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ORAL HISTORY TRANSCRIPT

JOHN K. HIRASAKI
INTERVIEWED BY SANDRA JOHNSON
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JOHNSON: Today is April 10th, 2009. This interview with John Hirasaki is being conducted in Houston, Texas for the NASA Johnson Space Center Oral History Project. The interviewer is Sandra Johnson, assisted by Jennifer Ross-Nazzal. I want to thank you again for joining us again today for the second interview. When we stopped last time we had finished talking about Apollo 11. So today I'd like to talk about your responsibilities after you exited the MQF [Mobile Quarantine Facility] and leading up to Apollo 12.

HIRASAKI: All right. That's interesting you bring that up. As I had mentioned in my last interview, for the Apollo lunar landing missions we had four people volunteer to support the Mobile Quarantine Facility either as an internal or external [Recovery] Engineer. So for the Apollo 12, I got the duty as external. My backup, which was [Brock] Randy Stone, got the duty as the internal engineer. So we sort of swapped roles in that respect.

So basically that was the change in terms of operational duties. Procedurally we did the same types of things for Apollo 12 as we did for Apollo 11.

JOHNSON: Maybe you can just talk a little bit about what you did on the outside as opposed to being on the inside.

HIRASAKI: Well, from the outside you're really a support person to make sure all the hardware and the systems are functioning normally. Because the person on the inside is dependent upon the person on the outside to assist them in configuration changes as they prepare to change from one location, say from the ship deck, to being transported to the aircraft. So all of the procedures and connections or disconnections, one set of services in connection with the other set of services, lay with the person on the outside. So what Randy did for me for Apollo 11, I essentially did likewise for him as the person on the outside. We provided the items to be transferred into the airlock, such as mail and food and things of that nature. We took the items which were transferred through the decontamination lock and then used them to transport back to Johnson Space Center, the Lunar Receiving Lab, the rock samples, other items that were being sent out early.

So on board the aircraft carrier I served those duties, to make sure that all the equipment being transferred out was properly packaged and then sent off with the next ship or courier.

JOHNSON: Once they were transported back, did you go on the plane with the MQF?

HIRASAKI: Yes, because as the exterior support engineer, you have to interact with the flight crew, make sure everything is hooked up properly. Even the external part of the Mobile Quarantine Facility is configured different for aircraft operation, because now you're going to altitude. You have to contend with things like rapid decompression, as I had mentioned earlier. So there are a set of panels which are removed from the exterior to allow, if you had a rapid decompression, to avoid structural failure of the quarantine facility itself. So those had to be removed for the duration of the aircraft flight. Once you get back on the ground, those are

reinstalled. So all the external support activities associated with keeping the quarantine, plus the people inside fed and happy, is what you have to do.

JOHNSON: Did you have a team working with you to do this?

HIRASAKI: Yes, there were several people. It's basically, other than just the military support personnel, there was always the quarantine officer who was present, because we always had to make sure we maintained quarantine. There was usually at least one other recovery support engineer that was available too.

JOHNSON: Were there any events or anything that is memorable to you for that flight while you were still on the ship?

HIRASAKI: Well, during the ship, we crossed the equator, and on that particular mission is when I got introduced to [King] Neptune and his court, and that's what is called a Shellback Ceremony, shall we say? The first time a person crosses the equator aboard a ship they go through initiation rites. So you become—you change from a pollywog to a shellback.

JOHNSON: That initiation sometimes can be uncomfortable, I've heard.

HIRASAKI: Well, yes, but it's like a lot of fraternities, it's you might say friendly razzing.

JOHNSON: But something to be proud of I'm sure.

HIRASAKI: Well, something to be remembered. I don't know to be proud of. I would not couch it in those terms.

JOHNSON: Something definitely memorable, right? Well, once they're transferred back to Houston, did you continue with those duties while they were in quarantine?

HIRASAKI: No, because like I said, when I was inside, once we hooked the Mobile Quarantine Facility up with the Lunar Receiving Lab and the crew and the people inside exited, now the door is closed on the Mobile Quarantine Facility, it is decontaminated. The locked door to the Lunar Receiving Lab is decontaminated, then closed. So you basically got a clean interface. At that point now you can separate the Mobile Quarantine Facility from the Lunar Receiving Lab. We stored those facilities in a building on site. I believe it was Building 226, but I'll have to check.

For the duration of the quarantine, the support equipment, which is the electrical supply, the fans, negative pressure is maintained. So anything that got exposed to lunar surface contaminants stayed in quarantine for the period that the crew was required to stay in quarantine. So at that point, my duty was simply to make sure it was transferred from the Lunar Receiving Lab just to another location where we kept it in storage and operating, so just periodically check on it. Because fortunately we had redundant systems, so even if you had one circuit go out you had backup circuits operating.

