames is also supporting Glenn Research Center in the development of the payload shroud.

We also have some new capabilities we are going to build into EVA [extravehicular activity], and potentially, coming out of the architecture at this point, we are looking at what is called suit locks where astronauts may enter from the back of the suit from a pressurized module, and Ames is going to support and help in developing that concept. On lunar surface systems, Ames will also be supporting surface mobility and in situ resource utilization.

As we move to Dryden, Dryden is currently

involved in our testing efforts, in abort testing and so on, and as we get into further maturation of these projects and their development, we will be putting more meat on the bones of test and verification. So that is probably a step, a little bit beyond where we are, in terms of definition, but this is a role that Dryden will work into in the future. They are also supporting mission operations simulation capabilities, as I mentioned, as is Ames.

We move to Glenn Research Center. They are also supporting lunar architecture work for Ares V, the heavy lift vehicle. They are leading power development, thrust vector control system. They will be leading the Earth departure stage environmental testing at Plum Brook. They are also leading a new role in the Ares V vehicle which is development of the payload shroud. They are leading that activity with the support from Langley and Ames.

In the lunar lander arena, they are a subsystem lead for ascent stage propulsion. They are also subsystem lead for power management and energy storage. This is an area where they have expertise, and you will see that spread across the other elements as well in power management and energy storage.

They are also on the lunar lander leading the element of environmental testing at Plum Brook, and they will be subsystem support to the descent stage propulsion.

I will be talking about that a little bit later.

In lunar surface systems, once again, they are leading the power generation and will be leading environmental testing, once again, at Plum Brook, and they are the subsystem lead for passive thermal and for the surface element, EVA [extravehicular activity] mobility systems communications. They are also supporting in the area of in situ resource utilization. They are supporting as well in the area of surface mobility and working aspects of the drive training for the vehicles.

When we get to Goddard, they are leading for the program, will be leading, the pressurized cargo carrier requirements. We actually have a new role here for Orion for Goddard, and that is to lead the unpressurized cargo carrier that is associated with that vehicle.

For the lunar lander, they are leading the subsystem avionics, and for lunar surface systems will support avionics and surface element communication. Based on a lot of experience in the area of EVA [extravehicular

activity], they will be providing the EVA [extravehicular activity] leadership for EVA [extravehicular activity] tools and equipment.

We get to JPL, JPL is providing a lot of support for the architecture work and is leading one of the teams.

For the lunar lander, they are providing significant support to the project, including spacecraft design, guidance, navigation control, life support systems, and avionics support, and for the lunar surface systems, they are leading one of our concepts for mobility systems, which is an effort within our technology program called ATHLETE, which is a concept for a mobile system, and we are looking at that as potentially able to carry heavy elements on the lunar surface. They are also supporting life support systems on the lunar surface systems, as well as local element communications.

For Johnson Space Center, they are managing the lunar architecture work, as I mentioned earlier. They will be providing the management of the project for the lunar lander. So that is project management and integration of the lander vehicle, and they will be the element lead for the crew module and ascent stage aspect of that vehicle.

The crew module is one that the crew goes down to the surface in and comes back up to dock with Orion. So they will have the crew module in the ascent stage, part of the lunar lander vehicle, as a sub-element.

They will be the subsystem lead for crew habitation, environmental control, and life support systems on that vehicle, and provide support for ascent stage propulsion and avionics and structures. They will have project management and integration role for lunar surface systems. They will lead the crew habitation, environmental control, and life support systems, and lead the human mobility system. From the architecture work, we are looking at a pressurized crew vehicle, and that will be led from JSC. They have a support role in, in situ resource utilization. So that rounds out our understanding of the new work there at this point.

As we move to Kennedy Space Center, once again, they are providing support to our lunar architecture work.

They will be involved in the Orion Block 1 and Ares I low-earth orbit operations phase. They will have ground operations assembly, and there are others here that we are currently studying. So there will be further developments

potentially in this for KSC in this arena down the road. For Ares V, the heavy lift vehicle, they will have the ground processing launch operations support during the development.

