

PLUTO PREPROPOSAL CONFERENCE QUESTIONS AND ANSWERS:

ATTENDEE: The two proposals selected precludes more than two?

DR. HARTMAN: Our current plan is up to two, but it is true that depending on the evaluation process, that could be revisited, but it's our general process to pick the best – up to the best two if there is the best two.

ATTENDEE: All right. Thank you.

ATTENDEE: The AO is not too specific about the schedule. It says final downselect in August. Is that what you mean, there's two months concept study before that?

DR. HARTMAN: That's right.

ATTENDEE: And then there's a couple of months before August.

DR. HARTMAN: And those are the target dates. That's correct.

ATTENDEE: So the concept studies would be due about June?

DR. HARTMAN: That's correct. That's our target date.

ATTENDEE: On page 6 of the AO it says DAP and PSP costs will be included in the total mission costs, but will not count against the cost cap which is different than what you just said.

DR. BERGSTRALH: I think that's --

DR. HARTMAN: It's different.

DR. BERGSTRALH: This is wording copied from the 2000 Discovery [AO].

DR. HARTMAN: Which is what we template it on, so what I said was incorrect?

DR. BERGSTRALH: I think that's it.

DR. HARTMAN: So I stand corrected.

[PSP and DAP costs will be counted against the cost cap. Phase F, extended mission option will not be counted against the cost cap.]

ATTENDEE: Mr., a question.

MR. PERRY: Yes.

ATTENDEE: Will the names of the evaluators be released after the competition?

MR. PERRY: It's our policy to not do that. The evaluation team is formed and they do their function, and once the ratings are completed we go through the remaining blocks on the flow diagram, that's been shown several times, through selection and debriefing, but we don't release the names of the evaluators to the public domain.

ATTENDEE: The set of concept studies, the fourth box, what is the target date for that?

MR. PERRY: Presently the AO planning, I believe it was mentioned earlier, is to involve a two-month concept study report period to pull that together, and it would commence with the concept study kickoff here at Headquarters.

The AO talks about a selection on the step one process in the May 2001 timeframe, and this would ensue very timely thereafter, so it's a function of when the selection is made. Shortly thereafter, and I'm talking on the order of a week or two, the concept study phase would be kicked off, and we're presently looking at a two-month concept study preparation period.

And then the rest of this would take roughly a month and a half to just under two months to complete, so if everything goes on schedule, we could be looking at a downselection announcement as early as the August timeframe which is also included [the stated target date] in the AO.

ATTENDEE: The compliance check box down on the right, is that against the original AO in the case of the concept study?

MR. PERRY: Yes. And against what was --

ATTENDEE: There's not another document is what I'm asking?

MR. PERRY: Another?

ATTENDEE: Another document that will be used as a new concept study?

MR. PERRY: No. There is the concept study constraints and criteria, that's a document that exists now in a draft form that's in the PKB web library site, and everyone should look at that and be familiar with it. We're reviewing that right now, and we'll take draft

off of it at the appropriate point, but that's the additional instruction set beyond the AO, if you will, that applies to the downselect site. Yes?

ATTENDEE: Question on one of your earlier slides. Are any of the cost models that you're planning on using for evaluation available to the proposers?

MR. PERRY: No. As a rule we use a variety of models, and we therefore don't put any significant reliability in any one model or model technique, and that's done specifically to have as comprehensive as possible a roll-up that includes everything. And should there be any attributes of a given model that would be skewed relative to the universe of multiple models being employed, that would be seen and disallowed. So the answer is, no, we don't describe the models nor name them, but we use a very vast extensive modeling process that seeks to independently verify and validate the cost numbers in the proposal, and to do so in a manner where we understand with ranges where things should be falling in.

ATTENDEE: Thank you.

MR. PERRY: Any other questions?

ATTENDEE: In your briefing you mentioned additional costs, for example integration costs in the space shuttle. The AO said that ELV's would be used. Is that an inconsistency or is that just an example for free? That's number 1. Number 2, as of last week at least the cost for ELV's weren't posted, so what do we do in that -- is that going to be provided or is that going to be just a guess.

MR. PERRY: It's there now.

ATTENDEE: It is there now?

MR. PERRY: It was updated Tuesday morning, and for everyone checking the Pluto-Kuiper Belt library web site, be sure to reload or refresh each time you do that so you get the latest version of the documentation. We've had several calls, it's not there when in fact it has been out there, and people were just calling it up, looking at it in their browser with the obsolete version. But the cost numbers for ELV are there now.

The AO, specifically back to your first question, includes the option for STS or shuttle launch as well as non-domestic ELV, and those are going to be discussed in more detail by the following presenters.

ATTENDEE: I would like to add that the shuttle piece should be there this afternoon or tomorrow. We will have it ready for you as soon as you update.

DR. BOGAN: The draft AO did not allow for shuttle or foreign partners.

MR. PERRY: That was changed.

DR. BOGAN: The official one does allow for it, so when you refresh things, be sure you refresh and have the latest version of the AO and any announcements that should be --

DR. HARTMAN: The AO will be the latest AO.

MR. PERRY: One other note to point out on the web site information, in addition to the Pluto Kuiper Belt library web site, there's another home page, the additional information home page, which is linked at the very top of the library page. And that's where we'll post any amendments or corrections, if you will, to the AO.

It's also where we will post questions and answers, and we already have an initial list of 8 or 10 questions in earnest addressing ELV subject areas, and that's obtainable by clicking on questions and answers at the top of the additional information home page, which you can hyperlink to from the main library site as specified in the AO.

So it's important to be checking the library and refreshing or reloading to make sure that you have the latest version of that documentation. It's also very important to check on a reasonably timely basis, the additional information home page for any information that would be posted there.

The questions and answers that we take from today's conference that are not -- I believe we even decided we're going to include all the answers, answers that are provided today as well as provided answers that may need further research. This additional information home page is where we look to get those answers, so it's important to be checking that regularly.