JOHNSON: What were your duties then after you finished that and in preparation for Apollo 13? Were you assigned anything specific for that flight?

HIRASAKI: Fortunately, on Apollo 13 I got a bye, so I did not have to work Apollo 13. I worked Apollo 14. On Apollo 14, you realize that was the last mission where we were required to ensure lunar quarantine, quarantine of the crew and lunar material be maintained for the quarantine period. On that one they had changed the protocol a bit, and they had alleviated the requirements for the Biological Isolation Garments. So now the crew simply had to don respirators.

The spacecraft landed in deep South Pacific. So we actually did a two-step transfer from the quarantine facility aboard the ship to Pago Pago [American Samoa]. I met them in Pago Pago with another quarantine unit. The crew—[Ralph H.] Culbertson was the recovery engineer who was acting on that particular mission, and the doctor—entered the mobile quarantine facility in Samoa. We closed them up and then flew them back here to the Lunar Receiving Lab where they finished the remaining quarantine period.

JOHNSON: So it was a separate facility.

HIRASAKI: Well, on Apollo 14 we made one transfer. Instead of keeping the crew inside the quarantine facility for the duration of the time they got out of the spacecraft to the time they got to Lunar Receiving Lab, because the ship transit time would have been so long, they elected, since they had relieved the quarantine requirement just to the respirators, to allow the crew to leave the quarantine facility aboard the ship, transfer via helicopters while the crew and support personnel were still wearing respirators to a landing strip in Pago Pago, where I met them with

the second quarantine facility. Then they got into it, and we did a fixed-wing aircraft transit back to Ellington [Air Force Base, Houston, Texas] and then land-based to the Lunar Receiving Lab.

JOHNSON: Was anyone inside with them at Pago Pago?

HIRASAKI: [Ralph] Culbertson was the recovery, right, and then I forget who the doctor was. I think that was Clarence [A.] Jernigan, but I'm not sure, because on Apollo 12 I think it was Chuck [Charles K.] LaPinta with Randy.

JOHNSON: Well, during [Apollo] 13 you said you had a pass. You didn't have to work 13. Did you have any duties at all during that time period?

HIRASAKI: No, no, no.

JOHNSON: So you were just doing your normal everyday duties?

HIRASAKI: No, I was down in Mexico enjoying the sunshine.

JOHNSON: Oh, you were on vacation.

HIRASAKI: I was on vacation. These missions were coming so close together, you just finally get a break. Just hey, I'm gone for a couple of weeks.

JOHNSON: Did you hear about it down there immediately?

HIRASAKI: Yes. Well, I don't remember where I was, but I was not on duty, so I was not involved with Apollo 13 at all. Since that was an aborted mission, there was no quarantine done on Apollo 13.

JOHNSON: After Apollo 14, were you planning to work on any of the other Apollo missions? In my notes, it says that you worked on some of the coordination of the payload requirements for the Shuttle spacecraft design.

HIRASAKI: After Apollo 14 is about the time I think I changed from the Landing and Recovery Division and went over to engineering into advanced programs. Exactly when that was, that was sometime in '70 I think. So I changed jobs within NASA to an engineering role.

JOHNSON: Do you want to talk about what you did in that advanced programs?

HIRASAKI: That's interesting, because we got to do some blue sky thinking. We were looking at what it would take to put up solar power satellites, for instance. There had been a large solar power satellite study done where these were being delivered to geosync. Because of the enormity of the effort to get that much mass to geosync, there were other studies where they were looking at low altitude—instead of geostationary satellites, you might say low Earth orbiting power satellites. So that was one of the first jobs I was involved with in Advanced

Projects Office. There were a couple other similar things. What does it take to architecture a program of this nature was the type of work that our office involved.

Around that time, you're aware that they were into the development phase of the Shuttle. So associated with that one of my tasks was to try to define what the interfaces were between the Shuttle as a vehicle and the cargo or what is being transported within the Shuttle. So that was the other project worked on during that time.

JOHNSON: Was it something you sought out? Or were you asked to move to that area?

HIRASAKI: I was given that responsibility as a part of the Advanced Projects Office.

JOHNSON: But I mean the move to the Advanced Projects Office itself.

HIRASAKI: Oh. The move to the Advanced Projects Office was in realization that the Apollo program was winding down. Realizing the Apollo program was limited and was going to wrap up basically like in '74, and the only follow-on was the Skylab program, and there were only a few number of spacecraft to support it. I said it's time to go on to something else.

JOHNSON: You stayed there until around '73, is that correct?

HIRASAKI: '73, right.

JOHNSON: You decided to leave NASA at that point and go into business for yourself.