Lunar lander, this is a role that is a significant one. We are looking to have the final assembly of the lunar lander at Kennedy Space Center. They will, once again, provide the ground processing support for that vehicle. For the lunar surface systems, another significant assignment for Kennedy is the management and integration project for the surface habitat, and another part of the surface systems is that they will lead the in situ resource utilization systems for the program, and they will also be supporting surface systems logistics concepts.

We move to Langley. They have an integration team that supports the architecture work for the program system engineer. For Ares V, the heavy lift vehicle, they have the lead for aerodynamics. They support in Ares, the systems engineering, structures and materials engineering, and they are supporting Glenn in the development of the payload shroud structure. In mission ops, they will also be building mission ops simulation capabilities. This is a

role between Ames as lead and Langley and Dryden. We have a role where they will be supporting mission operations in Houston with simulation capability development.

For the lunar lander, Langley will be subsystem lead for structures and mechanisms. Once again, for Langley, this is one of their major strengths as a center, and so they provide this support, in this case, the subsystem lead, in the areas of structures and mechanisms, and so that also then carries over to the lunar surface systems where they will be lead for structures and mechanisms there. They also will be supporting crew habitation, and with that in mind, the radiation capabilities and protection. This is an area that they have worked in for many years in conjunction with Johnson Space Center. So this is a capability that they have brought to the table.

For Marshall, again, as all the other centers, they support the architecture work and will for the future.

In the lunar lander, they are the element lead for the descent stage and the subsystem lead for the descent stage propulsion, and they will provide support for the ascent stage propulsion. They also will support the overall

project, avionics, life support structures, and propulsion testing.

In lunar surface systems, Marshall will support in the areas of life support systems, habitat structures, and in situ resource utilization.

For Stennis Space Center, which wraps up the list of the NASA centers, Stennis is lead now for testing of rocket engines for our vehicles and will continue to do that for the Ares V heavy lift vehicle and for the lunar lander.

So that is where we are at this point. There is, obviously, a lot of definition on the current work that is going on. There is gradually less clarity or crispness in exactly the roles as we move out, but as Rick mentioned, the near-term developments after Ares I and Orion will be Ares V and the lunar lander, and then more on the out-years, the surface systems. So we are getting more definition on the Ares V and the lander, and we are beginning at the top level with assignments for the surface systems on the moon.

With that, that pretty well concludes at least the top-level definition of the assignments.

MODERATOR: The information that Doug just gave you, the center-by-center breakdown, is available on the web at NASA.gov/Constellation. So that is available there for you.

Jeff Hanley.

MR. HANLEY: Thanks. Just a couple of closing remarks to what Doug has gone over with you.

To me, this is a very encouraging point to be at where we are actually able to start talking about assignments out into the lunar phase of the program. To put in context where we are at, a little over two years ago, we rolled out the results of the architecture study upon which our architecture is based and our program is based. We set to work to put together a rigorous requirements base to actually go implement that program as a program, and with the moon in our sights, we expect the overall Constellation program to be a lunar program.

So we have studied the lunar missions to some degree, to the degree that was necessary, to define the Orion and Ares I systems, to make sure that we were making the right choices for Orion and Ares I in terms of capabilities and requirements for how we are going to go

develop and build those systems, but we did not close on the whole lunar plan in aggregate.

The next phase of requirements work for us, as we finish requirements here in the next few weeks, for Orion and Ares I, the next phase will be the full development of requirements, detailed requirements for Ares V, the lunar lander, and then beyond that, the surface systems that will be part of our lunar architecture. That is all targeted to have real requirements, real projects, and real procurements in place around the time that Shuttle is retired, so that we have real concrete Constellation work for the workforce to migrate to.

So that to me is why this announcement today with these assignments is very important because it gets the NASA team latched to the long-term lunar program in a way that will help us build that basis over the next two years to help our external partners in industry to transition from Shuttle to the next system. So I think it is a very positive development.

MODERATOR: All right. Thank you, gentlemen.