DR. HARTMAN: The question was asked in my presentation whether we really meant this bullet, that participating scientists and DAPs will be counted against the cost cap, and after further discussions with my colleagues, we do mean to change this from the AO. This is on page 6 of the AO.

This will also be placed as an information point on the Q&A home page that Brad just mentioned that you can find in about the third paragraph of the PKB library that's linked to this additional information home page. So note that once again we do mean that DAP and participating scientists will be counted against the 500 million cap. Any questions on that?

ATTENDEE: I guess this sort of brings up a related question. At the March 7 date that you mentioned, the blackout, does that mean that there will be no more changes made?

You're mentioning here changes from what's in the AO, and in some of these efforts in the past, proposals have been -- a lot of changes that have come right up to almost the due date's proposals. And I'm wondering if this time around, March the 7th, does that freeze the changes out?

DR. HARTMAN: Obviously our idea here is that March 7 was the date we picked because it was our belief that answers to questions after that date couldn't well be factored into your proposal responses, so we will certainly make every attempt on the government side that we hold to that same date as well, although that's not a binding promise.

We'll do our best. Obviously we once again picked that date because two weeks later the proposal is due and it just isn't feasible to -- for you to integrate in new information generally in two weeks, so we will also do our very best not to break that blackout date as well.

ATTENDEE: Thank you.

ATTENDEE: Hi. How are you doing? On your category viewgraph, could you put that back up for a second? Just Pluto has a question mark next to it.

DR. RUMMEL: Yes.

ATTENDEE: For this mission we need to know what Pluto's status is.

DR. RUMMEL: What I intended to say before is that Pluto has a question mark because it's never officially been categorized, no one has ever asked officially whether or not Pluto is a body that is of interest or concern to planetary protection, and hence, there being no particular reason to render an opinion, an opinion hasn't been rendered.

Informally, I will tell you that you can plan a Pluto mission as if it can't be contaminated until we found out otherwise. One of the reasons to go to Pluto was in fact to find out whether or not its contaminatable, but if somebody intends to bore sight Pluto and crash into it, then there may be issues associated with that sort of a mission as opposed to a fly by mission. I have to go through a process to get that done.

ATTENDEE: Just to be perfectly clear you have a fly by mission to Pluto, what category is it going to be?

DR. RUMMEL: Undoubtedly it will be something like Category II or I. The difference between Category I and II in terms of implementation is documentation only. Category I, there's no documentation required. Category II, you just tell me what you do with the

spacecraft, so from a cost standpoint, it's a very minor thing and certainly not something that would affect the initial study phase.

[The following Mission Categories are defined:

Mission Category I (Any Mission Type): Not of direct interest for our understanding the process of chemical evolution. No protection of such planets is warranted (no requirements).

Mission Category II (Any Mission Type): Of significant interest relative to the process of chemical evolution, but only a remote chance that contamination by spacecraft could jeopardize future exploration.

Mission Category III (Flyby or Orbiter Mission Type): Of significant interest relative to the process of chemical evolution and/or the origin of life or for which scientific opinion provides a significant chance of contamination which could jeopardize a future biological experiment.

Mission Category IV (Lander or Probe Mission Type): Of significant interest relative to the process of chemical evolution and/or the origin of life or for which scientific opinion provides a significant chance of contamination which could jeopardize a future biological experiment.

Mission Category V (Earth- Return Mission Type): Any Solar System Body]

ATTENDEE: So I'm still not sure I understand. You can't tell us now if A or B holds or I or II?

DR. RUMMEL: That's correct. That's what I'm telling you.

ATTENDEE: Would that depend on proposals or the decision hasn't been made?

DR. RUMMEL: It will undoubtedly not affect your proposal in any significant way at this point in time, the intent being that when -- if it becomes a Category II, if you are going to go by Jupiter, for example, then the mission will be a Category II irrespective of where Pluto stands.

If you go by Mars, you're going to be Category II or III depending on how close you get to Mars, so it won't affect your proposal. You don't have to provide the documentation now. You just have to anticipate that there will be a process the mission will go through to get a categorization factor.

ATTENDEE: Well, what might happen for it to be Category I?

DR. RUMMEL: If I get advice from the National Research Council that Pluto is not ever contaminatable which I don't think that they'll probably give right now given what our knowledge of Pluto is. Then there would be a letter that would say, Thank you very much for telling me about the mission, I don't want to hear about it ever again.

Given that Pluto is a hard place to get to without going by one of the other ones [planets – gravitational boost], very likely a Category II would be a class -- a categorization for a Pluto mission, but I don't want to restrict people from going direct.

ATTENDEE: Okay.

DR. RUMMEL: So I couldn't say. Alan, did you have a question?

ATTENDEE: John, would you clarify the point you sort of alluded to, if someone proposes equipment that will actually impact Pluto, what do they have to address? What are the standards?

DR. RUMMEL: They would have to address what they're going to do and the potential that this in fact could provide a requirement on certain kinds of contamination control, but unless somebody actually was going to propose that, I'm not going to go to the NRC and ask the Space Studies Board, what do you think about this.

But if they do we can do that relatively quickly, but it's real cold out there, so the potential for earth organisms to live on Pluto given its size, standard temperatures, etc., I would estimate to be pretty small, but in a formal sense I would have to go and get that advice before I could tell you that I don't care.

So in an informal sense I would think that a case could be made in a proposal that it's likely to be a category that wouldn't require spacecraft bio-load reduction, but in a formal sense I can't answer that question until I actually get to ask it.

ATTENDEE: I have a question. Could you put that chart back? You say no agency has pursued an exception. are you referring to the first of those two exceptions?

MS. PONIATOWSKI: Yes, by the President. The second we, NASA, do routinely, and that language is put in expressly for us.

ATTENDEE: Thank you.