HIRASAKI: That's correct. That's very interesting, because at that program now NASA appeared to have somewhat lost its direction and goal. So to me, it was a bit unsettling, because it's nice to know that "here's what we're trying to achieve." When you're in this state where you really don't have well-defined goals and objectives, it's like the future is uncertain. I said, "Well, I think I'd rather go into business for myself than put up with a very uncertain future." At that time, I ran across an interesting saying. The saying was, "Given the choice between well-compensated misery and impoverished happiness, most people will opt for well-compensated misery." I saw that in my colleagues around me, because people were saying, "Well, I get paid so well, I can't go do something else, because I have to take a cut in pay." They were unhappy, but they wouldn't leave their job, because that's, I think, one pitfall of the way the civil service system works.

Once you become a civil servant, if you've been there a while, you have seniority, it's very hard to get rid of you. You have these automatic pay raises built in. So you become well-compensated, and your job security gets stabilized as long as you stay. But that has its drawback because if you're unhappy, what do you do about it? So I said, "Well, I think I'll take impoverished happiness to well-compensated misery."

JOHNSON: You were in that impoverished happiness for about 12 or 13 years?

HIRASAKI: Right. That's exactly how it ended.

JOHNSON: What led to your decision to come back into the NASA world as a contractor?

HIRASAKI: Well, it occurred much before I closed down my business. In '81 my former boss had called me up, and he had been retired, and he said, "We're starting a new company that's doing advanced studies for NASA. Most of the people here are ex-NASA people who retired and still would like to stay involved with space exploration, but once you retire from NASA you're retired." So they felt that they still had something to contribute. So he asked me—Hu [Hubert P.] Davis was my boss at the Advanced Projects Office, and he was one of the founding members of Eagle Engineering. He asked me, "John, you do pretty good work. Why don't you come work with us? Because we've got some very interesting projects to work on."

I said, "Well, I can only do it part-time because I'm running a full-time business. But we're closed on Mondays. I can give you Mondays." So that's how it started. So I just worked for them one day a week as they had just jobs pop up that needed someone to look at and give them either proposals or actually lay out a program for them.

JOHNSON: Did you work on the Conestoga I launch vehicle?

HIRASAKI: Yes I did. That was one of the interesting little projects. I don't know how familiar you are with that.

JOHNSON: Go ahead and describe that project if you would.

HIRASAKI: Conestoga I was a privately funded launch vehicle. Matter of fact, it's the first commercially privately funded launch vehicle that was successfully launched. Unfortunately, it

could not get enough funding to continue its operation, because there's a funny situation going on of who the user is and where the user gets their funding. The user usually gets their funding partially through NASA because these are usually space-related activities. Consequently, NASA has a vested interest in how the spacecraft is designed and what it's launched on.

At that time, Space Services Incorporated had contracted with a designer to build a launch vehicle. I think that was the original Conestoga. But they had a pad failure where the vehicle was destroyed. So there was a change in management, and for Conestoga I, they used a different design using a Minuteman [missile] first stage. The upper stage was built by Space Vector Corporation.

But to do that we had to build a launch site, get all the necessary clearances, and launch this vehicle. The launch site was an open beach. One of the principals in Space Services Incorporated had a ranch on Matagorda Island, [Texas]. He let them use the site, the land itself. We had to come in and put in all of the services you would need to process and launch a spacecraft. It was interesting. I was working with Eagle Engineering at the time. They said, "Well, what do you really need?"

Well, you have to have transportation, you need to have a place to work on the vehicle, you need to have electrical power, you need to have communications. Now you need to build a launch pad. You need to make all the connections after that. Well, that's not hard to do. They do it all the time. Oil companies do it. They go out, contract for the equipment. So we just simply went to the yellow pages, much like how oil companies do, contract for services, because you're really wanting services, not things. Because service is what's important to be able to do this, versus buying an item just for the item itself.

So using a commercial technique of obtaining services, the facilities were built. We even contracted for the data gathering through a German firm, DFVLR [German Test and Research Institute for Aviation and Space Flight] I think it was called. They did the spacecraft tracking and communications link. We contracted to have diesel electric generators to provide power on the site. We contracted to have a prefab [prefabricated] building built for the assembly of the spacecraft. Then they also poured the launch pad and the gantry. We just ran the electrical lines. We contracted for a commercial satellite communication service because there were no telephones. There were no land lines to the island. So we used satellite communication telephones.

Deke [Donald K.] Slayton was the project manager for that effort. To say we successfully launched that particular spacecraft into low Earth, we did not. We went to altitude. It was just a ballistic trajectory to show that you could reach it. We did not circularize the orbit. But that was I think the fall of 1982.

JOHNSON: Were you there for the launch?

