WILLIAM H. GERSTENMAIER

September 22, 1998

Interviewers: Rebecca Wright, Summer Bergen, Carol Butler

Wright: Today is September 22, 1998. We're speaking with Bill Gerstenmaier for the Shuttle-Mir Oral History Program. Rebecca Wright, Carol Butler, and Summer Bergen.

Thanks again for taking time today on your schedule to visit with us. And we'd like for you to begin by telling us about your roles and responsibilities were with the program.

Gerstenmaier: I joined the program in about August of 1995. It was after Norm [Norman] Thagard's flight and kind of just prior to when Shannon Lucid was getting ready to go up. I volunteered to go be part of the Phase One program in August and interviewed with the Flight Director Office and MOD to become part of that Phase One Program.

I wanted to become part of the Phase One Program because I thought in the future we're going to be working with the Russians on [International] Space Station, and this would be a good chance for me to go learn to work with the Russians first-hand and get to see what the Russian space program was like and see how things were going on. Plus I had a pretty extensive background in our control center here in Houston. I worked as a flight controller just around STS-1 through about STS-17 I worked in our control center. So I had a pretty extensive background in our control center in the propulsion area. I also worked a lot with the payload people in our control center, and I also flew a couple payloads on Shuttle as kind of a customer.

So I had a very extensive background in Shuttle, and I thought it'd be kind of fun to see how the Russian space program was run and see how we can compare and see how those two programs are different or the same. So I thought it would be a neat opportunity to do that, plus it would also prepare me for future work with the Russians on Space Station.

At the time, Tommy Holloway was the program manager of Phase One. Frank Culbertson was the deputy at that time. Jeff Cardenas was the ops manager over in Space and Life Sciences Directorate. I got accepted to go be an ops lead for the flights. I wasn't assigned to a flight initially. I was kind of hoping I'd get assigned to John Blaha's flight, because I knew John Blaha when he first became an astronaut here at NASA and I worked with him pretty extensively in the Mission Control Center here in Houston. I thought it would be good to be with him in Moscow, but it turned out that I didn't get assigned to John's flight.

I got assigned to Shannon's flight, and I didn't know Shannon at all before any of the Mir experiences, and I was kind of uncertain about how it would be to deal and work with Shannon because I didn't know her very well, but it turned out—and I'll tell you later—to be a really outstanding experience. Shannon is probably one of my best friends now anywhere around, and we really had a good time, and it

worked out well. It worked out super. I think part of the reason it worked out so well is Galen Johnson was one of the flight surgeons with Shannon, and he was very good friends with Shannon. He had spent a lot of time with her in Star City. We kind of worked as a good team. Shannon and Galen were good friends, and they knew each other, and my job was to learn the science and figure out what work she was supposed to go do and tell her what to go do work-wise. The two aspects worked out very well. He would talk to her about general things, help her with some of the science, but then when it came time to tell her all the dirty work that she really had to do and all the real science, that was kind of my job.

Wright: You learned your new role, didn't you?

Gerstenmaier: Yes. But it worked out very good, except it was kind of disheartening sometimes because she would go, "Oh, it's not Galen," and when I would talk to her on com I would feel kind of bad, and then after a while, I knew that that was kind of my job. But it was good. Then later we became very good friends, and we would just chit-chat about stuff. So that was really good.

I guess I'm digressing from back to where we started. I got the job, talked to Jeff Cardenas, went over for a joint Shuttle flight just to see how things were going with the Russians. At the same time, I got to see how the Russians dealt with the Europeans, and that was important for me to understand how the European space agency was interfacing with the Russians. I also got to see first-hand how the Russians were dealing with their own crew members, so I had kind of a basic understanding of how they did operations on Mir.

Then I got sent over by Jeff with this huge protocol to go and negotiate with the Russians. This was the protocol that was going to set up how much com time we had with the Russians; how many hours a day we could talk, or actually minutes a day we could talk to the crew on Mir and arrange for their PAO events, when those would occur; arrange for their food, how much food was American food, how much food was Russian food; how much supplies would come up; what we'd carry on Shuttle flights; medical requirements when they would have private medical conferences; science requirements, how much of the Russian crews we could use for science time and all that. It's this huge big protocol.

I got on this plane, and I really had not negotiated or dealt with the Russians before that time, and I'm looking through this big package on the plane over to Moscow, and I'm going, "This is crazy," because we were asking for a huge number of hours of com times, and as it turns out, the Russians don't get very much com time. They get maybe five minutes every hour and a half, and they get occasionally a satellite pass which may last up to forty-five minutes. The typical total day's worth of com for them is maybe four hours, and we were asking in our protocols for at least maybe three and a half hours of dedicated com with

the crew. So that's obviously not going to work.

I'm reading this in the plane, and again, our basis in the U.S. was that the Shuttle we have almost continuous communication with the crew all during the wake period, so we'd have almost eighteen, seventeen hours of continuous com with the crew. So when the PAO guys were asking for an hour or two a week or whatever, they thought that was trivial, because there again it's based on the Shuttle time, but the Mir time was dramatically different, and you didn't know how very effectively to translate all that.

So anyway, I got stuck in negotiations with the Russians on all these protocols, and it was a really neat experience. I was pretty scared, and I didn't say very much, but I just kind of listened, and it would come up, and I would present to them what our requirements were for com, for three and a half hours, and they would look at me, and they would go, "Well, we can't do that," and I'd go "I know you can't do that," and then they would immediately go to something else. So they were kind of shocked that this was the first time that anybody from the U.S. would come over and just give stuff up. They would go, "Well, this is a ridiculous requirement."

I would go, "I agree with you. We don't need that."

And they would be just like totally like, "What do you mean? You're just going to take that out?"

I'd go, "I'm not arguing. It's gone." So we got fairly close to where we needed to be by the time I left, and this like I was there for about a month during that time, and we still didn't get the protocol totally negotiated.

So then I left, I came back to the States. I came back in December and essentially negotiated again for another about a month period, and then I was getting ready to come back to the U.S. and we still had not got the protocol signed. One Friday, Victor Blagov and Yuri Siplikov asked if I could stay another day on Saturday, to change my travel plans to come back to the U.S. to stay another day and finish the protocol with them. I said, "I'll try, if we can get the protocol finished."

So we came in on that Saturday, and it was myself and Yuri and Victor Blagov, and we sat down that Saturday along with the an interpreter, Boris Gonterov, and we hammered out the remaining portion of the protocol, and at that point we got to something that we could sign. Then we signed it in December, and that was what we were ready to go into the Mir, Shannon Lucid's flight with.

It turned out that this protocol was the basis for the entire Phase One Program, so our com requirements and everything we'd done was this protocol that I did over, really, a several-month period. It started in about September and it completed in December.

So that's how I kind of got started in the Mir Program. I got handed a pile of stuff and thrown on an airplane and said, "Go negotiate this."

Wright: At the time, did you think that would probably be the hardest thing you had to do?

Gerstenmaier: I didn't know for sure. I guess I was concerned because in the U.S., typically, you know, you may get a signed agreement, but then they pull out all the little words and then they argue with you and you don't really get what you agreed to.

I was very surprised when I went over, then, in January to start actually executing the protocol that the first thing they did is they went around and they talked to every one of the area managers in the control center, in the Russian Control Center, and they said, "Here's the protocol. Here's what we negotiated. Here's what we've agreed to. Here's what we want you to give to the U.S. representatives here." And that was astounding to me that they would do that and brief that to each and every person so everybody knew exactly what was expected, what was signed to in the protocol, and there was no discussion about whether that was too much or too little. It was agreed to, and you were going to deliver that.

So that was very good for me, that they actually lived up to all the agreements that we had made at the table and, in fact, later I got dramatically more than any of that once they came to know what I was doing and that I was there and I had the same love of space flight and my motivations were the same as theirs. If I told them I needed an extra minute of Shannon's time, I took one minute, I didn't take five. If I got interrupted in the middle, I would give up the com to them to go talk if they had to talk about a critical system to the Mir astronauts. So I just became totally accepted as part of the flight control team, so it was no different than being another Russian flight control team member in Moscow. So for me, that was very rewarding.

Wright: How long did it take for you to get that merit with them?