ATTENDEE: Question. Could you leave that up? I guess I'm confused because you have like Delta IV and Atlas IV as modified Cat. 3, but if they meet the 14 by 2003, that's a full Category 3.

[Payloads or instruments which are classified as Risk Category 3, by the responsible Enterprise as individually mission critical to implementation of NASA's Strategic Plan, require complex mission interface/design and/or are of high cost (e.g., Discovery or Space Station logistics), may launch on --

(a) NASA-acquired launch services from qualified suppliers with a demonstrated flight record consisting of a series of consecutive successful launches of a common vehicle configuration (i.e., 95-percent reliability @ 50-percent confidence level), and

(b) KSC verification that the common vehicle configuration has been verified to meet predicted vehicle and performance parameters (e.g., within three sigma criteria) or

(c) An on-orbit services contract utilizing services from a qualified supplier will be considered on a case-by-case basis for analysis between the mission Enterprise Associate Administrator and the Office of Space Flight (OSF).]

MS. PONIATOWSKI: That's correct. That's correct. The question is when you need to make the decision to baseline on that system before they've met it [the 14 launch requirement].

ATTENDEE: Oh, okay.

MS. PONIATOWSKI: What we're trying to do is to say we believe they'll meet that intent, and so you could go ahead and you could actually propose them. You would have to put some caveats in, and that's what I'm going to talk about when we get to ELV's, some mitigators we would propose folks consider.

ATTENDEE: But it sounded to me like the process actually -- even though the proposer may propose a given vehicle, it sounds like Kennedy may have the ability to sort of overrule that. Maybe I'm wrong and misunderstood what you said.

MS. PONIATOWSKI: No, overruled with regard to an Atlas or a Delta?

ATTENDEE: Well, it seemed like what you said was -- or at least what I think you said was that KSC would go through a competitive procurement to select what they believe to be the most appropriate launch vehicles.

MS. PONIATOWSKI: Why don't you let me talk to it. That's a very fair question. What we've actually done is we currently have contracts in place with both Lockheed and Boeing to provide the suite of their Atlas and Delta family vehicles. It's what we called our NLS contract, NASA Launch Services. What that contract did was it gave us a base set of not to exceed prices for a ten year period, and it gave us a range of capability that

goes from the lowest end to their highest end of capability, and what we've got now is we've got contractual mechanism with both. When we get any given payload we have the opportunity to give the proposal to both contractors and say, Now tell me how can you meet this requirement, and then we get a proposal back from those two. Again this isn't done on our own. This is done with the PI as part of that process, so, no, it's all done as a joint process where we make sure the customer gets his requirement met.

And what we're saying, and I'll get to it on the ELV charts, is there's some things we can do as we're in this gray area until they have some demonstrated flights and as proposals are being developed, but the intent is we put the basic long laborious part of the contract, and I know Vern will agree that it's not really that long but it was pretty long -- but we put that behind us so now we have a process that once we have a given requirement we can actually get the benefits of competition and see what the two options may be.

ATTENDEE: Thank you.

ATTENDEE: Maybe it goes without saying, but I don't recall you're mentioning it, the Pluto mission, if it were selected to be flown, would only be permitted to fly on either a Category 3 or a modified Category 3 vehicle; is that correct?

MS. PONIATOWSKI: I think from where your question is coming from, I think that's a fair statement. It's considered -- again one of the other factors that we'll get to is what type of power source you put on board. If you put a nuclear power source on board, I would think it would particularly be a Category 3.

ATTENDEE: As opposed to a modified Category 3?

MS. PONIATOWSKI: That we have to work through.

ATTENDEE: It would be helpful.

MS. PONIATOWSKI: Again, you want us to go op priority, and what I can't tell you today sitting this many years out, is I can't tell you will Atlas V, for example -- there's a typo. John, you got a typo there. Where are you? That is not my typo. That is John's typo. I know my IVs and my Vs.

But the practical example is what we're trying do is we're trying to take away from the chicken and the egg part of this. Right now the plan is that if indeed we see the 14 flights by '05 -- and again I'm using 14 as a rough number. If we're at a place where there's 10 and everything has been really clean and we're engaged in the data, that's going to be deemed -- we'll work with the customers and we'll say we think that meets the intent.

So we're trying to work in this gray area. What we're saying though is if we get out to this timeframe, and it's going to be a single launch of a system, yes, there's going to be a risk discussion you need to have which is why we're recommending that at least until both of these new systems come on board, that the proposers seek to maintain do a compatibility with those systems.

ATTENDEE: I guess what I'm getting at is more of a question for Colleen, particularly with a possible distinction in the event of a radioisotope power source between a Category 3 and modified Category 3, how will this information be factored into the evaluation and the proposal process?

DR. HARTMAN: In much the same way I believe that Karen just delineated. We will try to look in the crystal ball and predict given predictions and make our best estimate that you could get there based on the same information that she's giving you here today.

ATTENDEE: What about the Category 3 versus modified Category 3?

DR. HARTMAN: That's the gray area. When it's Category 3, then there is no balancing act. When it's modified Category 3, we will look at your defense of your risk assessment and make our own independent assessment of what you're saying in the proposal and see whether we are basically agreeing with you or not.

MS. PONIATOWSKI: As I said that's why -- we talk right here, but one of the charts I had is to talk about things like mitigating the risk again, and these two systems, there's no flights yet on the book so they're equally at the same place in my mind as far as risk category.

They also have rough projections, one may be a little bit projected more aggressive than the other, but basically we're saying in about the same time zone they're going to be in about the same place.

Now, what this says is that's today with the projections. If I go back to this Zenion (?) Titan IV Centaur we were going to be the sixth or seventh flight of the SRU. Guess what? We weren't. We were number 2, and if you want to really stretch it, we were number 1 of a very unique configuration.