HIRASAKI: Yes, I was. Because I also got tasked—they said "John, we need to have some weather balloons to determine what the winds aloft are." So I just called the Weather Service. They said, "Yes, you can get the weather balloons from us. What about clearances too from the Maritime Administration and FAA [Federal Aviation Administration]?"

I said, "Well, I'll just call those people up and find out what they need." It was just as straightforward as that, simply placing a call. "What is required? We're planning to launch a rocket off of Matagorda Island." So they told me what's required. So we just simply filled out

the paperwork and then provided them the information. They then, like the FAA sends out notices to all aircraft, "Hey, this trajectory is to be avoided within this time period," and so forth. By similar nature, the Maritime Administration took care of the ocean traffic in the trajectory as well as the descent point of the rocket in the Gulf of Mexico. But it was really a pure commercial venture.

JOHNSON: That's interesting. I was going to ask you about that approval process. Since it was commercial, and as you said it was the first one, and the FAA, they didn't have any issues with it?

HIRASAKI: Well, they had questions, but as long as you answered the questions, what is there to object? You satisfy what they need, that's all that should be required, right?

JOHNSON: That's right. How big of an area was involved on the island?

HIRASAKI: Not very big, because I'm trying to think. The launch pad was probably a quarter mile or half mile from the beach. I don't recall the distance how far the control center was back from the launch pad. But we had just earthwork, just dunes, berm built up in front of all the facilities so to protect against any blast. For range control there were a couple of people. I forget, I got either launch azimuths or launch elevation. You had to stay within a very narrow range or else you had to—if you got out of the safety range, then it's a call to destruct the spacecraft, just like they do at the Cape [Canaveral, Florida] all the time. But we just did it optically. Here's the allowable trajectory. As long as the vehicle is staying within allowable

trajectory, everything is go. If it gets outside of that, you've got to notify the launch director. The launch director issues the command to destroy the vehicle.

JOHNSON: Were there any other launches of that vehicle?

HIRASAKI: Not from that site.

JOHNSON: What did you do after that initial project?

HIRASAKI: Well, now you start getting—there's multiple different projects.

JOHNSON: Well, one of the things that I have here is you worked on the Space Shuttle Waste Management Program.

HIRASAKI: Oh yes. See, at that time they were having trouble with their—the toilet aboard a spacecraft is a funny thing. In zero G everything doesn't work the way it does here. So just as an independent consulting agency, we went through and reviewed the design and determined what was the problem, what are some recommended solutions to avoiding the problems they were having with the existing design. So you might say sort of a peer review type of design study.

JOHNSON: I also saw that you worked with the Lockheed [Aircraft Corporation] proposal for the STSOC [Space Transportation System Operations Contract] for the MCC [Mission Control Center] reconfiguration. Do you recall any of those?

HIRASAKI: Yes. But I think Mr. Beers [phonetic] worked on that more than I. I helped out a little bit, but I was not major on that particular activity.

JOHNSON: What about the McDonnell Douglas [Corporation], the Space Station autonomy trade study?

HIRASAKI: Yes, that was another one. At this point the Space Station—it was Space Station Freedom I think at that point—was trying to define what level of autonomy they needed from the ground. So it's now just a practical matter of going through and identifying what systems must work without dependence upon ground and then how much autonomy does it need, not only from the ground but from the crew itself. So it's a combination of autonomy and automation type of study.

So basically that's an exercise in logic. What services are needed, and what levels of autonomy is required for it in order to meet—you have to ensure safety above everything else. You have to ensure system functionality and redundancy. You have to ensure that your mission objectives are met. So you do have latitude of what the time of response is going to be to any particular problem. So it's a systematic study of that nature saying, "Okay, for this function I've got a very rapid response need. Can I be independent of the ground? Can I be independent of

the crew?" So you just went through each one of the service needs and just approached it in that manner.

JOHNSON: Those were in those early days of the Space Station Freedom designs, phases.

HIRASAKI: Right, trying to define what is the architecture of the vehicle, what does it impose upon the design of the vehicle.

JOHNSON: The object being to make the ground support less than it was like during [Skylab]?

HIRASAKI: Right. You did not want to have a standing army, because now just like today the Station is—once you put it up it's going to stay going. So you can't afford the number of people that normally supported say for like the Apollo program, that amount of massive manpower, on a continuous basis. So therefore, what can you relieve from the ground and put on board to minimize the overhead of this large ground support?

JOHNSON: That brings us to around '86 when you were doing the ground operation support for the IOC [Initial Operational Capability] Space Station Freedom again. That's around the time of the [Space Shuttle] Challenger [STS 51-L] accident. How did that affect what you were working on, as far as were there any safety considerations? Or because of the grounding of the Shuttle fleet, the idea that the Space Station, once it was in orbit and how it would be affected?