Gerstenmaier: It took probably two months, I think. The other thing that was unique about me was I was the first American that had agreed to stay there for an extended period of time, and I came in January, and I was going to stay through the end of Shannon's mission, which I think was like, at the time was in July, so it was like six months. So I'd made a six-month commitment to be in Moscow for all six months, and no American before had ever stayed that long, for six months. They also knew I had a family back here and I had a wife and kids, and they would often come talk to me about the times that they were on their communication ships in the Red Sea or off the coast of Florida monitoring spacecraft or whatever, and they were away from their families for an extended period of time, so they could relate very much to the circumstances that I was going through. So they kind of went out of their way to be extra nice to me. So that worked out really well.

The other thing that happened was Victor Solovyev, their head flight director, at the beginning of Shannon's flight, I would talk to Shannon in English. I could do Russian but not very good, not good enough to converse with her, so we had a big debate about whether the language we would speak would be Russian or English. I remembered during the protocol negotiations, we finally got to the point where they were very hard over that we needed to speak in Russian and I needed to speak in English, and in the station program, we had agreed, had written within it that the language would be English, and the Russians didn't like that because some of their specialists couldn't learn English.

So every argument that we gave them on why the language had to be English they gave me on why the language had to be Russian. Finally I remember, in the negotiations I got to the point that I go, "Victor, if you make it Russian, it won't be me, because I can't speak Russian well enough to go do this job."

And he said, "Okay. We'll make it English." So at that point I got to speak English, but the crew members on board, I think they were a little concerned about what I was talking to Shannon about, what I was telling her to do in English. As I was saying earlier, Victor Solovyev got on com and explained to the Russian crew who I was, why I was there, where my family was, why it was important that they listen to what I'm doing, that I would talk in English, that Shannon would kind of fill them in on what's going on and I would tell the ground control team what was going on. Then at that point, they kind of accepted me and I became part of the team. So that was kind of a big breakthrough.

The other thing that was unique, too, was I started out with Yuri and Yuri, Yuri Usichev and Yuri Yanafranko. Those were the two Mir cosmonauts that came up before Shannon. They came up on Mir-21, and then Shannon came up later, about a month later, so I spent one month working with them through an interpreter to do our science. So by the time Shannon got there, it was such a relief to be able to talk to somebody directly in English and explain to Shannon what I wanted and to have her tell me exactly what was happening back in English, it was fantastic.

Because we had some malfunctions with the Gaze experiment, and it was so bad that I would have to diagram out, ask this question, get this response, ask this question, you get this response, ask this question, and I would build like these pages for the interpreter and say, "Here. You go execute this, you ask these questions, and you get this data. Then we'll figure out what's wrong with the hardware after you get through with all that." So that was so difficult, but we were able to make it work, but it was really hard, because little subtleties are really important in trying to understand what's going on with the hardware and what's happening. "Why isn't this working?" "Well, it could be this or this."

So I had to surmise what all the failures were and then figure out what the responses were and make questions up to go ask those, but they you get the freedom to respond in just my normal English with

somebody and have then tell me directly back what was going on was like, "This is the greatest thing ever." So when Shannon got there, it was really nice and it worked out really good.

Wright: I guess it was good for her, too, because you already had that month's experience of dealing with this whole interaction, the experiments, and did it make it easier for you all to communicate on what you needed to have her perform these experiments the way that they needed to be done?

Gerstenmaier: Yes, I think so. I learned from the Russians that there's big differences in our space programs between the way we fly and the way the Russians fly, and it's driven by mission duration. In the Shuttle world, we fly like seven to fourteen days so everything is time-lined out on the one-minute increment, and everything has to be done exactly right, and the crews are unbelievable well trained, that they can just execute and it just happens.

In the Russian space program, where you fly for six months, you've got a lot of time to work problems, and you can't remember your training that you had in the beginning at the end of the mission, so you've got to be trained more in generic skills, so there's some time to get up to speed. It takes time to find stuff. That was one of our biggest problems. You know, I'd try to set up an activity for Shannon to do, and I'd have her start to try to take data that first day. Well, it would never work out, because you'd spend all day looking for cables and looking for the hardware and getting it wired up.

So after a while, I just allocated time to spend that first day at set-up and allowed her to get familiar with the hardware, understand how things work, get familiar with it again and then actually go execute it the next day. So even though it looked more efficient to go ahead and schedule it all on that first day, it never happened on the first day, so I just gave up and said, "Okay. We're going to spend the first day of you finding everything, getting everything ready, and then we'll start taking data the next day."

That's the difference between our programs, is that the short-duration drives you to very concise, very one-answer thing with no creativity, whereas a long duration allows you a lot of creativity. So what I did with Shannon is I saw that in the Russian program, I didn't want to ever appear to her that I was rushed or anything was happening, so when I would talk to her on com, my first question to her would be, "How are you? What's going on? Is there anything you need to tell me?" Even though I may have a huge list of fifty items I've got to tell her, my first thing was always nice and calm. I didn't use the official NASA radio language, "over," and "Roger," and, "out," and all the short abbreviation stuff just because I wanted it to come across as, "We've got forever, here's what it's going to be, we're going to just do this nice and easy and then we'll work it out." So that was just my general style with her, and it worked out very well.

And as soon as she would say, "Well, I don't have anything," "Okay. You ready? Here we go."

And then I would start through my list of fifty things, and I would get through as many of them as I could in the com pass. So I would schedule each com pass, I would annotate out exactly what I wanted to talk to her about, I would prioritize it in order, criticality of what she needed to know to do the next thing. I would tell her steps of the experiment she's going to be doing that were critical, that had to be done a certain way. Things that didn't matter, I let her know that she had free-form to go do those any way she wanted. If she got to a step and she got this answer, it was up to her to do whatever she wanted because I didn't know how to handle it if it got there, but if she got to this point and she got to this answer, that was very critical data for me, to, "Stop there and wait for me and I'll talk to you later about where the next steps are." So I tried to give her enough information that she could go run the experiment autonomously without me being around, but still capture the data that we needed. So I did that.

The other thing I did was I tried to set up just like a routine with her every week, and I kind of mirrored it off the way the Russians do business, like on Sundays. Sunday morning was just our chit-chat time. So Sunday morning the crew didn't have anything scheduled, and we would just talk about anything. We'd talk about the weather or talk about birds or what's going on in Star City or jokes or just general stuff.

And then towards Sunday evening, it's time to start thinking about the work week, so I would kind of lay out the plan for the work week, what activities were scheduled that work week. I even laid out a plan for the month, like we're going to do microgravity stuff the first part of the month, and in the middle of the month we're going to move on to maybe some combustion experiments, and then towards the end we'll pick up some biology experiments, or the Priroda module is going to be coming up at this time frame, or we're going to do some biology stuff later. So she had the big picture of where we're going, but then I would also kind of just give her an overview of what the week was going to be like and what was happening, and that was pretty standard on Sunday night.

Then Monday morning, we'd kind of go over with her exactly what was going on that day, tell her about the critical stuff. At the end of the evening, I'd kind of get from her a data pass or data dump of what was going on, what she had accomplished, what she needed to accomplish. I'd also fill her in on the next day. At that time she typically had the plan for the next day and I asked her if there were any questions for the next day. So we got kind of in a routine that was the same all the way through.

Then Saturday also was kind of typically a fairly relaxed day. There was usually a video conference maybe every other week back to the United States with her family, a two-way video conference, or we'd arrange for a phone call back to her family here in Houston, and we'd set that up and have that done, or we'd have a PAO event or whatever. So I just tried to keep her apprised of what was going on but

give her the same look from week to week, just like you would expect on the ground as you're trying to do your job. It's not a short term space flight; this is really your career, this is your job, and you've got to figure out some way to hang through for the long term, and that's kind of what we did.

Wright: You seem to have spent many hours preparing for such a small amount of time that you got to visit.

Gerstenmaier: We were very busy on the ground, and we had to negotiate when the science could get done with all the Russians. They shipped a bunch of equipment up on the Shuttle that didn't have safety certificates signed for it, so we had all this equipment that she couldn't operate and couldn't use until I had gotten this equipment approved through the safety process on the Russian side. So I was in a very awkward situation. She didn't have anything to do unless I could convince the Russian safety people that it was safe to go do this stuff, and I didn't want to do anything that could potentially damage Mir or damage the Russian Space Station.