And this policy was all kind of jelling together when we were doing that, and there was a lot of nervousness with how did we know [how to] apply this policy and get ourselves comfortable. So, yeah, what we're trying to do is let you guys know instead of giving you this mission which we have been to date, Well, we'll just have to see, we tried to at least lay out for everybody to see we're -- when we go into our discussions

and we counsel, this is the types of data we're going to be looking at. You're going to be as fully apprised as they are going into it that these are the kind of risks that the different systems will bring with them. Yes?

ATTENDEE: A question, you had mentioned the IUS before and you have the shuttle up there. Where would the IUS fall in that categorization?

MS. PONIATOWSKI: I want to say IUS is Category 3 to the best of my knowledge because we've had I want to say 15 or 16 flights, and my recollection is like the second flight I think was a failure. The one we lost was the Challenger. I think that's how -- Rick?

ATTENDEE: I thought the second one was a failure?

(Discussion off the record.)

ATTENDEE: The question is what is a failure is a failure.

MS. PONIATOWSKI: I don't mean to answer that question through this discussion. This question was is IUS, would shuttle IUS be deemed category 3, and my answer would be yes.

ATTENDEE: There is another aspect to risk again with nuclear power sources, it has to do with the InterAgency [Nuclear] Safety Review Panel. MS.

PONIATOWSKI: I've got one on that. I figured there was a couple key things, and I was just trying to get through so everybody -- the objective of this was just to say we're trying to say, Here's the way we're going to look at these systems. Vern?

ATTENDEE: The way the AO came out on January 19, it said -- I guess it could be read such as the bidders have to propose a specific vehicle and it's said that enough launch vehicle data needed to be included in the proposal so that a risk evaluation could be made.

Now, I have heard there may be some modification to the AO where the burden of assessing launch vehicle risk is removed from the bidders and that assessment would be done by Headquarters and Kennedy downstream, and the bidders would just have to ensure that the missions are compatible from a performance standpoint with the potential vehicles shown here. Is that --

MS. PONIATOWSKI: What I would like to do is take that as -- for the record. Take the question for the record because I'll have to go back and look at the latest version of the

AO to see where that's coming from. I didn't think that was the intent. So I think we need to verify I don't think that's the intent.

DR. RUMMEL: I thought we said the bidders don't need to differentiate between risk between the two vehicles.

MS. PONIATOWSKI: Correct, at this point.

ATTENDEE: Possible I missed that.

MS. PONIATOWSKI: Okay. We can go and make that clarification and put that answer on the web.

ATTENDEE: The way we have it written, right or wrong, is that we split it in to three classes of vehicles regardless of brand, and we've stated in there that the heavy vehicle has less --

MS. PONIATOWSKI: Projected flight history.

ATTENDEE: Which will be taken into consideration, if someone elects to use that and the Delta III, Atlas III have one successful flight each which will also be taken into consideration, but what we intended was for the risk assessment to be done at a high level between classes, not within a class. In other words, we don't want you going in and having to do a bunch of detailed analysis and assessment between Delta vehicles and Atlas vehicles and try to predict when we've given you the information here, and that's the level of risk assessment we think we should do, not drown in trying to assess the manufacturing details and the design changes of each vehicle. Getting into that is what our job is.

MS. PONIATOWSKI: Did that answer it or did it open it up?

ATTENDEE: I think that answers most of my questions. Have those modifications been posted yet?

ATTENDEE: Yes.

MS. PONIATOWSKI: Yes.

ATTENDEE: That answers my question.

ATTENDEE: The other question also, I think we can clearly say it's a Category 3 mission, but whether we use Category 3 or modified Category 3 implementation of our certification approach is really where we need to make a judgment in the process.

MS. PONIATOWSKI: And again what I'm trying to do here so we're all on the same page, and I don't want to confuse the issue, the purpose here was to let the folks know when we work with Code S this is the criteria we're going to be using. The market projections are not going to change dramatically between now and when the proposals come in.

So you're not going to see us present this, and then we're going to manufacture a new set of numbers. We wanted you to know honestly this is the kind of consideration we're going to take in to play.

Then what I was trying to do was get to some of the other questions that were coming up. There's some specific considerations for the U.S. ELV's, and I have a couple on shuttle as well.

ATTENDEE: There's a cost for implementing the modified Category 3 implementation. Is that cost going to be born by Code M KSC, or is that a cost that the proposer needs to bear?

MS. PONIATOWSKI: What we're looking at here is really a set of what we will do as a way of doing business. First off, Code M's approach is paying for those things that are generic across the system.

ATTENDEE: When you say \$90 million is that -- is that the total cost plus inflation?

MS. PONIATOWSKI: That is the cost that Code S would be required to identify to augment the current agency budget to add that flight.

ATTENDEE: That's just the shuttle, not the upper stage?

MS. PONIATOWSKI: Just the upper stage, yes.

ATTENDEE: Is that in fiscal '04?

MS. PONIATOWSKI: It is phase in the thing we've got in the AO associated with the December '04 launch, and I think we've thrown in a 3.5 percent inflation rate so just take that phase and move it up to where you need to go.

ATTENDEE: For an '04 launch, it needs to be on Columbia or heavier Orbiter, that's the only option?

MS. PONIATOWSKI: That's correct.

ATTENDEE: For subsequent years it could be on the lighter vehicles?

MS. PONIATOWSKI: That's correct.

UNIDENTIFIED SPEAKER: Beyond '06?

MS. PONIATOWSKI: Beyond '06.

ATTENDEE: We touched on this only briefly, uniqueness of the shuttle of course is due to mission circumstances, the vehicle could come back with a payload intact.

MS. PONIATOWSKI: Correct.

ATTENDEE: Who would be burdened with the cost of a reflight, and would there be sufficient margin within the KSC manifest to allow for a quick turnaround?

MS. PONIATOWSKI: As far as adding another flight, the assumption would have to be you would have to again add a flight so it's the \$90 million, whatever, to add that flight, and as far as robustness of turning it around, again it would be a question more I think in this case of when your next Pluto opportunity is that you would be able to take advantage of. So the way I understand these opportunities I could probably say the shuttle would probably be ready to pitch in by the next opportunity, at least from the opportunities I've looked at in the past.

