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An Oral History

with

Jerry Hlass

Interviewer: Mr. Henry Dethloff

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Biography

Mr. Jerry Hlass was born on November 26, 1927, in Palestine. He immigrated to the United States with his family in 1947 and became a naturalized citizen in 1956. He received a B.S. degree in mechanical engineering in 1949 from North Carolina State University, Raleigh, North Carolina. In 1971 he completed a M.S. degree in engineering administration at George Washington University, Washington, D.C.

Mr. Hlass was employed as a highway engineer for the North Carolina State Highway Department and later spent two years in Sudan, working for the Agency for International Development. In 1961 he joined NASA and was assigned to Goddard Space Flight Center, Greenbelt, Maryland, where he served as Director of the Data Acquisition Facility Section. In 1963 he was transferred to the Mississippi Test Facility (MTF) in Hancock County, Mississippi, where he supervised the construction of the new testing site. When MTF became operational in 1967, Mr. Hlass went to NASA Headquarters in Washington, D.C. He was Director of Space Flight Facilities at NASA Headquarters in 1976 when he accepted the assignment as manager of the National Space Technology Laboratories, formerly MTF, in Hancock County, Mississippi. He served as Manager until January 1989, when he returned to Washington. He retired July 1, 1989.

Mr. Hlass is married to the former Helen Diller of Arlington, Virginia, and they have two children. They currently reside in Long Beach, Mississippi, where they are members of the First United Methodist Church.

AN ORAL HISTORY

with

JERRY HLASS

This is an interview for the Stennis Space Center History Project with Mr. Jerry Hlass. The interview is being recorded at the Stennis Space Center on June 18, 1991. The interviewer is Mr. Henry Dethloff. Also present is Mr. Mack Herring.

(The interview is already in progress)

Hlass: —'49. I had also a background in civil engineering. Fortunately for me because when I graduated from college I couldn't get a position in my field.

Dethloff: You were an ME, mechanical?

Hlass: ME, yes, that's my degree. Before that I went the civil route. I had finished my junior year in civil and I was able to at least survive.

Dethloff: Where are you from, North Carolina, incidentally?

Hlass: No, I was born overseas; I'm a naturalized American citizen.

Dethloff: OK.

Hlass: My background in that area is of Arabic/Christian background from the Holy Land.

Dethloff: Oh, OK.

Hlass: While I was here troubles occurred there and I just decided—I was here as a student—I wanted to become a citizen.

Dethloff: Oh, all sorts of things were going on in about '48 or '49, weren't they?

Hlass: That's right, that's right.

Dethloff: Yes.

Hlass: That's correct. And I was in school as a student.

Dethloff: Your family didn't come. You just stayed.

Hlass: Some of my cousins came and are settled on the west coast.

Dethloff: Well, that's another story; I won't get into that.

Hlass: But that's a different kind of story. So I became a citizen in the mid-'50s. And I worked for a number of organizations in various fields of engineering, all the way from road building in the North Carolina State Highway Department—

Dethloff: Was that where your first job was, incidentally?

Hlass: My first job, right. Building roads, designing roads.

Dethloff: Right.

Hlass: Now, fortunately for me I had a reasonable background in civil engineering and it allowed me to do that. I continued to do work in civil engineering. I never got my degree simply because I felt that I ought to do graduate work. I came close to finishing the requirements for civil engineering and instead I decided to become registered as a professional engineer. I got that in civil engineering even though my major was mechanical engineering.

Dethloff: And had no forward notion about space, I'm sure, at that time.

Hlass: No, I had no notion, absolutely not.

Dethloff: Aeronautical engineering or anything like that.

Hlass: Absolutely not. I worked in highway design. I worked for the national park

service designing the—you could say the park facilities throughout the Washington area. I was a designer. I worked for the geological survey. We did topographic mapping all over the east coast of the United States.

And then I went overseas with the foreign aide program of the U.S. to the country of Sudan in Africa. I spent there two years advising the government of Sudan how to build roads, transportation networks for their country. They didn't have any roads at all. I was one in a group of four or five engineers assigned by the Bureau of Public Roads under the auspices of the Agency for International Development.

I had a home leave and that led into my career with NASA. I was on home leave between August and September of 1961. We worked two years and you get home leave. And I had a contract to go back to Africa. You don't mind if I smoke?

Dethloff: Oh, please. No sir.

Hlass: But I ran into a friend of mine that worked with me in the geological survey, and by that time he is working for the Goddard Space Flight Center. In fact, he wrote to me in Sudan to leave Africa and come to work for Goddard. And I turned that down simply because I was trying to honor my contract with the Agency for International Development. So when I came back on home leave, here I see my old friend that we worked together in the geological survey. We were traveling in the field and you kind of build up some friendships when you are off in the field rather than in the headquarters. And he asked me if I still would like to come and work for Goddard. Well, I thought about it and I decided that I would. He wanted me to get involved in building satellite tracking stations throughout the world for the evolving Goddard role in, you know, satellite tracking and data acquisitions, et cetera. And so I joined the Goddard Space Flight Center in October of 1961. I worked there for a couple of years.