So I'm here trying to get smart on all the safety hazards that they've been unable to negotiate with the Russians for maybe a year, some of these things, and now I'm trying to negotiate them in a week so I can get Shannon to go do them sooner. So my days were just jam-packed of getting science ready, getting science agreed to. We wrote a lot of her procedures. Our procedures weren't very good. So I had an engineering team and a science team of one person each, and we would sit down and we essentially rewrote all her procedures. I think we sent up about 900 pages of text to her during her mission.

That was the other thing that was remarkable on her part, that she didn't like computers very much, and we ran out of paper towards the end of the mission, so now we're forcing her to use a laptop computer to read her procedures, and there were very extensive changes to a lot of her procedures. We had an experiment, the microgravity isolation mount. It was a Canadian experiment. All the procedures for that were totally wrong. They were not right in any of our published books, so we rebuilt all those procedures from scratch in the Mission Control Center in Moscow. The Canadians brought over their hardware. I personally reviewed every one of those procedures with their hardware and went through them line by line. It was a lot of detailed keystrokes that had to go in a certain order, and then you would get a certain response. So I did procedure validation on every one of those line by line, and then we would send that up to Shannon.

It turned out really neat because, again, not being computer-literate, she would just type the stuff in directly as I'd sent up, and then it would work, and then she would be just so astounded that she would type all this stuff in that made absolutely no sense to her, and then all of a sudden the little table would wiggle

and the thing would move, and it says, "The table should wiggle and the thing should move," and she would go, "Oh, this is—" and then she'd be so excited that this stuff was really working, and it was only working because I happened to have the hardware there that I could figure out what to go do.

We also had problems with our MIPS computer, which was our way to downlink data, so we built a executable program which we uplinked to her, she ran this executable program which then compressed the data into a format. We were able to then send it down in a packet system that we could go look at on the ground and pull the data out, and again she was astounded that here we're having her compile executable programs on orbit and have her generate these things and send them down.

I remember one time one of the laptops quit working, and we had to reload the BIOSROM in the laptop. So I told her, "When you get back, and you'll be at some party somewhere, you can just tell everybody that you reloaded the BIOSROM on orbit, and you'll just impress them all," and she just laughed because she had really no idea of what she was doing, but we would work all the detailed steps out, and she was just unbelievably patient to execute them.

I remember one day we had a thing where we used to take the acceleration data and load it into another file, and there was a word you had—I think it was LPR-something, LPR PROC, and it was lower case "l," and it wouldn't take an upper case "L" and it wouldn't take a "1." I mean, it had to be exactly that way. She goes, "That's the hardest thing I've ever had. I tried that thing five times until finally it worked." And she goes, "It's a lower case L," and I go, "Well, you're now an official MIPS operator." She learned a little code there, but it was just a nuance that was tough to learn.

But she was just really outstanding and really easygoing to work with and really just a joy to talk to every day, that she was so patient to deal with all this stuff that was less than optimal, that it just worked out really nice.

Wright: You had mentioned that it seemed like it was just sometimes you three in the world. Is there something special other than your calmness that you tried to let her know that there were more people out there, or is there anything that you could do to make her feel like she wasn't alone up there?

Gerstenmaier: We had the family stuff which we arranged for. The Russians have a deal—someone may have told you this—they bring in entertainers for the cosmonauts on Mir, and they come in, and they're like singers or theatrical people or movie stars or whatever, and they come in and they talk to the crew, and they sing to the crew and whatever, and that's kind of a thing on Saturday that they do periodically.

Well, one day whoever it was didn't show up, so then they decided, well, they would go around the

control center, so they carried a walk-around camera in the control center, and they would go to each console position, and they would go, "Well, this is the Cap Com operator who talks to you every day, and this is the guidance navigation person that watches your control systems, and this is the person that makes you turn that computer on and off every time."

So it was really neat that they got to see everybody in the control center, kind of meet them one on one. So they came around to our group. So then she got the chance to see all this that was there and all the people that were supporting here.

I think the other thing that was amazing is we would schedule certain experiments in a certain time, and then the principal investigators would be back in the United States, so it would be like 2 a.m. or 3 a.m. in the morning, and they would be listening to the air-to-ground conversations between Shannon and myself, and then when something wouldn't work, if there was something that they could make a comment on right away, they would call down on the phone, and I'd pick up the phone and understand what they told me and then tell Shannon. So we were able to give her pretty good support. So she really had a pretty extensive team behind her.

The other thing we did for her, she wasn't a big sports fan, but it was during the Olympics, and NBC had agreed to go ahead and put together a little short tape for us of Olympic highlights. So we shipped up to her the Olympic highlights. We had it shipped over on videotape and sent it up to her. The hardest thing I had was trying to convince NBC that we just didn't want to see U.S. sports highlights, that we wanted to have something in there where we had some Russian athletes and competitors and she could show some Russians winning. They're going, "Well, why do you want to show that?"

I'd go, "I'm in Russia. There's two cosmonauts who are Russian on board this spacecraft. There's one American. So you should give me twice as many Russian victories as you do U.S. victories."

NBC was just arguing with me. "Oh, you don't want that."

And I go, "Believe me, give me some mixture."

So they picked some—I think it was sumo wrestling or something between a Russian and U.S., and it was pretty humorous, and we sent that up to them, and Yuri and Yuri and Shannon watched that. I don't know. Shannon probably didn't appreciate it very much because she wasn't a big sports fan, but we thought that was kind of a neat thing that we could kind of do for them to let them know what's going on.

Wright: Definitely different.

Gerstenmaier: Yes. The other thing that I did that I remember was that I met with Shannon early in December, and I asked her if there was anything special she wanted that I could do during her flight, and

she said that—I can't remember if it was her mother's birthday or Mother's Day, but she wanted to talk to her mom in the U.S. on some day, and I think it was maybe her mother's birthday. It was in the spring, in a May time frame. So I had arranged to have that scheduled and put it in on the time line, and it was going to be typically a ten-minute phone call—we'd patch it back to her mom. I think it was Oklahoma where her mom lived. And then they would talk back and forth.

So it was only scheduled to be a ten-minute pass. Well, it turned out that I needed to talk to her about some stuff. It was a satellite pass, so that's a forty-five-minute communications pass, so she had ten minutes to talk and I had fifteen minutes to talk, and then the Russians needed twenty minutes to talk about Mir. Well, it turned out nothing was going on on Mir, so they said, "Well, you can have my twenty minutes." So I said, "Okay." So that means I've got thirty-five minutes to talk, and she talked to her mom for ten minutes. So they started talking, and then all of a sudden I go, well, you know, I'll just give them the whole pass. I mean, I could have never scheduled that in my entire life if I would have tried to give her forty-five minutes of uninterrupted communications with her mom, but events just worked out the way they did, that we were able to give them a full forty-five minutes so they could just talk and just have a really good time. I don't know what happened, but I assume that they just spent the whole time, and I felt really happy that I could somehow arrange and take credit for the forty-five minutes, but I really didn't have much to do with the forty-five minutes. I only guaranteed ten, but luck had it that we got all forty-five. So I thought that was really neat, that there was something special going on. It kind of took care of Shannon, and it worked out the way it should have worked out.

Wright: It must have been a special day in her memory from up there to be able to have that much time with her mom.

Gerstenmaier: Yes. You know, we would get calls, like her son was in a gas station in Conroe, and we would arrange to have him call in from a gas station in Conroe. So you think of that as not normal, but that's kind of a routine thing, that you know your mom's in space and you're traveling away to school and you need to talk to her. So we arranged that we could be as flexible as we could and you could call in from Conroe, and the next thing you know, you're talking to your mom on Mir.

Wright: A long-distance phone call.

Gerstenmaier: But I think that stuff is—what I learned on all that is that stuff's important. We tend to blow that stuff off, and that's fine because you can stay focused for a month, but when you go for multiple months, having the support group there and somebody to talk to back in the U.S. that you know about non-

work stuff is really important.

In Moscow we worked—I don't know if they keep the same set-up, the shift schedule, and I think it stayed the way all the way through. We used to work, like, one team would come in in the morning and the other team would come in the afternoon and stay late, and then the next morning you would come in early, and then you would get off in the afternoon, and then you wouldn't have to come in until that next afternoon. Well, it sounded terrible when we laid this out, that you stay until like 11:00 o'clock and then you'd be in at 7:00 the next morning, and that was kind of miserable, but then that next day was great because you would get off at 2:00 in the afternoon and the next day you didn't have to be in until like noon. So it was like having a whole day off, even if you'd go do laundry and go buy groceries or whatever, and it turned out to work out fairly well, and I was surprised. I was going to try to get rid of it, but everybody on my team was kind of like, "Oh, this isn't so bad. We kind of like this." That one day is tough, but then you get that next break.