ATTENDEE: Make you feel good?

(Discussion off the record.)

MS. PONIATOWSKI: Then as I said the other things that were not included in the \$90 million costs, is if [you] need some unique criteria, that is the cradle or that whatever to fit into the shuttle, that development cost does not assume whatever type of upper stage you have is not included, and again there's an issue of flight of nuclear material.

ATTENDEE: IUS is not included?

MS. PONIATOWSKI: Upper stage is not included. We're talking solely marginal cost of the shuttle, and then the last really subject matter chart had to do with again Presidential approval as I'm sure you're aware is required to launch any U.S. provided nuclear materials on any launch vehicles.

So that means if it's a foreign launch vehicle with U.S. RTG's or shuttle or an ELV, the U.S. President has to approve it.

I can't state this enough, but you'll hear more I think a little later, nuclear approval effort, whenever you start it, it's already usually too late, so that's a very long process.

Likewise it's a very extensive task to gather nuclear launch approval. I think in my experience we typically do it like the day before the launch when it's all finally done and all the lawsuits are all complete, that there's a lot of data that you have to generate to get through that process.

This is key to date. Approvals have only been for U.S. launch systems so it would pose a first time event if someone were to propose launch of U.S. RTG's on a foreign launch system so we would have to run through a whole new set of widgets although all that same technical data that we're used to would be required.

All the failure scenarios, etc., would need to be made available. From where we stand today, as I said earlier, devoid of a mission we know we're going to fly the Atlas V and Delta IV vehicles, so we already have work in way towards those vehicle data books.

The shuttle data book we really had put it on hold so it would require update. Again it's just one of those that we do have data. We just need to update it, and I will say that the GPS Delta II failure that happened about three or four years ago did bring in some new factors that have aided or have added to the discussion now with DOE, particularly with concerns with solid matter and how it can do and its effects on the RTG's.

So there's another layer of conservatism that's now in play since last we went through this process.

ATTENDEE: That satellite survived that explosion and transmitted the whole way down to the ground is my impression.

MS. PONIATOWSKI: Correct. Now, the issue had to do with the upper stage that was attached to the spacecraft and the propulsive capability with which it came down with the spacecraft, and it was those dynamics that now they understood a little bit different than what they projected would actually occur. Yes?

ATTENDEE: Does the new data on the web dealing with cost of launch vehicles include sufficient information to develop the cost payment plans or funding profile?

MS. PONIATOWSKI: Funding profile is put in. Yes, sir.

ATTENDEE: Does the cost in there include providing all the data required from the launch vehicle, RTG suppliers to supply this data, what's left over -- so there's going to be contract mods required by the PI in the GFE to get that data to support the launch approval.

MS. PONIATOWSKI: I think -- I don't know who is Paul -- Paul will talk more of those details.

ATTENDEE: Is that scoped any place?

MS. PONIATOWSKI: Scoped?

ATTENDEE: It's not in the AO. If you're looking for like estimates of what those kinds of costs are.

ATTENDEE: How much does the PI have to set aside for that?

MR. VANDAMME: You can ask that question, and we'll get back to you but it would require a coordinated response across agencies.

DR. HARTMAN: Could you please repeat your name for the reporter.

ATTENDEE: I understand the shuttle costs are marginal costs.

MS. PONIATOWSKI: Correct.

ATTENDEE: And the ELV costs are not to exceed costs.

MS. PONIATOWSKI: That's correct.

ATTENDEE: Are they treated the same way, and should they both include margin?

MS. PONIATOWSKI: I would say right now from -- when you'll see in the words we're assuming standard integration, standard whatever, so devoid of doing something unique like an RTG or any special cradle those are the added things, but basically to bring a payload, get it processed, get it integrated into either system, those are commonly included in the costs.

ATTENDEE: You don't have to add margin on top of that?

MS. PONIATOWSKI: No. One second, Darrell, do you have something?

ATTENDEE: I want to make a clarification. When we did put the cost numbers on the launch vehicle, the ELVs, we didn't include the data book development in there, in that number.

MS. PONIATOWSKI: For a given mission?

ATTENDEE: For a given mission because we are doing some data book type work, but if there's going to be a mission we need data.

MS. PONIATOWSKI: What we need to do is make sure we put in an answer on the web whether or not in the event someone came in with a system that did not need a data book, what numbers would be backed up. I think that's the best way to answer that question. Yes, ma'am.

ATTENDEE: So the update of the shuttle data book, is that something the proposer must bear the cost of, or is that part of the shuttle program?

MS. PONIATOWSKI: I guess we treat that on a case by case because right now we don't have the need and so until I have a need, we're not going to expend the cost. It was not --

ATTENDEE: Does the proposer need to add cost?

MS. PONIATOWSKI: The proposer needs to add the cost.

ATTENDEE: And can the shuttle program tell proposers how much that is?

MS. PONIATOWSKI: We will take an action to go and get that and put it on the web. Bob, could you write that down?

ATTENDEE: Yes. This may be a question for Darrell. In the ELV launch services information that was on the web, it refers to on the first page demonstrates successful flight rate relative to the referenced December 2004 launch date. Does that have any particular significance?

MR. FOSTER: I thought we took it out. Is that the current?

ATTENDEE: I pulled it off yesterday so I don't know if it's current.

DR. BOGAN: The AO is unrestricted as to the launch date so that will require some correction.

MR. FOSTER: We'll pull that out.

MS. PONIATOWSKI: It was to give you a reference something, and then the inflation rates are there for you to update it to whatever date you're proposing. Do those costs include margin?

ATTENDEE: Margin for what?

ATTENDEE: Reserves? Do those costs include reserves and you have to have reserves on top of those costs?

MR. VANDAMME: Do you want to discuss that?