We will take questions now. As I mentioned before, we are going to take questions from here at

Headquarters first, then go to the centers, then go to individual reporters. Because we do have so many people on the phone who can't see the three of you sitting here, I am going to help you make sure we identify who is speaking when you take a turn answering questions to help folks out there.

So, with that, yes.

MEDIA QUESTIONER: Mark Mathews with the Orlando Sentinel.

I know estimates in terms of workforce and the projects that are still out there, but what would you consider the three largest projects that were billed out today, and which centers got those? Which three projects involve the most employees, and which centers got these three projects?

MR. GILBRECH: That is an interesting question. Doug, you can help me out there.

My take would be the lunar lander is probably one of the significant key leads, and that one, as Doug said, is based out of Johnson, which has historically done our crew vehicles.

MR. COOKE: Yes. Well, of course, Ares V is a

part of the new work that we --

[Webcast audio break for 1 minute.]

MR. COOKE: [In progress] -- talked about lunar surface outpost capabilities. That is the time frame, and those, along those elements, are elements that we have opened up for discussion with international partners and commercial entities. We said that we are going to build the lander. We said we are going to build the initial NAVCOM [navigation and communications], the initial EVA [extravehicular activity] [extravehicular activity] suit, and other things are open for discussion. So we have some of the surface systems, mobility, habitation and so on that could be of interest to other entities to build.

We will still have these assignments, though, at the centers. Even if it is the case that somewhere one were to offer to build a rover, say, we would have someone working within NASA to develop the interfaces. So those roles could be different sizes, depending on whether we actually end up building them or they end up being built somewhere else. I would say the two that are most definitive are the lander and the Ares V.

MR. GILBRECH: And I would add to that, that you

shouldn't tie a lead assignment saying the work is going to be in that zip code necessarily.

Mike Griffin has had a 10 healthy center approach, and so those strategies will have to be developed, and where the available workforce is and how we get the most efficient use of the taxpayer's dollar and maintain a balanced 10 healthy center approach is a key part of this whole structure.

MR. COOKE: In fact, that may be the primary take-away that we intended with this discussion today. You cannot look at a given project at a given center. We are trying to work this program corporately, if you will, across the agency, using the best talent we can find at all the centers, leveraging their strengths. That is what we have done on Orion and Ares I already, and we are doing it today. That is our intention. That is the model we intend to carry forward.

If you study the list that we have given you, you will see that this is a multi-center project management effort that we are undergoing here, and yes, a particular center will take the lead on a particular sub-element perhaps, the descent stage for Marshall, but Marshall will

dial in talent from other parts of the agency as needed, and that is the kind of culture we are trying to drive here with this program.

MR. HANLEY: Actually, that is reflected in the assignments because you do see components of even, say, a lander component, the structures and mechanics at Langley and power systems at Glenn. So already, even in these assignments, we are showing more participation in those elements that are just the lead.

MR. GILBRECH: To kind of close the point, one of the things I have really enjoyed about Mike Griffin's leadership is he has really resonated with myself, and both when I was at Langley at Stennis is when he said we should be NASA, and the model we will most likely base our forward work that we have announced today is on the Ares I model where we do that in-house as a government-led development and test and evaluation program to keep that intellectual property within the government and then bring on our contractor partners as we mature the design, as we did on upper stage, bring them in early for help with manufacture ability and all the lessons they have learned in that arena.

MODERATOR: Thank you, gentlemen.

Any other questions? Brian.

MEDIA QUESTIONER: I believe you said that the real funding for these efforts doesn't really arrive until 2011 and beyond, but I am wondering, now that you have made these work assignments, do they represent any new work for your field centers to do in the next three years?

MR. HANLEY: The requirements formulation work that we will be doing in order to have a set of requirements to then stand up these big projects in 2011 and move on with development, these assignments will apply to that, too.

As Doug talked I think for every center, there was architecture, what he referred to as architecture assignment for architecture studies and work. That plays into the growing of a requirements base to go do these big procurements for Ares V and lander.