My point is that with long-duration space flight is you need something that kind of breaks the work up where you're not working to stay productive for that kind of period of time. So you need some family stuff and some family time to talk back and forth.

The other thing is, we had E-mail for Shannon. It wasn't the most efficient system, using this thousand-bit modem up and down, but we would send her E-mail up and down, and her family gave her great support. I think her husband wrote to her every day, and they exchanged E-mail all the time. We couldn't get it all up all at once because sometimes the communication link would be down, so it would be like a week and she wouldn't get any E-mail, and then all of a sudden we'd have a good day, and the packet system would work, and all the E-mail would go up. So then she'd end up with a boatload of E-mail for a particular day but not have many for a while. Again, you kind of learn to just adapt and go with the flow and accept what you get.

The other thing that was real good about Shannon was that she appreciated the environment that she was in. One time her family came in the building here{at JSC} for a two-way video conference with her, and the transponder didn't work, and we just loss the video, and we didn't get to have the pass. Well, the Russians were able to recycle things, and I said, "Well, we can set up an audio conference the next pass," and hour and a half later. Well, her family was kind of disgruntled a little bit because they had to hang around. It was like a Sunday at 4:00 in the morning or something, so they had to hang around for another hour and a half to talk to Shannon.

But Shannon was very appreciative because she realized how hard it was for me to get the entire Russian system to turn around to support another conference call on the next pass. She knew that we were

doing stuff for her that was above and beyond the ordinary that most people wouldn't pick up. They would grumble about the fact that they didn't have the video conference, but she didn't grumble that we didn't have the video conference. She was just thankful that she got to talk to them on the next pass, and she realized beyond that how hard it was for us to get that schedule. So that also was very encouraging for me, to know that she appreciated what we were doing, and we did everything we could to help her out as much as we could. I had a great team in Moscow. All the people I worked with were real good.

Wright: You all worked together to support her, but how were you able to help each other get through the duration of time that you were in Russia?

Gerstenmaier: It turned out I stayed there for that whole time, for the six—actually all the way, six or seven months. I came back in June for a little bit, and then I came back here for a little bit in August, and then I came back again in September towards the end of the mission, so I was actually there until October. That's almost nine months. I stayed almost the whole time. The other team would come in for a month, then they would cycle out, then another team would come in for a month, then that first team would come back, I believe, on the third month. So for me, I would just wear them out. I'd kill them. So by the time their month or six weeks was over, they were ready to go home, they were shot.

Then the next group would come in, and they'd be all excited and all energetic, and I'd wear them out for sixweeks, and then they'd bring in the new group who'd seen me before, and they were kind of in the routine, so then they would pace themselves a little more so they wouldn't be quite so tired at the end. That's kind of how we did that. So it was good for me to see new people come and talk to people and whatever.

I was very busy at work. I didn't really personally have much concern about being away from my family while I was working, but I'd get one day off a week. Typically, we'd work like eighteen hours either on Saturday or eighteen hours on Sunday, and then you'd get the opposite day off, either Saturday or Sunday. So I got one day off a week, and during that day I'd go cruise around the park or I'd go ride the train out into the country and then go walk in the country, or I'd go visit some sites or museums or whatever. That's the only time I really felt sad myself, is I'd see young families and kids about my kids' age, and then I would feel really bad, and then I would want to really go home. So that was the only thing that was tough for me, and I didn't like that.

They offered to me a couple of times to have a two-way video conference with my family, but I didn't really want to do that because I didn't want to see them, to be honest with you, because I really missed them. The hardest thing was when I came back in June. I think I stayed about a week, maybe, and

I ended up staying some extra days just because I realized it was hard for me to come back because my family had gotten along without me, so then I was seen kind of as a stranger in my own family, and it was like, "Well, what are you doing here? We've gotten along without you for five months. Get out of here. You're bugging us." I didn't like that at all, and that made me feel really bad. So then I ended up hanging on a little bit longer to try to reintegrate myself back in the family before I disappeared again.

The work, to me, was very satisfying. It was very rewarding, and that was worth the sacrifice of not having my family around. But now I've also learned I don't like to travel at all. I don't ever want to leave my family again. No more of this nine-months stuff. When I signed up for this, it was only supposed to be two months I was supposed to be gone, maximum. My first trip to Russia was a month in September, and then I think I went, like three weeks later, for another month. So then I had satisfied my two months. It was time for me to quit.

Then I realized for me to really do the job that I needed to do, it was important for me to be there from the beginning of Shannon's flight to the end of her flight, because I think continuity through that entire time is really important because we'd build up a very good repertoire between each other that, when she would say something that wasn't exactly technically right, I would know exactly what she meant, and everybody else would go, "Wait a minute. She didn't say that." I'd go, "I know, but she means that." Later I would go, "Now, you remember way back when we did this and how miserable that was? Well, we're going to have to do it again." So it wasn't like there's some new guy I've got to break in and get him to do things right. This person's been with me all this time, and they've lived through all that pain in the back as well, and they can sympathize and empathize with where we are." So it's really important, I think, from a continuity standpoint, to be there the whole time, and that's why I decided that for me to do this I needed to stay the whole time.

Wright: That made a difference with her. Did it also make a difference with the Russians, knowing that you were there for that duration?

Gerstenmaier: Yes. Like I talked about before, they realized that I wasn't the normal person that just came over to just play around for a couple of weeks and see Moscow and then go home. I was there for the duration, and I really—you know, it wasn't that bad. The living conditions were okay. I liken it to a cross between camping and living in a dorm. Camping, you filter your water, and you sleep on the ground, and it's kind of the same kind of thing. The facilities aren't necessarily all the greatest. The bathrooms were amazing, and the water wasn't all that great, I guess, but after a while I gave up filtering the water. I had brought a water filter with me, and I used to pump water and filter it. After a while this was too much of a

hassle. I just decided I'm going to be here long enough, if I get sick I get sick. So I started drinking the water and nothing happens, I said, "Okay. We're there." But to me it was just like camping. As long as I accepted it like that, it was fine.

The other thing, the winters were cold when I was there. I was there from January until—actually part of December, I came home for Christmas, and I went back in January. So I was there during the cold months, but, again, I grew up in Ohio, so the winters were cold, and once you get below zero, it's kind of below zero so it doesn't matter if it's ten below or twenty below, it's cold, and there was a lot of snow. So, to me, it was okay. And that was the other thing that was different. Most people that had been in Moscow were from Houston or raised in the Southern United States, so they were appalled by snow and slush and muck and freezing weather, and the Russians would just say, "Oh, they don't like this." And then I was just like, "Oh, this is great." I'd just go out and play in the snow, and they were like, "Oh, this isn't the normal Texan here." But it worked out fine. So I liked the weather and the camping atmosphere was very good, and the Russian people were really nice to me overall. Even people on the street were really good.

Wright: Did you adapt well to the food?

Gerstenmaier: Yes. In fact, I still kind of miss some of the Russian food. I used to have stuff that I ate routinely that was considered, I guess, peasant food by their standards, but it was stuff I really liked, and it was good. So I adapted pretty well. It was nice having McDonald's around. I probably should never say this, but whenever I would get sick or wouldn't feel very good or something, I would go to McDonald's and have a hamburger, which settled my stomach or either to get me back. If you think about that, that's kind of ludicrous, right? Here in the United States the last place I'd probably ever go to settle my stomach is to McDonald's and get a hamburger and fries, but that's what I used to do. And it was nice occasionally having some American food around.

While I was there, Dunkin' Donuts came in town for the first time, so I was all excited, and I used to jog every day, and I'd jog through the streets of Moscow, and I looked on the map where I thought the Dunkin' Donuts was. So I'm running down the street in Moscow, and I could smell the donuts above the normal stench of Moscow and the normal trash and dirt and whatever, there's donuts. So I knew I was in the area of Dunkin' Donuts, so I found the Dunkin' Donuts, so I bought all these donuts, and I brought them into the control center, because that's kind of a tradition here in the U.S., to bring donuts into the control center and everybody share donuts. So I brought them into the control center to share with all the Russian control team, and typically Russian desserts aren't very sweet. They don't like very sweet things, and donuts are very sweet. So they were like all appalled by these things, you know, and they didn't think that

they were all that—"What are these things? You're trying to kill us with all this sugar." It was kind of funny, but in reality there was definitely a difference in culture, where we accept very sweet things, and they don't like very sweet things. So that was good. But they definitely didn't like Dunkin' Donuts, but occasionally I would go to Dunkin' Donuts to kind of bring back home stuff.