MR. PERRY: Let's take that as a question.

MR. VANDAMME: We'll get back to you.

ATTENDEE: There are several things in here that are extra scope over and above the 40 million. Is that scope going to be defined some place so that we can look at it?

MR. VANDAMME: If you would like to ask the question.

ATTENDEE: Or item 2, is cost included in those?

MR. VANDAMME: The cost to DOE will cover it, yes, in that chart. The 40 million and 50 million.

ATTENDEE: Covers the cost of plutonium?

MR. VANDAMME: I believe so.

ATTENDEE: You might want to check it.

MR. VANDAMME: Unfortunately Mark is not here so I can't tell where he's got those estimates but if they got them from DOE they should have anticipated --

DR. HARTMAN: Yes, and we will make sure to provide the answer on the web site, so let's just --

MR. VANDAMME: We'll take that as a question then.

[RTG funding information is included in the PKB Library document, *Technical Specifications for Radioisotope Thermal Generators (RTG's) for Pluto-Kuiper Belt Mission*]

ATTENDEE: Maybe we can clarify that question to be could you clarify what all the NTE costs include for the RTG's.

DR. HARTMAN: Okay.

MR. VANDAMME: All right.

ATTENDEE: I had one more question which is on viewgraph page 3 where it says U.S. DOE RTG's may be baseline. You meant to say only may be baseline.

MR. VANDAMME: No, I mean to say you're allowed to baseline them if you're going to make a proposal.

ATTENDEE: You can baseline something else?

MR. VANDAMME: You should say they're being baselined in their proposals.

ATTENDEE: Can you baseline --

ATTENDEE: The implication is you can baseline others.

MR. VANDAMME: They're trying to say -- that's the addition of the word DOE RTG's. You may baseline -- DOE RTG's may be base DOE?

ATTENDEE: You're allowed to baseline RTG's.

ATTENDEE: Only.

MR. VANDAMME: I don't know what you're proposing.

UNIDENTIFIED SPEAKER: You're talking non U.S. --

MR. VANDAMME: There's no prescription for that. The operative word is may be baselined. The AO is just clear that you may baseline RTG for DOE. If you want to interpret and if you want to propose something else, that's your interpretation.

ATTENDEE: Perhaps a little clarification on that point. Previous AO's for Discovery missions did not allow at all RTG's to be used.

MR. VANDAMME: To be baselined.

ATTENDEE: Period. The change here, I know but now you're saying you can use them, but I guess I have another question. There are four sets of costs it appears that we have to include in the proposal.

One is a launch vehicle data book, either preparation or update, okay. It looks like we have to include costs.

MR. VANDAMME: Launch vehicle data for launch approval and for environmental compliance. These are two separate activities.

ATTENDEE: So the same -- data book, the same data book cannot be used for both the environmental compliance and for the Insor compliance.

MR. VANDAMME: I did not say that.

ATTENDEE: That's what it sounded like.

MR. VANDAMME: Your costs have to include data and support for environmental compliance and launch safety.

ATTENDEE: Correct, plus the preparation of or payment for -- to NASA for their approved cost for supporting the launch safety process, right?

MR. VANDAMME: Right.

ATTENDEE: And include the cost also for the preparation of the environmental documentation at the program level; is that correct?

MR. VANDAMME: Right. Okay.

ATTENDEE: Maybe we could get a clarification of that on the web site because what I thought I heard awhile ago was that the cost for the launch vehicle portion environmental and nuclear approval was accounted for in the price numbers that NASA has defined in the attachment.

That's what I thought.

DR. HARTMAN: We'll be sure to include your question in the clarification on the web site.

MR. FOSTER: I'm Darrell Foster. We took an action to clarify that. That is true. Now, I think part of that action is that if somebody decides not to use RTG's, what do we -- or do not require the data books, what do we guide that offer? And that's an action -- part of that same action.

MR. VANDAMME: Yes?

ATTENDEE: Can you tell us where to find the pricing information for the RHU's.

MR. VANDAMME: You can ask the question, and we'll provide that for you.

MR. VANDAMME: Okay.

ATTENDEE: A question for Dr. Hartman. We've spent quite a bit of discussions on the RTG's. John Hall of Teledyne Brown. The option of using U-235 nuclear fission power, has been that been precluded?

DR. HARTMAN: No, but this -- since this question has come up in various different formats in the last ten minutes we will specifically address that question and give you an answer on the web.

ATTENDEE: Thank you.

ATTENDEE: Karen commented that the inflation rate being applied was 3.5 percent. Yet the AO says 2.8 percent. Are they mixed?

DR. HARTMAN: No. I believe what she referred to -- I believe, Darrell, you can correct me if this is wrong is a baseline in which you would then -- you can then inflate using what the AO says is the inflation.

ATTENDEE: Thank you.

ATTENDEE: Has there been any -- I apologize for being late. Was there any discussion for the previous questions that were submitted via email and that sort of thing before hand?

DR. HARTMAN: No.

ATTENDEE: Is that going to be saved for the end?

DR. HARTMAN: The answers to those questions will be posted to the web site which is accessed through the library by February 16.

MR. HILL: Okay.

ATTENDEE: One last question. The 20 percent cost margin discussed in the Langley review presentation, does that include or exclude the launch vehicles and RTG NTE cost?

MR. PERRY: Repeat the question.

ATTENDEE: Does the 20 percent growth margin that you're looking for include or exclude launch vehicle -- 20 percent on the total mission cost?

MR. PERRY: It's total mission cost, so that includes all of them.

ATTENDEE: Is there a reason why you can't give out the attendants at today's date in case people want to make contact with somebody here?

DR. HARTMAN: I have been asked to relook at this issue. It is a legal question. We have done it both ways. On the one side people who are attending the Preproposal Conference have not agreed up front to give out the fact that they are interested in proposing.