MR. GILBRECH: There is some activity going on at present in all of these arenas. It is just a level of how much, but Lauri Hansen is leading a small cadre of civil servants that are already doing trades on lunar lander concepts, and what we are trying to do is really get ahead

of the game, as opposed to the Apollo program, where it was kind of at the end of the chain, and we are trying to get a lot of the trades because the lander drives an awful lot of the critical infrastructure in both the system that has to get it there and the system that you wind up being able to live with on the lunar surface.

So we view these as very highly leveraged activities that are going to make us much smarter in how we approach both Ares V development and all the surface systems because the lander is the key piece in between that drives both ends.

MEDIA QUESTIONER: If I could follow up, beyond the requirements work, right now, for example, you have Glenn Research Center working on propulsion options for the lunar lander. They are looking at methane there. So they have put out some small contracts. Does any of this type of work, these SBIRs [Small Business Innovation Research], these grants, these contracts -- does any of this either ramp up or solidify, now that these roles have been defined, and does this ramp up in the next one, two, and three years?

MR. COOKE: I will take a shot at that.

One of the things that we have done over the last year is really an integration job over all of the technology programs to make sure that the money that we are investing is supporting the projects that we are talking about now, that we are laying out. We want to make sure they address the needs of these projects and programs and in the time frame in which the technology needs to come to fruition, so that it can go into the development part of the effort. We have done really a significant job on focusing all this. So it does, definitely, all play together into progression.

MODERATOR: Any other questions here at Headquarters?

MEDIA QUESTIONER: [Inaudible.]

MR. GILBRECH: I think as Doug mentioned, we set up the architecture, so there are certain key elements that NASA will lead that we feel are critical path elements, the lander, the [inaudible], but we have left it open to participation by international partners and the commercial market. So I think we are hopeful. I am sure there is a lot of interest in the community about this effort. So we are open to that. We just have to figure out how it best

fits and what the timing would be, but yes.

MEDIA QUESTIONER: Excuse me. This is Ames. Could you all at Headquarters repeat the questions for everyone in case for connectivity problems we don't hear the questions? Thank you.

MODERATOR: Yes. We will do that for you, and I have also just gotten a note that folks are having a hard time telling who is speaking, and I haven't been doing a good enough job to ID you guys. So we will start doing that, too.

Okay. Any other questions here at Headquarters?

[No response.]

MODERATOR: All right. Let's go to Ames. Any questions at Ames?

MEDIA QUESTIONER: No questions.

MEDIA QUESTIONER: No questions.

MODERATOR: Okay. Thank you.

Any questions at Marshall?

[No response.]

MODERATOR: All right. I will take that as a no. No questions at Marshall.

Any questions at Glenn?

MEDIA QUESTIONER: Yes. Glenn has two questions.

MODERATOR: Okay, Glenn.

MEDIA QUESTIONER: This is Karen Schaefer from WKSU.

You talk about having NASA lead the design work and then bringing contractors on at a later time. What kind additional contract work? What kind of volume are we seeing here? Is this going to increase the number of contractors working for each of the centers down the road, and how far?

MODERATOR: Rick?

MR. GILBRECH: Rick Gilbrech at Headquarters.

It is a little hard to determine the exact outcome, as Doug has alluded to. This is early planning, so that we get strategies in place. Where those contracts and how early they may be let, we will have to let the lead centers deliberate and do their own strategic plans on how they best see meeting that need.

We will give them the responsibility and also the accountability for that work, but I really don't want to speak for them and hamper their ability to come up with their own ideas on how they best see fitting that need.

MODERATOR: Okay. Any other questions at Glenn?

MEDIA QUESTIONER: Hi. Grant Sigel, Cleveland Plain Dealer.

Our biggest concerns are dollars and jobs, and I know the best we can do is estimate now, but any thoughts about the dollars and jobs for what you are announcing today? Any update on those same two things for the Constellation program overall in light of how the details are working out?

Of course, this may be for the local part of the session, but any breakdown on dollars and jobs for the individual centers?

MR. GILBRECH: This is Rick Gilbrech again.

I know that is a question everybody wants answered. I have been a center director, and I know how much the communities like to be involved and like to participate and have clear futures with numbers and workforce attached to them.