There was also a Kentucky Fried Chicken that we found on the other side of town, so occasionally we'd go over to Kentucky Fried Chicken and get that. So we kind of got by and figured out where to go and what to do, and it was very good. Overall, the food was good, the people were good. I had lots of experiences that are amazing.

Wright: Your Mission Control Center experiences, were they different than working as a flight controller here in Houston?

Gerstenmaier: They were remarkably the same. I think the motivation that I have to work here is the same motivations that the Russian controllers do, and love of space and exploration, those were common themes between the two. The basic decision process, you know, like we have a series of flight rules: if this breaks, we do this, that, and the other. Almost identical. I would discuss with the Russians problems on Mir. They would explain the rationale for their troubleshooting and their thought process and their procedures. It would be identical to what we would do here in the U.S. So it was amazing to me how similar they were, and, as I said earlier, the only differences were driven by the time factor. Whereas in the U.S. I might not have time to go work a problem and understand something that's broken, whereas in Russia you've got plenty of time, so you just take as much time as it takes to go work a problem.

Prime examples are later there was the fire and the collision, but during our time the oxygen-generation system was shut down periodically, the CO_2 scrubbing system would shut down periodically, and both of those things in the U.S. world are a big deal. I remember one weekend, it was actually a Wednesday, we started troubleshooting the oxygen-generation system, and I went and talked to the shift flight director, and he said, "Well, we'll get it fixed tomorrow." Well, that day went by and we didn't get it fixed. We had about eight days of oxygen available in the atmosphere that you could breathe before you ran out of oxygen. So we spent Wednesday troubleshooting, Thursday troubleshooting, Friday troubleshooting, and we couldn't get it to work, and the crew was really getting frustrated. They had tried everything, and the Russian crew had tried everything that the ground controllers would tell them, and this thing would start up and then shut off, and start up and shut off.

So the flight director said, "Okay. Well, we'll get back to it on Monday. Take the weekend off, and we'll work." So we spent three days troubleshooting so we used up three days of our oxygen on orbit.

We had another two days we were going to give away on Saturday and Sunday, and then we would start troubleshooting on Monday.

In the U.S. space program, that would absolutely never happen. We'd be berserk. There would 50,000 teams off working this thing. We'd be up day and night, twenty-four hours a day, figuring out how to go get this thing fixed. But the Russians are just like, "We've got three more days, and we've got some oxygen candles we can use if we really get in trouble. It's no big deal, and if it really gets bad, we'll get in Soyuz and come home." So their thinking is a lot different. Whereas we would have to troubleshoot that, understand that problem and work it out right at that point, the Russians are perfectly willing to take advantage of the time and kind of lay off on Saturday and Sunday.

They had like one guy, a team of one, kind of think about it on Saturday and Sunday, and then, lo and behold, this guy comes in on Monday and tells the crew what to do, the crew does it, and it starts up. So it's kind of just like your homework. You know, you spend all night working on your homework and you just can't get it, and you finally give up and go to bed, and then the next morning you wake up and go, "Oh, I know how to solve that problem." Then you can do it. So it was the same kind of thing.

I think we're going to have to learn that kind of thing for Space Station. Whereas in our world, where we're used to time-critical things and things have to be done now, things don't really have to be done now. We're going to have to just spread them out and let the situation stabilize and then work it later when it fits in the time line. But that's going to be hard for us to learn. We're in more of the crisis react mode.

I think, at the same time, during that time that the CO_2 scrubbing system also quit working, so then I was kind of joking with Shannon like, "We don't have any oxygen generation, so it would be better if you don't breathe in for a while," and then later when the CO_2 scrubbing capability quit, I told her, "Well, now maybe you shouldn't breathe out for a while." So we kind of laughed, and then on Monday when it got fixed, they sent her a note or I told here that, "It's a good day for life control, and you can go ahead and breathe as much as you want." She just kind of laughed. So even she had adapted to that same kind of environment, that failures and problems were kind of routine and you would adapt to them and you would work them out as they came along. So that's the kind of thing that you learn, that in long duration you've got to be flexible, and you can work things out.

I think the other mistake we made is we see the Russian system, and you think it's just so chaotic and so unplanned that there's no sense in me even trying to plan to do anything, and I think it's just the opposite, it's more important for us to be more planned and more prepared than you ever would be here in the U.S. just to react to whatever you get dealt with over there. We were able to accomplish all our science, which is amazing. We got all our pictures taken. Everything worked except for one experiment,

which we just couldn't get to work and had hardware failure, which was Gaze, but we got more than 100 percent of everything we did. The extension days helped, but we would have had 100 percent done.

I think the only reason that that all worked was because we were flexible and prepared and probably over-planned to go do what we had to go do, but that's the way you've got to be in that environment. To back off and just say, "Well, it's out of my control. We'll just deal with it when it comes," is the wrong attitude. You've got to really be ready with multiple plans, and that seemed to work out well for us.

Wright: You were able to accomplish so much while she was up on Mir, but what were your duties as she was getting ready to come home? Did they change?

Gerstenmaier: It was the same, and we ran essentially the same way. When she was ready to come home, I'd get the list from Houston from her of what bags she had packed to come on. I would coordinate with her what was coming up from Houston, what the next crew member was going to do. So it was basically the same kind of thing. So we were essentially just doing the same stuff, except she was packing to come home, so we could give her time in the time line to go ahead and pack and get her things ready. She did a really good job of labeling what was in each one of her bags to bring home, and she'd sent all those lists down to us.

During that time frame she had packed all these bags ready to come home, and then they send them over to Houston, and Houston comes back and they tell me that they're not packed right, that they're not in the right CG location and we've got to unpack all these bags and repack them, and I told Houston, "Forget it. We're not repacking the bags. They're coming the way they're packed. You figure out how to go deal with them," and they figured out how to go deal with them, and it was okay.

The thing that Shannon used to joke with me about was, you know, typically a Shuttle lands and approximately 2,000 people at Florida get turned loose on the vehicle, and they reconfigure the vehicle and bring everything back 100 percent, ready to go fly, then these same 2,000 people get it all ready to go fly, and it's all packed and ready to fly, and then it launches. Well, instead of having 2,000 people getting all this stuff ready to launch, I've got Shannon on board Mir packing all this science, packing all this data per my directions to get ready to come home. So she's a team of one getting all this stuff ready to go, where you've got this huge ground team ready to ship stuff up to her. So that was kind of unfair, but we gave her quite a bit of time toward the end, fairly lightly loaded to get some time to get things together, but not a whole lot of time.

It was also tough to determine exactly when the Shuttle was going to launch. The slip came—I

remember I got told that the mission was going to be extended because of the solid rocket motors. Shannon had already heard that on the ham radio before I talked to her on the voice loop, so I didn't have to tell her that, and she goes to me, "I heard the Shuttle fleet is grounded, and I heard there's a memo out that says the Shuttle fleet is grounded. Is that true?"

Well, first of all, nobody bothered ever to tell me hardly anything in Russia, but I had known everybody over here so I had called everybody that I knew already in the Shuttle Program to find out what was really going on. We weren't grounded, but I knew why we weren't flying and what was going on, but I wasn't sure if there was a memo out there or a memo not out there. So I go, "Well, I don't know about the memo, but here's what I know." So then I could tell her what I knew. Her first words to me—you know, Galen Johnson, who was the flight surgeon, his wife was pregnant at the time that we were in Moscow, and Shannon's first words to me, "Make sure that Galen gets home to be with his wife," because she was due in September, and, "Make sure that he gets home to be with his wife for the delivery." So that means she wasn't concerned about herself, wasn't concerned about anything else. Her first concern was that Galen got home to be with his wife. So I thought that was also really special.