On the other hand, there may be various people who aren't interested in finding out who they can team with, so I have agreed to go back to legal and relook at that question. As I say, we have done it sometimes one way and sometimes the other. It depends who you ask in legal that week.

This was the answer we got, but I can press a little further. If there are people here right now who would prefer that their name not be released, if they would come see me and let me know that, if you prefer to stay private, that will help when we adjudicate the position. [The decision has been made to release this information upon request.]

ATTENDEE: In terms of transmitting data, where do we get costs for example for using different receiving assets as part of preparation like different parts of the DSN? That has to be part of the proposal I assume if we're going to be.

DR. BREDEKAMP: I assume we direct them to DSN?

MR. PERRY: Yes, it is similar to Discovery.

DR. BERGSTRALH: It's similar to Discovery, and I believe you'll find that information in the program library for this purpose.

DR. BREDEKAMP: Again for estimates, what it takes for archiving and whatever, then PDS will provide you guidance and then consultation on that.

DR. BOGAN: It has been altered specifically for this, so it is not exactly the same as Discovery. It was reviewed by the people concerned, and they may have some variations [from Discovery].

ATTENDEE: Okay. Thank you.

EDUCATION & PUBLIC OUTREACH

ATTENDEE: In the Discovery AO, we had -- we had some problems getting all the cost detail that was required in step one because it was a little bit vague as to exactly what you mean, and we interpret it as 20 or 30 pages of tables.

Would you-- can you say how what you want here is different from that? I assume that's the last --

DR. SAKIMOTO: Let me give you a general rule of what we're trying to get to. I understand there have been some problems getting those E/PO's together. What we would like to have happen is that what you submit for E/PO is in parallel of what you're submitting for the rest of the mission, so I suggest a sketch breakdown at the level you're doing for everything else is really what we're expecting here.

Basically I want to see you've got people and some resource devoted but the details can all come later.

EXPORT CONTROLS

ATTENDEE: Can you give an example of something that would be subject to the Department of Commerce regulations, something that NASA does?

MR. HALL: Sure. Actually a lot of what NASA does is subject to the Commerce Department regulations. The easiest most visible example to cite is the space station. The actual hotel in space, if you will, the actual infrastructure of the space station was transferred to the Commerce Department in 1994. The payloads that go up on it may or may not be, depending upon what they are, but the government made a determination at our urging in '94 to transfer that large bus, if you will, to the Commerce Department for a number of reasons. At the time Russia was a sanctioned -- was a proscribed country on the State Department list and we had so much work going on with Russia that it would have been very difficult to continue our efforts with them if the station were still on the U.S. munitions list.

Some of the other things that are on the commerce control list and subject to the Export Administration Regulations are space qualified cryo coolers for example, and traveling wavelength tube amplifiers are also on there.

So there's actually pretty sophisticated stuff that's on the commerce list. It's there because it's become predominantly dual use, having both civil and military applications, whereas things like the space shuttle, although it has -- the shuttle itself has almost an exclusively civil application nowadays, very few indicated DOD type

missions, it's still a launch vehicle, and launch vehicles are delivery systems for weapons, so that would probably stay on there.

ATTENDEE: The AO said the Preproposal Conference would address all questions received five days prior to that. There were questions submitted that we would really like the answers to before two weeks from now. Are you open to discussion on some of those?

DR. BOGAN: We'll answer those as quick as we can so we don't expect they're all going to take two weeks to answer.

MR. FOSTER: I have two RFI's that have come in to me regarding the AO, and I realize you said earlier that you wanted everything coming through you guys, but my name was put in as the launch vehicle guy, and I've been -- I've gotten three so far. I've responded to one which we published, and I've been giving all those answers to Brad.

MR. FOSTER: But I have two in hand right now that I'm working on that I've received in the last five days, and I will hopefully get those out the first part of next week.

PAGE COUNTS

ATTENDEE: I have a pair of questions that's related to the page count and some ambiguity in the language, and maybe we can clear those up right now because I think they're straightforward. The AO allows for 62 pages and five fold-outs. Do the five fold-outs count against the 62 pages or not?

DR. HARTMAN: Do you know, Denis or Jay? I believe that was inclusive.

ATTENDEE: I can read you the language because it says-- it's actually very ambiguous. It says excluding items below, and it says including the five fold-outs so does that mean that one of the exclusions that's included as a fold-out, or does it mean that there's some --

ATTENDEE: Right. The other issue is whether the fold-outs count as one or two pages, if they don't count against the 23.

DR. BERGSTRAHL: I think in Discovery we counted the fold-outs this morning.

DR. HARTMAN: So is it inclusive or exclusive? Can we answer that question right now? So it looks to me --

DR. BOGAN: I would not count the fold-outs. The fold-outs are so useful. People study those things very carefully. It's my personal opinion.

DR. HARTMAN: Let's just go that way. Let's use that as the answer.

ATTENDEE: So the answer is 62 pages plus five fold-outs?

DR. HARTMAN: Exactly.

FUNDING PROFILE OF MISSION

ATTENDEE: I have a question about the funding profile for this mission which is a very basic question for all of us that are trying to trade the options and to put together some small set of solutions that fit inside the profile. And in the AO, you've given percentage numbers in the funding profile, and also referred to that as a typical mission profile. Can you comment on that or explain how we can convert those percentage numbers in to dollar numbers?

DR. HARTMAN: Only used as an example for you for a typical mission profile. Basically we're leaving it up to you.

ATTENDEE: Let me follow up. If we provide a total mission cost and a profile over a number of years and then multiply that total mission cost by the percentage valued in the tables and get our numbers exceeding those table numbers, that's a violation of a guideline or is that a violation of the AO requirement?

DR. HARTMAN: That's exactly the answer to the question. No, it is not a violation of a requirement. That was there for informational purposes to let you know what's typical of NASA program profiles from a funding standpoint. It's not a hard requirement.

ATTENDEE: One more question just to follow up, which is: Is there any requirement on the amount of money available for per fiscal year for this mission?