HIRASAKI: I don't know whether that accident had anything to do with the ACRV project, which ACRV stands for Assured Crew Return Vehicle. But the program at the time decided they needed a means by which any crew aboard the Station would be assured the ability to escape if a catastrophic event happened aboard the Station.

That caused the program to go look at how do you provide this service. A small project office was made in NASA to—I believe it was ACRV Project Office. It was at that level. So it was a standalone project office. So I was asked to support that activity because of my experience with the recovery operations, being familiar with what we did for Gemini and Apollo. One of the problems facing them was, "Well, if I have this vehicle, should it land on land? Should it land on water? What are the pros and what are the cons?" Interestingly enough, the engineers at NASA, we'd already had—like I said people had retired, people had moved on, now you got a Shuttle program, and there is no landing and recovery division. So there was no organization really to look at what are the operational aspects of recovering a vehicle, if I built another vehicle that had to be recovered in water, for instance.

So they said, "Would you work on this project and help these people define what the requirements are?" I said, "Sure, I'll do it. Sounds interesting."

JOHNSON: The initial design, you want to talk about that?

HIRASAKI: Well, there were a couple of designs. There were two competing contracts for the design. I think when I started, we were at the Phase B level, before we down-selected to the final choice. Like I said, one of the big decisions they had to make is should it be a water landing,

should it be a land landing. The competing designs had their particular viewpoints, pluses and minuses. So it was yet up to the board to decide which one to choose.

JOHNSON: At that point were they looking at any other already functioning spacecraft such as the [Russian] Soyuz?

HIRASAKI: No. At the time I started, they were not. Before we went to the decision to elect one other contractor, we were directed by [United States] Congress to look at the Soyuz. It was a direction from Congress to do that. We were not given the option to proceed with our down-select of the competing contractors that had completed Phase B. With the breakup of the Soviet Union, the government wanted to go into cooperative work in the civil space arena. Consequently, while the government signed a contract with Energia, Rocket and Space Corporation Energia, to do a study of what it would take to modify the Soyuz vehicle so it could be used for this particular purpose, Assured Crew Return Vehicle aboard the Space Station.

It was supposed to have been delivered to the Space Station in the Shuttle. One reason for that is to allow it to be in a dormant state for a long period of time. The Soyuz vehicles, at that time, I think were in orbit something less than six months, and because we never expected to use this for transportation, we didn't want to have to exchange them every six months. Because it's like a lifeboat. It's exactly that. It's a space lifeboat. So you don't plan on replacing the lifeboat every few months, because then it becomes prohibitively expensive. So the study was to look at can you build this vehicle so if you don't use it it's good for some extended period of time before you have to say replace it.

JOHNSON: During that time you were working with the ACRV, also there was a lot going on with Station. Of course, from the first time it was announced in the Space Exploration Initiative, and then what happened to Freedom, and the new designs, and then becoming the ISS [International Space Station], and Phase 1 of ISS and the Shuttle-Mir Program. Did you have any involvement in the Shuttle-Mir?

HIRASAKI: I was not directly involved with the Shuttle-Mir. It's interesting you mention that, because when NASA opted to incorporate Russia and RSC Energia into the space program, when we were looking at Soyuz for the Freedom Program, which was flying at a 28.5-degree inclination, the ground track was considerably different than what ISS is, because ISS flies on a 51.6-degree inclination orbit.

When we opted to have a cooperative venture with Russia where they are a partner participant, then the ISS was changed also to fly at the 51.6-degree inclination to allow the launch site that they had to be able to access the Station without a lot of difficulty. The Shuttle, in the meantime, could reach those inclinations at some loss of payload. Obviously, the higher inclination goes, the less payload you can carry to orbit. But it was still sufficient to proceed with the program.

While we were still looking at the Soyuz application for Freedom, we did do a landing site survey where we were looking, at potentially where in plus and minus 28.5-degree inclination could you land this vehicle? We found out we were very limited in landing sites. That was one of the problems with the Freedom Program, as far as the crew return vehicle.

JOHNSON: Is that when you were looking at Australia and south Texas?

HIRASAKI: That's right. See, because south Texas if you look on a map, south Texas will fit at the 28.5-degree inclination, because we also looked at Florida, which is at the 28.5. Because your launch site was—if you flew due east out of it, that's what your inclination would be.

JOHNSON: During that time period and all the changes that were going on with the Station—and you'd mentioned earlier when you left NASA originally, because there wasn't a direction and there wasn't anything that you could see that it was [coming along]—were you getting those same feelings during that time, knowing you were working on something that may or may not be used?

HIRASAKI: No, that was a different type of situation. Matter of fact, it was very interesting. The one thing that really intrigued me is once we opted to have the Russians participate in this program, now you started working in several programs where you have partners who were formerly our enemies, and having worked at the design and technical level, not only do you realize that they really are not enemies, they're just like you and I. They have the same hopes and dreams for personal achievement and family life, everybody wants to take care of their family, and technically they are as good and as you might say their judgments of what's right and wrong are not very much different from you.