I tried to tell her exactly what the situation was, that the fleet wasn't grounded, that we could fly if we had to fly, but we're choosing not to fly because we have this glue problem in the joints of the SRBs, and we'll get it worked out. She understood all that basically, and the only thing that was kind of tough about that was that prior to that we had started kind of counting down to when she was coming home in July, and we had this deal that—when I used to go run, I'd look up in the sky and I'd see moons, you know, full moons, so I used to count how many full moons until we'd go home, so that was something that we could share, that she could look up and she could say—and the poster[in my office] says that up there, too—that she would look up, and we would go, "Well, we've got six full moons and we're outta here, " and, "We've got five full moons and we're outta here, right?" So we were down to one full moon, and we were ready to go.

So Galen and her were counting down, and I was counting down, and we're ready to leave, and then this extension comes, and it was tough. It was tough making the mental shift that, "Oops, I'm not really going home; I'm going to stay." That was hard for me and hard for her. So then, after that time, we didn't much talk about when the end of the mission was. Whenever the end of the mission was, it was the end of the mission. So then we kind of delayed packing more than we should have, probably. We didn't quite get ready in time with a lot to spare, etc., and that was just to really protect—because I didn't want to go through this mental thing again. it was kind of tough. I don't know how Shannon perceived it, but for me it was a little bit tough, because you were really starting to anticipate something and then it didn't

happen.

The other thing that was funny was that, I think, Yuri and Yuri got extended first, that they didn't come home when they were supposed to, so Shannon consoled Yuri and Yuri and told them, "It'll be okay. It's no big deal. You're going to be up here a couple more weeks, and we'll still get to be up here," and they were a real good team, and, "We'll get to do stuff, and we'll have fun," and she made them some tea or something, and they had that for supper, and it was kind of—you know, it was an okay thing. So then Shannon got delayed beyond Yuri and Yuri. So then they did exactly the same thing to Shannon, so then it was kind of turn about's fair play, that they both got to console her, "It's not going to be so bad," and whatever.

Now, the other thing that happened during that time frame, there was a Progress flight getting ready to go up. So I went down and I asked the Russian shift flight director Solovyev could we fly some stuff up to Shannon on the Progress, and he goes, "There's twenty kilograms of weight," where they typically put fresh produce in Progress. They put like tomatoes and onions and just generally fresh fruit. They stick it in the front of the Progress to resupply the spacecraft, and then when it gets up on orbit, they can open that up, and they get fresh fruit. So he goes, "Yes, there's about twenty kilograms of space. I can't guarantee we can fly everything, but if you bring everything that you want to fly up to my table on Monday morning, I'll fly it down on our private jet, we'll load it in this hatch. What doesn't fit I'll bring back to you, and we'll do it that way."

I said, "Okay."

So it turned out there was a flight surgeon coming from the United States to Russia that weekend, so I asked Shannon what she wanted. She wanted some Twinkies and some Pringles and some Gummi Bears and some M&Ms and some books and cassette tapes to jog with and those kind of things. So I said, "Okay. Are you sure that's all you want?" and she goes, "Yes, that's all I want." So we had them bring all this stuff with them.

So Monday morning I lay all this stuff out on the shift flight director's table, and I'd say there's like five boxes of Twinkies and six cans of Pringles and all these bags of Gummi Bears and all these bags of M&Ms, plus a whole big stack of books. What else was there? Then also Shannon's son's birthday was during the time she was going to be up there, so they packaged together some birthday presents for her on Mir, so they had a birthday hat and balloons and other things. So it turned out that when his birthday was, she had the same hat on that they had. We did a two-way video conference. So they both had the same hats on, they had the same balloons, the same happy birthday sign. Then it was truly like they were sharing the birthday party.

Anyway, we put all that stuff on the table. The shift flight director goes—and I had to explain to him in Russian what all this stuff is. He goes, "She really wants this stuff?"

"She really wants this stuff."

"What are these things?"

"These are Gummi Bears."

"What are Gummi Bears?"

So I had to explain to him what Gummi Bears were and that they're really good. Again, because the Russians hate sweets, I go, "Here, you can have one."

He goes, "Argh-gh-gh," totally appalled at all this stuff that was going up, but they went, "Okay. We'll ship all this stuff." They shipped everything up except for the Twinkies, because the Twinkies had an expiration date on them, they would have expired before the end of the mission. So the Russians wouldn't fly them because they had this expiration date on them. Well, then I explained to them that Twinkies never go bad, that even though there's this expiration date on there, they're still good. But they still wouldn't accept that from me, so they went ahead and they didn't fly the Twinkies, but everything else went up.

Then I get this note from the U.S. that I can't fly all this stuff to Mir, that we don't have a signed protocol, we don't have safety documents for this, they could be eating Pringles and little pieces of chips can get out and get in your eyes. So I just said, "Look, you didn't hear about any of this stuff going up on Mir. It was all Russian deliverables. I didn't know anything about any of this stuff. This is what we're going to do." And then, when Shannon was getting ready to—she opens the Progress, they open Progress up, and they go, "Now, when you eat the Pringles, you've got to wear goggles." And she laughed, and we just had a [unclear], but then it worked out really well.

The neat thing was there was no paper, with a handshake between myself and the head flight director we decided what we needed to go do to make life tolerable on Mir, and that's the kind of flexibility in a program that I think really needs to be there, that we've got to adapt ourselves a little bit.

Wright: So where were you when you saw her cross through and come through the hatch and get back on the Shuttle? Were you able to view that?

Gerstenmaier: Yes. I was in Moscow when I saw that. It was tough. When the Shuttle came and all these Americans came over, right? So there was a huge team in the control center of Americans. The other time we were kind of left alone and there was like seven of us. So we used joke, "Here comes that big white thing. When's that big white thing going to leave so we can get back to normal ops?" because, again, it was high pressure, very intense work and activity while the Shuttle was there, lots of stuff to get done

transfer-wise. I didn't have very much communication time with her then at all if any. I mean, it was done from Houston. Russia and the Moscow system, including me, were second-class citizens, so we didn't need to talk. They had to go do their work.

So when the Shuttle was there, I watched all that happen, but I didn't do very much. I was very busy just getting things ready to make sure things were all on the right side of the hatch when the hatch closed, but didn't have much direct involvement with her during that time. Then I stayed in Moscow after she came back here, then I saw her later after that back here in Houston, and that was pretty neat.

Wright: Was that a nice reunion?

Gerstenmaier: Yes, it was very good. Yuri and Yuri and had come back before Shannon did, and they showed up in the control center one day, and I walk out in the hall. My standard thing was, you know, I'd go to Shannon, and my first words to Shannon were, "Shannon, how do you copy?" or "How do you read?" So I walked down the hall, and Yuri and Yuri are standing there, and they go, "Shannon, how do you copy?" and both Yuri and Yuri look at me and they come over and hug me, and they go, "Bill! Bill!" So it was kind of neat that they recognized my voice and knew who I was and whatever. It was just really good.

Probably the nicest thing, after the flight I got to go to the NASA Lewis Research Center. They sponsored a lot of the combustion experiments, and Shannon got to go up to—one thing that Shannon talked to me about kind of before her flight, that after she flew even on Shuttle flights, she didn't often get to see the science results and see the results of all her work and all her efforts. So I said, "Okay, well, after we get done, I'll make sure that we figure out some way that you can go to the actual PI's place and we can sit down and actually read the data and see what kind of findings you actually found."

So we scheduled this meeting with NASA Lewis, and she got to come, and Yuri Usichev got to go, and then I got to go. So it was really neat that I got to spend about a week with them discussing the science experiments they did on Mir with the individual PIs where they could ask them questions and show them the data. It was really a tremendous exchange because they discovered some things in candle flames that were really unique, that they didn't expect, that their theories didn't predict at all, and they would show the theory and, "Here's what we predicted," and then they would show Shannon her results and the pictures she's taken in her data, and it was really beneficial for that exchange to occur. So that was really one of the nice things that I got to do afterwards as well, and that worked out really well. So that worked out good.

Wright: The Mir residents, the astronauts that we've sent up there have this time that they do a handover.

Is that something that you were able to do with the operations lead that followed you?

Gerstenmaier: A little bit. Caasi Moore was coming after me, so we got to kind of hand over a little bit. It was kind of tough because I was still trying to execute her mission as well as hand over, so I didn't do a very good job, I don't think, of handing over. If I look back, I think I could have done a better job of doing that handover and that transition. I went first. I tried to set things based on the way Shuttle operated. You set the shift schedule the way I did just to see how it would work, and some of it was kind of geared for me and my personality and the way I like to do business, and it's not necessarily right for everybody.