We are just not at a point. I don't want us to drive ahead of our headlights here and commit to work and dollars and numbers before we have had a chance to really formalize and bring some structure out of the ideas that we

are working in right now. So it would be premature of us to do that, and we certainly want to do that as soon as we feel we have got enough story to be able to relay that information because I realize it is very important to the local surrounding communities at the 10 field centers.

MR. COOKE: This is Doug Cooke.

Actually, what you are asking is the ultimate objective. Other than making sure we get all of the development work underway and done, a big impetus for the exercise in defining these roles is, as we mature the concepts and the acquisition approaches and the structure of the contracts, we want to give as much information as we can to the centers for their workforce planning efforts. That is an important part of this.

MR. GILBRECH: What we are looking at, this is what I consider to be the first important step in getting to those answers that everybody wants. We have to start somewhere, and this is a way to give those things out to the centers.

We also are looking at and will probably institute an annual acquisition strategy planning meeting where, within our Exploration Directorate, we look at each

year to year, how well has work crystallized, how well are the lead centers doing at formalizing the content, making the assignments, is there any adjustment, mid-course corrections that we need to make because of circumstances.

So this will be a continual process that we will go through, but we plan to stay close coupled with the centers and formally, on an annual basis, have a real annual review on where we are going to make sure we are staying on the right path.

MODERATOR: Okay. Any questions at Langley?

MEDIA QUESTIONER: I have one question just for clarification.

MODERATOR: Okay.

MEDIA QUESTIONER: Jon Glass, Virginian-Pilot.

You are announcing these new work assignments, but when do you expect to actually put money into the budget? Is it fiscal year 2011 you are talking about?

MR. GILBRECH: Jon, this is Rick again at Headquarters.

2011 is when the lunar lander and the Ares V budgets start to kick in, 2012 is when the surface systems, and those ramp up gradually. So it starts out as a slow

build-up.

In our world, kind of a three-year horizon is about as far as you can realistically plan with solid job assignments and work. We are just on the fringe of that right here.

MEDIA QUESTIONER: Thank you.

MODERATOR: Okay. Any NASA centers that I missed?

MEDIA QUESTIONER: One more question at Langley here.

MODERATOR: Oh, okay. I'm sorry. Go ahead, Langley.

MEDIA QUESTIONER: This is Patrick Lynch with the Daily Press.

I am wondering, to what degree at this point when you talk about outlining the architecture of the program, is that at all geared toward future research that you would do once you get to the moon, or are we sort of getting ahead of ourselves there?

MR. GILBRECH: This is Rick again.

We will get to this as an add-on to the event here, but I have been working really closely with Alan

Stern, the new science Mission director, and he and I are very much in tune with trying to engage the science community to make sure that we are planning relevant activities and collaborations and cooperations, and we have, in fact, been doing that before my tenure, my short 30 days. They were close coupled with partnering on the lunar orbiter, with instruments being led out of Goddard. The Lunar Crater Observing Satellite System out of Ames, they have been involved in.

We are also going to have another little announcement here at the tail end on yet another example of how we are trying to engage the science community and really make sure that our architecture -- we are the ones that deliver things there and set up the systems and enable the human presence, but we also want to make sure that we captured all the science community's interest. So, yes, we are very much interested in both sides.

MODERATOR: Okay. We will go to reporters on the line now. Rob Coppinger?

MEDIA QUESTIONER: Hello. You are currently in continuing resolution, and in March, Dr. Griffin told Congress that he had a 65-percent confidence level that he

could see Orion flying manned in March 2015.

This discussion is for Richard Gilbrech. What sort of confidence level do you have now, as you haven't gotten the budget you wanted for fiscal year '08?

MR. GILBRECH: Well, we are still on track with the carry-over plans that we had. We have carried money through from our FY07 budget, and that is adequate now for the CR that we project. We will have to regroup if we get into another continuing resolution, like we did last year that lasted a full year, but as we said, our approach right now is to hold our technical content. We feel like we have kind of gotten to the minimum technical program to meet the requirements the administration has and also we believe is the right content, and then we work with the budget we are given, and then the schedule is the variable.