But the very interesting thing that happened was I think for the first time a lot of the Russian engineers really got to see what America was like versus what they were told America was like. I considered the cooperative work with the Russians to be a very positive benefit in terms of normalizing relations between the countries. Once you become a partner, then not only

do you realize how the other party works, because you have to deal with them, but you also realize that they aren't the evil empire that your administration may have painted them. It goes both ways.

JOHNSON: Were there any significant differences that you saw as far as the way the engineers worked?

HIRASAKI: Yes. The Russians worked on some interesting principles, which are quite different than some of the principles we use. They rely a lot more on physical testing and making the design robust in terms of safety factor, versus making the design very sophisticated and what you would say trying to extract a maximum amount of performance. In lieu of trying to extract a maximum amount of performance out of something, they would prefer to have it be robust, in other words tolerance to different types of failures that you may not have anticipated. In that respect, I have to give them credit. They're very thorough in the way they do their testing. They are very conservative when it comes to changing things. Because if it worked last time, why change it?

In terms of performance, that's probably not the best approach, but in terms of safety and robustness, it's a much better approach. So it all depends what you're trying to get out of it.

JOHNSON: So those differences I suppose had to be resolved somewhat between them?

HIRASAKI: Well, I don't necessarily say resolved. Each side had their preferences and their ways of doing things. What we did in order to incorporate the Russian design and hardware into

the ISS was to—you might say we did a comparison of their processes and standards to establish equivalencies to our processes and standards and then accepted their process. We didn't force them to change to the way we did things, because they simply are structured to do things differently. As long as the end result is equivalent in terms of safety then fine, you've got your standards, we've got our standards, the numeric values and methodology is different but both of them meet this objective. We've got pressure integrity, we've got fault tolerance, we've got redundancy, etc., etc. Those are the principles that you need to worry about to make sure a spacecraft is safe and it's going to work right.

JOHNSON: Well, let's talk about your work in support of the Russian Vehicle Integration Project and what that entailed.

HIRASAKI: That was a carry-on. See, things evolved. Things evolved. First from the ACRV, we were directed by Congress to look at the Soyuz as an ACRV instead of building our own design. Then the NASA Administration elected to opt to have the Russians participate in International Space Station Program, along with our European and Japanese partners.

So therefore once that was done—and like I explained to you, says, "How do you make sure everything will work together?" Says, "We establish these equivalencies of how things were designed to or standards." Then you physically had to make them work. So now you worked to what we call interface requirements [documents], IRDs or ICDs [interface control documents], you control the configuration at the interface. Everything on that side is designed to work. They just need to simply match up so they will work together. So we just control everything at the interface.

JOHNSON: Like a docking module.

HIRASAKI: Right, right, right. At the docking interface. You don't say what the shape is. The module, as long as the interface will fit together and you can get the air passage, the communication, the power through there that you need, they're free to design how they design the thing on their side. We're free to design the things on our side. So we just only control things at the physical interface.

JOHNSON: Did your work involve travel to Russia?

HIRASAKI: Quite a bit, quite a bit.

JOHNSON: When was the first time you went to Russia?

HIRASAKI: That's sort of hard to say. I'm thinking '[96], somewhere around there.

JOHNSON: What was it like at that time? Because as you said, the fall of the Soviet Union, and then things were changing over there.

HIRASAKI: It was very interesting to go over and see firsthand what the country was like. Unfortunately, not everybody was happy about the situation. One, I think there was prestige lost

on the Russian side, and two, with the collapse of the Soviet Union their economy was hurt, especially the pensioners, because their currency was devalued.

Before, I think the USSR [Union of Soviet Socialist Republics] had a stable social system to support their citizens. You might say everybody had a little, not a lot, but everybody was almost guaranteed a secure minimum. With the opening of the wall, it allowed capitalism to creep in, so now people could venture out on their own. But those people who were dependent upon the government pensions somehow lost out because of the devaluation of the currency. Now you could sell your apartment versus—so the people on the lower end of the economic spectrum, a lot of them were hurt, whereas the people who were the entrepreneurial types really got a boost and an advantage with this particular change.

During that time period when I visited, there was not a lot of color in the cities, especially during the wintertime. Everything was blacks and browns and grays. As the years progressed, you saw more color come in. You saw things like McDonald's [restaurant]. You saw dealerships, western auto dealerships, come in. Then towards the later end, you saw these high-end luxury items. But once again, there's still resentment over there because there is now a very big dichotomy between the haves and have-nots.

JOHNSON: It's interesting.

HIRASAKI: It is.