So when I had that transition to Caasi, he kind of wanted to do things a different way, and that's okay, you can still get things done, but I still didn't hand over, maybe, the way I should have or whatever, and he was there for pretty good pieces of time and Tony [Anthony] Sang was also there for pretty good pieces of time, so they got a chance to see how I was operating, but I didn't get to spend, really, the time that I would have liked to try to get them up to speed and see what was happening. I was too busy just doing stuff to keep things going. I could have done better in that area. So I kind of have, maybe, a little regret that I could have handed over better and put that in place, and hopefully a lot of the processes I put in place kind of lasted through. I tried to set procedures development up a certain way, and hopefully some of that hung through. It's funny, I guess, that some of these things, I talk to some of the interviewers, and they say, "Well we didn't realize that started way back in NASA 2 and that kind of continued." So that makes me feel good in a way that at least I set in place some things that lasted all the way through, that kind of made sense. But that was my intent, was to build processes and procedures that would not only benefit me but would also benefit the future people, but I didn't probably hand over as well as I should have in that period of time.

Wright: Any special piece of advice that you gave them that, based on your experiences, you felt they needed to know more than anything else to help them through the times.

Gerstenmaier: Not really. I think the key really was to be flexible, to take whatever you are given for that day and do with it what you can and don't gripe about what you've got, be thankful you've got what you've got and then figure out how to make the best out of it is probably the only thing that I would say.

Wright: When you returned and you were no longer an ops lead, did you continue to work with Shuttle-Mir program?

Gerstenmaier: No, I came back, I did a little bit of Shuttle-Mir stuff that fall, kind of followed up some of the meetings whatever, supported a little bit for transition and then about in, I guess December or January of that year I went to the Flight Director Office for a little bit, and then I took a job in Orbiter Project Office downstairs and went over to do that activity. So I kind of got away from the Mir Program. I thought about staying in the Mir Program, but I looked at Frank's organization and where they were. They were pretty well staffed, I thought, and there wasn't really a lot I could do to contribute or help.

I did some post-flight debriefs, I did some of the other stuff, some of the close out of my flight, and I helped some of the ops leads set some things up, but then it was kind of—it was okay. So then I went on to another project at that point. And that's kind of the agreement that I had. Our agreement was to be there for about a year or a year and a half and then go on to something else. So that's kind of what I did. If there would have been something where I thought I could have really contributed and really would have played a strong role, I would have stayed around. If they would have asked me to go back, I probably would have figured out some way to go back if I could have dragged my family with me and went back. I haven't been there for two years, so that—but I still stayed in contact with everybody, I still talk to the POSA people, I still would talk to the control center people and just kind of keep tag of what's going on and what was happening.

So I followed all the activities even though I wasn't directly involved in the program from when I left until then. I mean, you can't pour your heart and soul into something and then back out totally. So I was there kind of following along, and I would occasionally call over to Moscow. I'd come here early in the morning and just call over to Moscow just to talk to the ops leads to see what's going on and see what's happening. So I kind of stay tagged up with them in that way, but not directly or not with a formal job or formal task.

Wright: What about your Russian friends? Will you be able to resume your contacts or your friendships when you go back to visit?

Gerstenmaier: Yes. I think I'm looking forward to going back to see some of the Russians. I see some of the Russians periodically at launches. I see Victor Solovyev. He comes down to the Cape for launch, for Shuttle launches, so I've seen him. Mr. Ryumin, I've seen him. Victor Blagov I saw.

We had a Mir Phase One reunion party out here at the Gilruth a couple weeks ago, and four or five of the shift flight directors were there and four or five of the interpreters were there, and Yuri and Yuri were there and Shannon was there. So I was really excited to see all those guys and talk to them. So I got to meet all them. I should have talked to the Americans, but I'm spending all my time talking to the

Russians, but I really had a good chance to meet them. There's some other people, some time line people and some other Cap Com kind of people on the Russian side that I'd like to go back and talk to. I'm going to get a chance to go back to Moscow next week, so I'm going to go try to visit some of those people and see if I can just talk to them and whatever. I'm good enough getting around Moscow to get to the control center, and hopefully I know enough people there that somebody will let me in, and I'll go talk to them and see what's going on. I had made a lot of good friends.

Wright: You mentioned the time line people. How did they affect your job while you were there?

Gerstenmaier: Well, they basically built the time line for us. We gave them the inputs, and then they built the time line. It turned out, later, towards the end of the mission—again, I kind of adapted our system to their system. I figured out how they did business, and then I gave them the inputs exactly the way they needed, and human nature being the way it was, they would put it exactly in the time line just like I wanted it if I got it in the right format, because they didn't have to do any rework. So that worked out really well.

At the beginning it was kind of frustrating. We'd give them inputs, and they would throw out half our scheduled events and shuffle stuff around, but then, by the end, I figured out exactly how they do their business, and I understand how they traded things, so I would give them already preintegrated comments, and they could just plug them right in, and they would just plug them right in and go. So I had very little discussion with them. I mean, the fact that I'd give them the inputs and I'd get back exactly what I was expecting to get back, and then we'd go execute. So it was fine.

Wright: Saving time lines --

Gerstenmaier: And there was still a lot of negotiations, especially at the beginning, but then after a while I figured out where we were, and still sometimes it wouldn't fit, so then I'd have to ask special permission to do things a certain way. And they got to where they trusted me a lot so they would let me actually go ahead and do stuff and not actually check what I was doing. And I felt good about that, except I was scared, because, you know, if I messed something up, I'm not only messing up our astronauts' time line, but I'm also messing up the cosmonauts' crew time line, which wouldn't be very good. So I kind of wanted them to keep checking, but at some point they would give up, and depending on who it was, they might not check at all and it would go in exactly the way I wrote it. So that was good.

Wright: It's been two years since you've been fully involved. When you look back on this time, is there something that seems to be the most significant memory that you have, being involved with it?

Gerstenmaier: No. To me, it's the comparison of the two programs. I feel very lucky and privileged that NASA sent me over there. For me, to have my big Shuttle background and then get a chance to go execute in Moscow is outstanding. I mean, I probably have more Cap Com time than most astronauts do around here, and I'm not an astronaut, you know, and that's kind of neat for me. But to be accepted as part of their control team, to deal with their flight control team and their flight directors and their personnel on a one to one basis, to have a real trust between them are just amazing things, and they didn't come all at once, like we've talked about.

I didn't mention that the interpreter, Boris Gunjarov, who was there on that one Saturday when I negotiated the final protocol, he ended up dying while I was in Moscow, and it was in the *Roundup*. He was older, but he was probably our best interface, because he would not only interpret but he would also explain Russian traditions and Russian customs and whatever so you would know more than just the language; you would get a feel for what was appropriate behavior in this situation and what wasn't appropriate behavior, etc., and that was really beneficial, especially early on. In terms of—it's hard for me to talk about it. Boris had kidney cancer, and he had a large lump in his kidney, I guess like football-shaped thing, and it came on very suddenly, and I remember when he found out that he had it. He comes up to me, and he puts his arm around me, and he goes, "I have cancer, and I'm going to be dead in four weeks."

I mean, in our culture, I'm not used to somebody being that open and that matter of fact about what's going to happen, and I'm also used to fight, right? I mean, "You're not going to die, Boris. It's just what they tell you. You're going to a hospital, and they'll cut this thing out, they're going to give you chemotherapy, and life's going to be okay."

He goes, "No. I'm going to die," and he explains to me that it's okay. His daughter had just gotten married and he showed me previously, months before, his daughter getting married and his son was off going to college and things were fine. So his wife was taken care of and his family was taken care of, and it was okay. He was in his early fifties, like fifty-two or fifty-three, which is kind of a typical age where Russian males die, so it was kind of like okay. It was really hard for me to take.

Then he went to the Russian cancer hospital, and this was like, I guess, the number-one cancer hospital in Moscow, and I wanted to go visit him, but the people in the control center really didn't want me to go visit him because they were afraid that I might—I don't know what they were afraid of, but they didn't want me to go. So there was a whole group in the control center that effectively forbade me to go visit him. I had made arrangements with some other people in the control center that I would like to go with them, and typically, I guess, Americans weren't even permitted to go to this hospital, so they said, "Don't worry

about it. You look enough like a Russian. We'll go, we'll sign you in, and you can go talk to Boris." They meanwhile had told everybody else in the control center that I was going to go, and the people told them that I shouldn't be going, but anyway it didn't matter, so we went.