We want to stay at the 65-percent confidence level to maintain the credibility I spoke about earlier. So what we will do is deal with budget impacts as they materialize and adjust from there.

MEDIA QUESTIONER: Can I just have a quick follow-up? In this projected CR [continuing resolution] period, how long can that last?

MR. GILBRECH: It is hard tell. I mean, if you can predict the Congress --

MEDIA QUESTIONER: It is just that you said that you have got this carry-over plan based on a projected continuing resolution period that would not extend the entire year. So is it just for the first quarter, the first six months?

MR. GILBRECH: I know we are good through December. So we will have to regroup after that and decide if there are other things we can do to stay on track or whether we have got impacts we have to deal with.

MEDIA QUESTIONER: Thanks.

MODERATOR: Okay. Craig Covault?

MEDIA QUESTIONER: Hi. It is Craig Covault with Aviation Week.

As you may have seen, Hillary Clinton in the last month has issued a statement that were she to be elected, she would support a robust human space flight plan, and a robust human space flight plan could include CEV [crew exploration vehicle, Orion] and ISS [International Space Station]. She very strongly avoided mentioning the word "moon."

What happens if you end up with a new president that simply is not interested in pursuing the lunar program as you have laid it out? How are you approaching that, given we are on the cusp of an election?

MR. GILBRECH: This is Rick Gilbrech again.

I have a boss that worries about that type of thing. I view my job as keeping my team focused on the matters at hand, and that is getting Orion and Ares I up to operational capability.

We can't really project what the future holds. We just have to plan and deal with real facts when they become solid. So that is the answer. That is the way I view it.

MEDIA QUESTIONER: Well, given the stakes involved, I would think the agency would have a bit more granularity on how to at least respond to a new administration that has kept it on manned lunar at least in the time frame envisioned. Do you have some backup plans, concepts, where if the new administration said let's back off by five years, you could rescope without terrible damage to what you have already got going?

MR. GILBRECH: Well, there is a lot of candidates

in this race, and there is a lot of "what ifs" that we would have to go through. So I am staying the course with what has been laid in front of me.

MODERATOR: All right. Thank you.

David Hirsh?

MEDIA QUESTIONER: Pass.

MODERATOR: All right. Tariq?

MEDIA QUESTIONER: Thank you very much. Tariq Malik from Space.com. I just had kind of a general question about this stage and how it maybe compares to the Apollo era, developing the plans for the spacecraft for that effort. How does this either compare or even deviate from past efforts to develop new spacecraft at NASA for both crew and exploration?

MR. GILBRECH: I think we have borrowed some lessons from the Apollo era with a lot of the in-house design that Marshall is doing with the upper stage and the Ares I rocket.

It certainly looks a lot like the Apollo capsule, and we get that question a lot, but it is an evolved concept. It is not nearly as far a technology reach, and it fits the mission needs that we have, but there will be a

lot of technology beyond Apollo put into that. This is a 5-meter capsule. It has significantly more volume and more capability than the Apollo. This system will put four people on the lunar surface for at least seven-day sorties in the beginning, which is double the capacity of the Apollo program, the Apollo landers.

So I think we are trying to learn from the things that were really effective and worked, but also go beyond that with the technology. We view this as a vehicle like the Shuttle that will be flying for 30-some-odd years, perhaps. So we have to be very smart in our choices. If we have some capability growth that we can build into this and that we are making the life-cycle cost as low as we can, that is a key element of the design. We are trying to make sure we can build to operate this system effectively and cheaply.

MODERATOR: Okay. Mark Carreau?

MEDIA QUESTIONER: Thanks. I had two questions. I think they kind of wrap together.

In the assignments that you made today, to what extent did historical roles play a factor, the expertise that was developed in past programs?

I know you can't give employment estimates and contract estimates and so forth, but to what extent are you trying to sort of give each center the opportunity to sort of hold its current employment or grow some as opposed to shrink dramatically or even small?

MR. COOKE: This is Doug Cooke.

In going through this effort, we did consider very strongly current roles within the Constellation Program and also our research work that is going on in our technology programs and working these specific roles.