JOHNSON: To get to see that from the time you first started going over there until the changes. Where did you stay when you first went over?

HIRASAKI: We usually stayed at a western type of hotel. I think it was owned by the Radisson company.

JOHNSON: You mentioned the ISS and the other partners with ESA [European Space Agency] and the Japanese space agency. The difference in the engineers you were talking about between Russian and US engineers. Were there differences in philosophy with the European and the Japanese engineers as far as getting those modules?

HIRASAKI: Well, you have to remember the ISS retained some of the agreements that were already in place out of the Freedom with ESA, with Canada, with JAXA [Japanese Aerospace Exploration Agency]. So before we went to the ISS program, there were already agreements in design to conditions established. So working with what we called our international partners other than Russia, we were working to design conditions that NASA had set down, versus having to you might say co-opt their design conditions as much. So in that respect it was probably easier, because you might say the rules and conditions were specified largely by NASA rather than by our partners.

JOHNSON: Let's talk about some of the other things you were working on during around '95 to '99. You were working for, is it Muniz Engineering and then Dynacs [Engineering]. Was that a contract change?

HIRASAKI: Really my job has never changed.

JOHNSON: Right, it's just different contractors.

HIRASAKI: It's just different contractors. Because one company loses a contract, next one picks it up, so they pick up the incumbents, and the contract gets renegotiated and rebid and so another contractor picks it up and they pick up the incumbents. So basically I've been doing this spacecraft integration job for a lot of years.

JOHNSON: Just different company names.

HIRASAKI: Just whoever happens to win the contract ends up picking me up and carrying me on to the next period.

JOHNSON: We can identify with you there.

HIRASAKI: There is a shortcoming. You don't get a lot of retirement or longevity inside your company before it changes again.

JOHNSON: That's true. You just have to keep rolling that over, don't you?

HIRASAKI: Just have to keep rolling that over, right.

JOHNSON: Well, ESA had an automated transfer vehicle and crew transportation vehicle. Did you work with them on those two vehicles?

HIRASAKI: I worked with them on the automated transfer vehicle, the ATV. Simply because it was an extension of my work with the Russians, because I was primarily involved with the Soyuz and Progress vehicles, Soyuz being the manned transportation vehicle and Progress being the unmanned transportation vehicle on the Russian side.

The ESA ATV was built to requirement imposed by the Space Station Program, but it docked to the Russian side. So it was somewhat of a blend. It had to meet some of the design requirements of the USOS [United States Operational Segment] part of the station, yet it had to physically fit mechanically and electrically with the Russian segment. So they had you might say a couple of interfaces: one interface with the Station at the requirements level and another physical interface with the Russian segment at the hardware software level. But since the ATV used the same docking port the Soyuz and Progress docked to, a lot of the checking on how the vehicle worked with a particular interface was quite similar. So it was a fairly easy transition to look at that vehicle.

Now once again, ESA does things slightly different than the way NASA does. So you have to factor those in as well.

JOHNSON: You've had a lot of experience negotiating with different groups through this, haven't you?

HIRASAKI: Yes, but it's been fun. As long as it's fun, I'll keep doing it.

JOHNSON: Are you still working with the ATV? Or what are you doing now?

HIRASAKI: Yes I am. I'm still working with the design integration for the subsequent ATV, because even though we did fly one to the Station successfully, as a result of that mission we learned a lot of things and some shortcomings in the design. So right now I'm working with the program office to make sure any delta changes are properly integrated into the design and certified. At the same time, they've asked me to participate and work with the CEV, which is the Orion or the Crew Exploration Vehicle, and to help JAXA with their certification of their HTV [H-II Transfer Vehicle]. This is a little bit different because that vehicle berths to the US side.

But spacecraft come and go, and they have a lot of similar problems, so I'll help them were I can.

JOHNSON: One of the interesting things, I think, since you've worked on both sides, you've been a civil servant and you've been a contractor on both sides, can you compare doing both of those and some of the similarities, some of the differences?

HIRASAKI: Well, there are a lot of similarities, because I think for the most part we try not to be badge-sensitive whether contractor versus civil servant when you're doing your technical job. Programmatically you have to be badge-sensitive because the responsibilities are different between contractor and the government.

Also, the responsibilities are different because the responsibilities to program versus responsibility as a contractor, the contract is different. So it depends on what you're talking

about. The technical work, it's almost transparent. Your opinion as far as what is the correct technical decision is probably valued as much as anybody, and it's not a matter of what badge you wear. The decision that's being made, however, stands with NASA, the government, because they are the ultimate ones say yea or nay we're going to do this, we're not going to do this.

JOHNSON: Also through all this travel and the different things you've done, have you had to learn different languages?