I really learned a lot about Russian people. You know, we bought him grapefruit and tomato juice. We went to the market on the way to the hospital and bought him grapefruit juice and tomato juice and grapefruit and apples and fruit and stuff to take to him instead of flowers, something more practical that actually might be healthy for him. So we bought all this stuff, and we went to see him in his room. His wife was there, and it was really—I mean, they really loved each other, and it was really sad for me to see all that. Boris was always telling jokes, so he tells me all these jokes. It was just hard. And then I'm ready to go, and Boris says, "Well, I need to walk you downstairs."

"Boris, you can't walk me downstairs." And it was really important for him to show me that he was still strong and he was still able to do what he needed to go do, that he was going to walk me to the door no matter what. His wife was just totally losing it. I mean, it's like, "Boris, you haven't moved in two days. Now you're going to walk this guy downstairs. You can't go do this," but he's convinced he's got—so he walks me downstairs, and we shake hands and we leave, and then I think like two days later he died.

Well, then they had the funeral service in the control center where we work, out in the courtyard. They bring the body in, the casket in, have an open casket, and they have like everybody comes and talks, and they invited all these people to talk, and they invited me to talk at Boris's funeral. I was just totally amazed that they would ask me, this NASA guy from America who had been there four months, to actually take part in talking. It was just amazing. It was so sad for me, but yet I felt so privileged to be accepted to the level that they would let me go be part of this very sad thing for them.

So I don't know, it was an amazing time. I mean, I did what I love, the space stuff. I lost a friend who was Russian. I participated in a Russian funeral. It's just amazing, an amazing experience that I was very lucky to have, and I feel lucky that NASA sent me, and hopefully I did okay, and it was fun.

Wright: Based on what you told us, we can understand why you so wanted to be included in all these experiences that are certainly once-in-a-lifetime experience for you.

Gerstenmaier: I sure have some friends even now in the Russian space program. I have a very good understanding of their space program, and it really helps a lot with my day-to-day work, working with Space Station and working with some of the people there. So it's very beneficial to me. It's good. Anyway, that's it.

Bergen: You said your friends shared some Russian traditions with you that were helpful. What were some of those traditions that he shared with you that helped you deal with the Russian customs?

Gerstenmaier: It was funny. You bring an even number of flowers for a funeral, and if you're dating somebody you bring an odd number of flowers.

Bergen: That's interesting.

Gerstenmaier: So there's certain things like that. If you're going to bring somebody at work flowers, you always bring them an odd number of flowers. You never bring them an even number, because that's the symbol of death. So everybody lays roses on the casket, and then the band played, and then they carried the casket out of the control center, and they carry it over to the cemetery where they're going to—and he would explain what the purposes of the band were, what the purposes of the people marching were, or how this all fits in, or how weddings work. In all those things, just subtle things. They wear their wedding rings, like Europeans, on the right hand instead of the left hand, and just those general kind of things that he would tell you.

Or if somebody would be telling you something and they would be screaming at you, really mad, and pounding the table, Boris would tell you, "Well, he's just doing that for show. He's not really mad at you. If he was mad at you, he would be saying something else." So then you would get a feel for what was going on. So those are the kind of things that he was there—the thing I kept remembering at his funeral was that I wished Boris was there so he could tell me what to do.

At that time my Russian was okay, but wasn't all that good, so I couldn't really figure out what the other people were saying when they were kind of doing the eulogies, and I could have used somebody to tell me what was appropriate and what wasn't appropriate. So I just kind of spoke from my heart and said what I would have said here in the U.S., and I don't know if that was appropriate or not, and that's why I wish in some ways that Boris would have been there with me to put his arm around me and whisper in my ear, "This is the kind of stuff you ought to say," or, "This is what you ought to do," but he wasn't there, and it was sad.

Wright: You were there for such a long time, did you celebrate the different holidays that they had in their country?

Gerstenmaier: Yes. We did some—Easter is a funny time. You know, we have Palm Sunday here where we carry palms over. They carry pussywillows around, and those are those little bushes with those little

fuzzy things, right? So I'm cruising around the street, and again, being from Ohio, it's like springtime, and there's all these people carrying around these pussywillows, and I go, "Wow. It must be spring." And then I go, "Well, what is that?" Then they explain to me that that's equivalent of Palm Sunday. They also fast for Lent, like we do, and they have Easter eggs like we do. And they have like a big feast where they all eat pancakes, and all the parks in Moscow just before the big Lent season. So they had this big pancake feast, and they all eat just tons of food, and then you fast for this period time. And everybody after—I think it's after—Lent, they have a big feast after Lent to celebrate that Lent's over and now you can eat. So they bring all the food to the church, and then the priest comes around with the holy water and blesses all the food.

We were going to one of the churches, walking by, and the priest was going by, and there was just these tables of food, and I go, "Oh, this is great. We're finally here where we can eat. And none of that was yet. They just brought the food to get blessed, and then they'd package it up in bags and carry it home for the next day, when Lent was over. So that was kind of a tradition for the Easter holidays. They also had colored eggs like we do, and again, all the Americans would be afraid to eat these eggs, because they figure they're going to die eating these eggs. I'd been there so long it didn't matter, so I'm eating these eggs, and the Russians were going, "Oh, this is great. This guy really fits in." It was just that at that point it didn't matter. So that was Easter.

For Fourth of July, we brought watermelon in. They have—I think they're called kush-kush. They're watermelons. So we went out and bought all these watermelons, and we had watermelon for the whole control center for the Fourth of July. So we would explain to them what the Fourth of July was and it's time to eat watermelon. I think we actually played—oh, we played football in the front yard on the Fourth of July to kind of celebrate Fourth of July. So we did those kind of things with the Russians to just kind of share things.

The other thing we did, Sunday was kind of our off day, we would typically bring movies in, like VHS movies from the United States, we'd get them, and we'd bring them up, and we wired up the VCR to play movies so we would have movies on Sunday. So we would still kind of do our work but then kind of watch movies. So the Russians would come up, and we would watch stuff like *Hunt for Red October*. What else? I don't know, all kinds of—

Wright: I'd love to have heard you explain that [movie].

Gerstenmaier: And all these American movies we would watch and a lot of the action movies, because the action movies didn't require any English, so we would have Arnold Schwartzeneggar kind of movies.

Wright: Plot is easy to understand.

Gerstenmaier: No plot, just good action. So those were good. And then we were there—I can't remember what movie came out, but some movie had come out, and the Russians were so proud that they said, "Do you have a copy of this movie yet?"

We'd go, "Oh, no. It just came out in the United States like last week, so that won't get released on videotape for a couple of months."

They'd go, "Oh, we have it for you."

And I'd go, "Oh, no, you don't."

And they'd go, "Oh, yes."

So they'd bring in this cassette that they had bought in the market. It was in a regular video cassette, and it was actually the movie, but it was taken in a movie theater because you could see people's heads walk in front of the camera. But they were so proud that they had this videotape of this first-run movie before anybody in the U.S. could have it. They were so proud to show that to us. But it was obviously a bootleg copy that they had gotten somewhere in Europe that somebody had sat in the back and filmed. Then they must have made a thousand copies of it. But they shared that with us, and that was kind of neat.

I'm trying to think of any other kind of stuff like that that we did holiday-wise or sharing-wise. I think that's about it.

Wright: It sounds like it was a true adventure for you and a good one.

Gerstenmaier: Yes, it was good. I think that it also helps that if you would have asked me immediately after this time it might not have been so good, but after two years you selectively filter out all those bad things and all those arguments I had with the Russians when they would come down and we would be in heated debate about time line or we would be at each other's throats about some activity. You kind of forget all that stuff, and that all gets smeared out. But there were some tough times and some tense times, but overall, it still worked out very good, and I found them to be very good to work with if you presented a very technical story of why you needed to do something and how it all fit in, it all generally was approved and accepted. There was not as much, in some ways, political overtones as there are here. There maybe different political overtones.

Wright: We certainly have learned a lot, and we certainly enjoyed everything you had to tell us. Thank you. I'm glad you made the time for us to listen. We look forward to sending you a copy of it that you can

have as well.

Gerstenmaier: Okay.

Wright: Thanks again.

[End of interview]

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