We did work with past experience and expertise. Where we are at this point with expertise, they do reach across centers. Each of the assignments actually does reach across centers, even when we assign the lead to someone.

It is meant to support the workforce over the long term. I think the direction that Mike Griffin is to keep levels of staffing basically at a level point over the horizon and work within those constraints and make sure that we have the skills we need across the centers and to develop and get further experience in these systems.

So I think it is set in a direction that will

help us over the long haul, and we will understand it better, and we will evolve it as time goes on and we get better definitions, better definition at lower levels of detail. I think that is the direction we are on as actually where we have been with the Ares I and Orion over the last couple of years. So I see that playing out that way.

MEDIA QUESTIONER: Thanks.

MODERATOR: All right. Patrick Peterson?

MEDIA QUESTIONER: Yes. I have a very similar question to Mark's.

Has there been any discussion on something like a base closure where you might close down one of these centers and move its assets over, move its jobs over to another center?

Also, has there been a direct effort to equally portion out this work and this budget and the jobs, so that the centers maintain their relative status with each other, or is one center going to get a larger proportion of the work?

MR. GILBRECH: This is Rick.

I guess on the first, that has been bantered

around ever since I have been at NASA, but we are now at a point where we are trying to maintain 10 healthy centers.

I think we have got a good plan to utilize all of those 10 centers very effectively. In fact, I really encourage this diversity of thought and approach. The robotic centers and the research centers bring on a wealth of different viewpoints to the traditional human space flight design and operations concepts that I have already seen as very healthy and beneficial.

My thoughts are we don't have a need to visit closing any particular installation. We are going to get the benefit from having those healthy and fostering them to be as healthy as we can.

There is no, what I would call, peanut butter spread of work evenly distributed across centers. It is looked at where particular skills are.

We do have a flat budget in the civil servant arena. We don't project any civil servant gyrations with workforce numbers.

MODERATOR: All right. Any reporters who did not get called on yet?

[No response.]

MODERATOR: Okay. Rick, a moment ago, you mentioned wanting to talk a little bit more about the cooperation between exploration and science. Why don't we go ahead and do that now.

MR. GILBRECH: Sure. Thank you.

Well, this is a new initiative. As I said, I have been working with Alan Stern for opportunities, and you may have seen he had announced a NASA Lunar Science Institute that will be headed at Ames Research Center. Of course, we have worked closely with them, as I mentioned, on the Lunar Reconnaissance Orbiter. We, in fact, will operate that spacecraft for a year. We actually will have a detailee on staff shortly, Kurt Lindstrom, that will be on loan from Alan and the Science Directorate to ensure we have included the science as we start to look at the early data, and then we will turn that spacecraft over to the Science Mission Directorate.

Of course, our Lunar Precursor Robotic Program is headed out of Marshall and is managing the overall effort with the Lunar Reconnaissance Orbiter and the LCROSS [Lunar Crater Observation and Sensing Satellite], the Lunar Crater Observing Satellite Systems, and that one is managed out of

Ames.

This really is modeled after the National Astrobiology Institute. It is a very similar concept that Alan has come up with, and it is a way to interest the science community and lunar science opportunities and generate principal investigator proposals and manifest that into some tangible projects that the science community can engage in.

I have got Jim Adams here today from planetary sciences in the Science Mission Directorate that will give a little more detail into this new institute.

Jim?

MR. ADAMS: Thanks, Rick.

We are really excited about the opportunity to cooperate with ESMD [Exploration Systems Mission Directorate] on this opportunity, and science is going to come along and help enable exploration, and exploration is going to come along and help enable science. So we are setting up today a structure to be able to capitalize on that in advance of the discoveries that will be made that will result from our exploration of the moon.

What we intend to do is we are finding a lead for

this NASA Lunar Science Institute now. That should be in place by March. Ames Research Center will be the host of it, but it will be a virtual institute. As fiscal '08 proceeds, there will be an announcement of opportunity for groups of scientists to come together and collaborate on specific disciplines associated with lunar science.