HIRASAKI: I started taking Russian because I found it helpful to me to get just a contextual feel of what is being said versus being totally dependent upon the interpreter. Also to be able to read a bit. It's like having a little crib sheet. Yes, you're dependent upon the interpreter to translate what's being said, but then I've also found them to be in error a few times too. So it's nice to at least be able to read and understand the language. It also helps with your interaction at the engineer-to-engineer level.

JOHNSON: I would think that the language would be the first barrier, with the interpreters.

HIRASAKI: However, it's hard to teach an old dog new tricks.

JOHNSON: Are you taking Russian now?

HIRASAKI: No, no, but I did not start taking Russian until in the mid ’90s when I knew I was going to be traveling. That was the first time I took a foreign language, so like I say, you’re trying to teach an old dog new tricks.

JOHNSON: It wasn’t an easy language to begin with.

HIRASAKI: No, it’s not an easy language.

JOHNSON: You didn’t pick one that had the same alphabet or anything.

HIRASAKI: No, no. In many ways Russian is hard, because they use characters that look the same, but mean different and sound different.

JOHNSON: I can imagine. Let’s go back to just reflect on some of your experiences over the years. You mentioned in the first interview that you grew up in south Texas, and so you were somewhat familiar with the lay of the land here in those early days at NASA. Do you have any memories or anything other than—I know there wasn’t much here when the Center opened. But any specific memories on where you lived and different things that were going on here during that time, or the reactions maybe to some of the other coworkers coming down to this area?

HIRASAKI: In what way?

JOHNSON: Well, just—you came in ’66?

HIRASAKI: ’66.

JOHNSON: That’s when you began. Things were starting to be established then, but the communities of people were growing that were NASA workers.

HIRASAKI: Right, right. When I first came down here, a lot of the people in the apartments, practically all the people in the apartments, worked in the space business. So we had what you might say our local enclaves of people who worked at NASA, but there was not really the townies versus NASAies conflict that you might think would grow up like in the college towns with college students versus the locals.

But because I lived in an area which was just across the street from NASA, a lot of my friends and colleagues just from work, so many people worked in the industry, you had a lot of like minds. You had a mixing of a cross-section of America, but people had similar goals and objectives working for NASA. So everybody, you might say, or most of the people that worked in the space business had the same objectives, hey, let’s accomplish this mission. So there was that going for the community at the time.

JOHNSON: There was a lot of things available as far as NASA picnics, or those sort of things?

HIRASAKI: No, no, no, let me tell you, back in ’66 there weren’t any restaurants around here, that’s one thing. I don’t know how long you’ve been down here, but in ’66 we had to go into

town. You had to go into Houston to get a decent restaurant, there were no decent restaurants around here.

The other thing, I think we had one movie theater. So there was just not a lot other than your work. If you were interested in other things, you had to go somewhere else.

JOHNSON: Did you participate in any of the NASA-sponsored activities, like the picnics or maybe the sports groups that got together?

HIRASAKI: Well, basically only within my division. Group activities we would do within the division I did. But not much outside of that.

JOHNSON: One thing we always like to ask people is what you would consider your biggest challenge while working for NASA both as a civil servant and then as a contractor.

HIRASAKI: Biggest challenge, in a good way or bad way?

JOHNSON: Either one or both.

HIRASAKI: Well, I really don't know. I enjoy the challenge of trying to make things work. Matter of fact, there's nothing quite as satisfying as having a difficult problem and solving it. So to me, those are all of these things that we try to do to make sure things work properly is a technical challenge, and it demands a lot of your time and knowledge to make sure it works

properly. So technically they're all challenges, they just happen to be different, but I think as an engineer I enjoy that.

JOHNSON: What would you consider to be your most outstanding achievement or the thing you're most proud of?

HIRASAKI: My kids.

JOHNSON: That's a good achievement. Anything in relation to your job?

HIRASAKI: I look back on all of them as good memories of things that got accomplished, just like I say, I enjoy the challenge and I enjoy seeing things to completion. The problems that we've had with the Shuttle, Challenger and [Space Shuttle] Columbia [STS-107 accident], as well as with Apollo [1 fire], those, even though you may not have been directly involved, you feel personally responsible. I don't know how to get that across, but when you're in this community you're doing your best to make sure everything goes right. When something like that happens, it hits you very very hard. I've known several of my friends who've been on the flight control team, and it's a very difficult thing to deal with. So I think those are probably my greatest disappointments, I don't know. You hate to see that happen.

JOHNSON: It does affect everyone.

HIRASAKI: Yes.

JOHNSON: Well, is there anything that you can think of that we haven't talked about that you would like to talk about?

HIRASAKI: You're the one asking the questions.

JOHNSON: Well, then I can't think of anything else. So I appreciate you coming again today to talk with us. Thank you very much.

HIRASAKI: Okay.

[End of interview]