

## William Gerstenmaier Video Interview

### Handling Dissenting Opinions

I think it is really important to solicit dissenting opinion from folks. In other words, there should be no penalty for you bringing up an alternate idea or dissenting opinion and I think it's really important you figure out a way in your processes and decision-making you welcome dissenting opinion and so what we did in the case of Station, and also later in shuttle, is I created a little box on the Flight Readiness Review from where the reviewer could say "I have a dissenting opinion," and they could actually write in their own handwriting on the form exactly what the dissenting opinion was and I think that's important that you listen to everyone, you listen to their dissenting opinion, then you as the deciding authority you need to internalize what that dissenting opinion was, explain back to the person how you understood their dissenting opinion, make sure you have a good communication there, and, if you decide not to listen to their dissenting opinion, that they need to know clearly why you made the decision moving forward, and that's as good as you can do. I don't have to accept your dissenting opinion. It doesn't have to stop me, but I do need to listen to it. I do need to understand it and I do need to answer your question the best I can. Now we may agree to disagree in the end based on our perception, but I as a decision authority in this case I believe I have the right to go ahead, make the decision and move forward. I think it's in the best interest. If you want to appeal that to a higher level, you can appeal that to a higher level all the way up to the Administrator, but I think you need that healthy process back and forward, and I don't really think that was so much a dissenting opinion, but you want an environment where folks are free to speak up and ask their questions as you go through because sometimes the quiet engineer on the background might have actually more information on this subject than the more vocal engineer that sits at the table and is there being the mouthpiece for everyone. And what you want to do is you want to draw out that quiet person in the back that's maybe been thinking introspectively or has seen some unique data. You want that person to speak up with their idea and not be embarrassed and that's really hard to do in big Flight Readiness Reviews where there's 200 people or so. Just the peer pressure of the situation is really hard to bring out those other opinions. So I would purposely sometimes ask people in the back of the room. I would look around, go all the way to the back row and I would ask somebody in the back row "well what do you think about ?" and then typically you would get some interesting discussions from somebody in the back, which is a different position. So I think

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you need to figure out a way to do that and make sure that the environment is conducive. The other side is also the other way. As an engineer you have a responsibility to speak up and, if you don't speak up, it's not because they didn't pull out your dissenting opinion. It's because you didn't bring it up. So there is a responsibility you have and, if the team moves on and you did not bring up the decision, I don't think it's the team's fault that they moved on. It was your fault as not bringing up that issue at that time. So I think you can make it easier, but I can never make it so easy that it's got to pull out all that dissenting opinion because that also can be too problematic. If everybody's got a thousand ways of doing business then maybe you're just not ready to make a decision or you're not ready to move forward at that point and you need more time to go study and think about things. So I think we learned through this whole process to essentially bring in dissenting opinions.

I'll give you one kind of problem with dissenting opinions and it's because, depending on the layers above you and their expertise in technical areas, they may not perceive a dissenting opinion the same way that I do at the technical level and the example was, in the case of Space Station, we had a set of requirements that we needed to return air samples every time the shuttle flew essentially to monitor the quality of the air on Station and that was a hard requirement. So when Columbia occurred, we no longer had the ability to bring back those samples when shuttle flew. We could only bring them back every six months. So we would get a snapshot of air every six months and that did not meet the requirements that were written on our books. So, therefore, the toxicologist folks said that this doesn't meet our requirements. We don't believe this is a safe way to fly and then my discussion with them was should we return the crew to the ground and de-man station? Or can we continue to fly and show that if we dump all the hazardous known gases in the atmosphere into Space Station? Is the volume large enough we won't exceed the toxicology limits in the amount of time before the crew would come home on Soyuz or we get a sample back? And we did that crude analysis and there was no immediate danger where you could go from unhealthy error to deadly error in that short a timeframe. So my argument was okay we didn't need to have the sampling and every six months was perfectly fine for the samples coming home. Their position was no these are the requirements that are written down. We need a sample of this thing. There could be an unknown unknown. Some things could combine in the air, etc. So I asked them to go ahead and write down their dissenting opinion and

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they wrote down their dissenting opinion. I gave them my logic. They understood my logic. They didn't feel it was necessary to return the crew. They were accepting of that, but they wanted me to accept the risk. As program manager, I felt that was appropriate to go do that. So that all occurred, but then at the level above me this was, again, after Columbia. Now there's a written dissenting opinion between the deciding authority and the program manager. How can this be? They really wanted to have that resolved and there was not a way we were going to resolve it. It was an honest difference of opinions for the requirements and I could accept that. Those above me could not. So they persisted in trying to drive out some kind of agreement between the two processes and we just couldn't get there and it was just really tough with the folks above me to see this occurring, especially in this environment. So what I kind of learned from that is in the technical world we can deal with ambiguity and uncertainty and some risk levels; whereas, in the more political world, that's not tolerated very well. So I got a tremendous amount of help, which actually made things much more difficult for us overall. We were demanded to return certain samples on certain flights and that wasn't exactly the right way to do business. So I think the message there is you need to encourage dissenting opinion, but then you need to also make sure that those above you know that you're welcoming this dissenting opinion and they can accept that ambiguity because it's not easy. Because, if you don't have the knowledge and you've got two passionate individuals with absolutely different positions, both very strong articulators of the position, as a decider that puts you in a very awkward position. You don't have the knowledge to really choose one or the other which is the right way and it really makes some folks uncomfortable, especially in a high risk environment when we had just lost crew. It was really, really hard for the folks above me to deal with that and I didn't realize that I was actually creating a burden for them by doing this. I wouldn't do it a different way. I think you still need to have that dissenting opinion and welcome it, but then you need to realize that once you pull that dissenting opinion out you have to deal with that dissenting opinion and you need a process that can deal with it.