Those awards will be made towards the end of fiscal '08, and we should have science teams on board early in fiscal '09 ready to go, using the existing data that we have already about the moon and getting ready for the exciting data that we are going to get.

The rest of it is in the press release. Are there questions?

MODERATOR: Okay. Does anybody have questions about that? We only have, really, a couple of minutes. So any questions about that?

MEDIA QUESTIONER: [Inaudible.]

MR. ADAMS: No. The money is real. I can actually say that, but it is tiny compared to the sorts of things these guys are worrying about.

One of the things that you can do is you can get a graduate student for a small amount of money. We dole

out these grants one at a time at \$50,000 a year. By asking scientists to come together and collaborate in larger groups, they are not operating as individuals. They are operating as group and collaborating. So, if we dole out a million dollars to a node to, say, study the science associated with the regolith or crustal science, that sort of thing, we can gain a lot of benefit by having a larger group of individuals collaborating together.

That does not have to be done within the walls of an institution, given today's environment with the Internet. So they can collaborate across the nation. We are expecting exciting things to come out of something like this.

MODERATOR: Warren?

MEDIA QUESTIONER: [Inaudible.]

MR. ADAMS: It is actually all part of the same research --

Do I need to --

MODERATOR: Sorry. Yes. I was just going to repeat the question since Warren is so far away from a mic.

The question is: How does this dovetail with suitcase science?

MR. ADAMS: Right. That is an excellent question. The suitcase science is, again, another example of how ESMD [Exploration Systems Mission Directorate] and SMD [Science Mission Directorate] are collaborating on the future of the moon and how it impacts our exploration of it.

The suitcase science work, as you know, the studies out there will help us define what science is important and how we might go about it. The science data that comes back from something like that will be key, prime, fodder for the nodes that will be attached to this institute, for the groups that will get off and study various disciplines associated with the moon.

So the suitcase science is another source of data that will help these teams, as is LRO [Lunar Reconnaissance Orbiter] and our partnership, as mentioned earlier, with India on Chandrayaan, and LCROSS [Lunar Crater Observation and Sensing Satellite]. All of that is very important.

MODERATOR: Okay. Any last questions at Headquarters?

MEDIA QUESTIONER: Just a question for Rick. By telling all the centers now that we are going to have 10

healthy centers, everybody is going to get a piece of the work, is that meant in part to try to drum up political support on Capitol Hill from a wide variety of regions and lawmakers?

MR. GILBRECH: Not in my view. We are here to do a technical mission, and we are trying to go where we have the best technical expertise to accomplish that. We were smartly deciding where the expertise lies, where the credibility -- again, our jumping-off point was looking at what work are they doing for us now in the area in the Orion arena and then using that confidence we have built to either continue that into the lunar or expand those rules. So that is my view.

I think we are using our resources smartly.

MODERATOR: I guess I would like to add this is really a continuation of an effort that we have had over the last two years where we have assigned the roles, where the agency has begun to work on building the vehicles to go back to the moon and beyond.

We were shifting gears, and we were working over the last year to employ our workforce and get the right skills transferred from things they had been doing to their

Orion and Ares work, and this will be a continued effort over the next few years, and playing into this, something that we probably hadn't mentioned, is the idea of the transition between Shuttle and the new vehicle. So there are workforce transitions that are a part of this, but it is part of a continuing effort along those lines.

MR. GILBRECH: I should probably pull up a little bit on the stick to 100,000 feet. As an agency, this is an agency effort and initiative. It is not just exploration Systems. It is looking at 10 healthy centers. So we take into account aeronautics, science, space ops, and exploration when we look at the integrated work assignments across all of our budget.

MODERATOR: Okay. Thank you, guys. We are out of time, unfortunately.

Dwayne Brown, PAO for science, is here and has offered that if anybody else has any additional questions about the Lunar Science Institute that they can contact him, and he will be happy to field those.

Thanks to all of our panelists here today and to everybody on the line. We appreciate it, and that is the end. Thanks very much.

MR. GILBRECH: Thank you.

[End of Media Roundtable on October 30, 2007.]

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