DR. HARTMAN: There's no requirement. Do you have anything to add, Brad?

MR. PERRY: No.

ATTENDEE: A follow up to that question. Is the typical profile deemed an optimal one in evaluation or is it merely what normally happens?

DR. HARTMAN: It's just provided for informational purposes. It's not meant to be used -- it's not the yard stick against which you will be judged, so it was provided for informational purposes only.

DR. BOGAN: The critical point I think is that a typical mission profile starts low and it ramps up and it reaches a peak and comes down.

Now, budgets are uncertain. We are at the moment experiencing a change in administration and the budget may be changed. Certainly we have no assurance beyond next fiscal year of what it's going to be. We're hoping and actually you are too that we don't get a very well conceived proposal worthy of selection that proposes a funding profile that is so front end loaded that we can't do it.

We don't know what the numbers are, so we're throwing that out to you only in the most general terms.

DR. HARTMAN: Let me say that a slightly different way as well. Maybe this will help. The funding profile was information only, but we all know that a very steep ramp up has a lag in it that often leads to inefficiencies. But those are just general -- very general informational, content guidelines.

If you can defend the budget you need, then you're on solid ground.

ATTENDEE: A typical problem is if we look at the launch vehicle requirement, it makes the first year availability for the science program almost zero, less than zero. It's like 6 percent of the total.

DR. HARTMAN: Once again, all we were doing there, this wasn't meant as a constraint on what you did. It was just for information. Because we cannot as sometimes we can do delineate a year by year budget for you to propose against, we thought it was wise just to give you all the information we had and for what it's worth, that was the information we had.

It will not be used specifically to judge your fiscal year against and shouldn't be construed as a tight constraint.

ATTENDEE: I have a typical problem --

(Discussion off the record.)

ATTENDEE: The launch vehicle profile for funding typically eats up all -- a bulk of the first two years funding for the whole program as a way the contracts are structured but you say here the typical is 3 percent. Well, the minimum in someone's case is 6 percent by itself. We have 3 percent of 500 million. That's 15 million bucks. Someone wants 24 in the low case.

DR. HARTMAN: In the first year?

MR. PERRY: I can make a comment here subject to my reference with Discovery, and, Jay, please correct me --

(Discussion off the record.)

MR. PERRY: -- the launch vehicle cost you may elect to spread that over more than one year, and I'm unaware of any requirement to do it in the first year.

ATTENDEE: They gave us a spread for it. A hundred million, a 2 million the first year.

(Discussion off the record.)

MR. PERRY: Let us review that, and we'll get some clarification put on that, but with frame of reference to Discovery, I know a lot of times Discovery proposals will spread the cost in a reasonable way.

ATTENDEE: The same thing happens there when we get the numbers.

DR. BOGAN: That profile was meant in the most general terms, not to be restrictive at all.

MR. PERRY: It's a guideline.

DR. HARTMAN: Once again the real judge here will be whether, for instance, if there is -- if we cannot clarify any further because there's a launch vehicle constraint, then the point is that you can defend the budget you need that your ramp up isn't such that it would have a credibility problem for us when we assessed it.

So if you're on firm ground, then you're on firm ground. That is not -- that profile was not meant as a constraint, just informational.

MR. PERRY: When I said guideline a minute ago, it's just an example for information. It's not --

DR. HARTMAN: It's not a ruler for us.

MR. PERRY: It's not a ruler.

ATTENDEE: I guess another way to ask this question: Hypothetical case you've got two category I proposals. One of them has -- and they're roughly the same cost, one of them -- and they both have the same -- they're assessed with the same cost risk by the Langley group and whoever else does the evaluation. Is the one with the front loaded

funding profile less likely then to be selected than the one with use the aggressive funding profile just because the funds availability to the agency?

DR. HARTMAN: What you're doing here, there is the TMCO review. If they are judged equal, then programmatic considerations will come in to play, and that's the area you're into here, and what we will do is try to fit -- I mean, after all we realize that with fiscal year constraints the proposal that's front loaded could be changed just as the one that was submitted or if there's some sort of adjustment that's needed, so I think the short answer to that is no.

If the profile was justified under the conditions given and then we have programmatic constraints that are different, we'll judge whether there is any benefit from one proposal to the other where the idea that either can be adjusted.

If there are no other constraints and they both can be adjusted equally, then they remain equal. But those -- that is the area, and as you saw the third chart I showed of programmatic considerations, the Outer Plants Program directorate and the AA and others will decide how it fits programmatically.

So there is no benefit of trying to guess programmatic constraints that frankly we can't even guess at.

[Appendix F of the AO, "Program Planning Budget Profile" is hereby rescinded. No overall budget profile is suggested. The launch vehicle budget profiles given in the Program Library document, "Pluto-Kuiper Belt Launch Services Information Summary" must be followed. Other costs will, of course, be added to that profile. If you can defend the budget you need, then you are on solid ground.]

ATTENDEE: Consistent with what you're saying, at the Langley review level, those programmatic considerations will not take place on your flow chart, is after you collect all these inputs where you've just evaluated how well you do it, that you and the AA put the spin on -- if everything else is equal you have to make the choices based on the other factors.

DR. HARTMAN: That's right, and Ed Weiler's the selection official, and the programmatic considerations are done at exactly that period of time, and at that point in the chain.

ATTENDEE: The resolution of the questions that I understand were going to be answered here today is that they'll be answered as they come in on the web site.

DR. HARTMAN: I think I heard Denis promise that the questions that have previously come in should be answered.

DR. BOGAN: Yes, and any submitted by close of business of this Preproposal Conference.

DR. HARTMAN: Right, should be answered right up front.

DR. BOGAN: If you have others, write them down.

DR. HARTMAN: We did promise up front they would be posted by February 16. I think that the questions that came in prior to this proposal should be first up on the web and should be answered first, the first in first out. So we'll try to get those up there before February 16. Any other questions?