Dethloff: In what department or division now?

Hlass: It was called the Data Tracking and Acquisition directorate.

Dethloff: Yes, all right.

Hlass: And my role in that was in the Field Facilities Branch, which was responsible for planning and construction of satellite tracking stations, deep space network.

Dethloff: Yes.

Hlass: The first eighty-five foot dishes that we were building, we had forty-foot dishes and we had the mini-track, if you recall at the time. And NASA wanted to build those large, eighty-five foot dishes. Now they refer to them in meters. And I have to think, that may be thirty meters, I guess.

Dethloff: This is going off to the side real quick, because of the manned space flight. Those people now had just been assigned for a moment. Were they still with Goddard when you arrived or do you remember at all? The space task group out of Langley.

Hlass: Yes.

Dethloff: They were with you.

Hlass: Yes.

Dethloff: That was just before.
Hlass: No, they were already—

Dethloff: They were already reassigned to the eastern—

Hlass: —reassigned. Or being assigned.

Dethloff: It's confusing. It was just a kind of whew, thing like that.

Hlass: Right. At Goddard, the first element of that center came from the Naval Research Laboratory, I think. And my friend had left the geological survey and was working with them and he came to Goddard in that capacity. He had a major role in the satellite tracking network and its establishment worldwide.

And so my first project was building a tracking station in North Carolina. Here I go back to my home state, where I went to school, called Rosman. It was the first eighty-five foot antenna that we were building in this country. The other one was being built in Goldstone, California, I think. I was planning various stations, you know, worldwide. I had occasion to work with the Canadians and others.

To make the story short, I was on that task or that job for a couple of years. When I was called by Washington and they were looking for a project manager to build what they called the Mississippi Test Facility. That was my connection to this place. And I said, “What is the Mississippi Test Facility?”

Dethloff: OK.

Hlass: And, “Where are we?” Well, there was nothing done at the time except this site was selected for testing the first and second stages of the Saturn V vehicle. And they were going to build a three hundred million dollar test facility to test those rockets, verify their performance before sending them to the Cape to launch, or to accommodate the Apollo program. I thought about that.

Dethloff: OK, let me—how did they find you? You were at Goddard.

Hlass: Right.

Dethloff: Had you had much interaction with headquarters?

Hlass: A little bit. Most of my interaction was with the Office of Tracking and Data, which is still a major office there.

Dethloff: Who was the director or deputy administrator, whatever they call them at the time?

Hlass: The associate administrator?

Dethloff: That's all right, yes.

Hlass: The Associate Administrator was Brainard Holmes and I later worked with him. But anyway, they get to know you a little bit.

Dethloff: Yes, sure.

Hlass: They were looking for someone who has good understanding of construction because this was going to be a big facility from ground up. The site was selected; the land has to be acquired. Well, Houston went through the same thing to some extent.

Dethloff: Yes.

Hlass: At about the same time. So I joined what was then called the Office of Space Flight, and they have an office to develop the facilities. One of those facilities was at Houston. And there was a project manager to develop that and to work with the manned spacecraft center at the time. They worked two or three projects; two managers were appointed to develop the launch facilities at the Cape. And I was assigned to the Mississippi Test Facility, which at the time, really not much had been done. There were some studies being done by the outfit of Sverdrup and Parcell, an architect engineering firm.

Dethloff: Who did you report to at the time?

Hlass: I reported to the director of Manned Space Flight Facilities, a man by the name of Rudolfo Diaz, who in turn reported to Bill Lilly, who was the program control director for the Office of Space Flight. He reported in turn to Brainard Holmes, who was the first associate administrator for Space Flight.

Dethloff: OK. I'm glad that you went through that again because I always get that—Holmes to Lilly to Diaz?

Hlass: No, I reported to Diaz, who reported to Lilly, who was program control director for Space Flight, who reported to Dr. Brainard Holmes, the first associate administrator for Space Flight. The head of the agency at the time was Jim Webb, as you probably know.

Dethloff: Yes.

Hlass: The next man in line was a Dr. Seamans, who had a big influence on how the agency was run. And that was the setup when I reported. And I didn't know where this site was, to be honest with you. My first trip here was I think in April or May of 1963, and that's about the time I joined headquarters. They were about to break ground for the dock here. For the dock, you know, to bring materials and equipment for the construction. That was the construction dock really. And that was the first thing that I think was done. We worked in the design phase for the facility. We were in the process of acquiring the land, and I was assigned the job of overseeing both activities. The Marshall Space Flight Center was the center directly involved in seeing that the facilities are designed and built.

Dethloff: Yes.

Hlass: So, I obviously had to work a great deal with the Marshall Space Flight Center. I traveled extensively to Marshall. And came down here to oversee the construction.

Dethloff: OK.

Hlass: OK. That went on between 1963 and early 1967, when the facilities were declared operational for the jobs that they were supposed to do. The first major facility to be fully operational to do the task that was assigned was the S-II stand. We fired the first S-II-T rocket, we called it, all systems stage in April of 1966. In early '67, the S-IC stand, which was to test the first stage of the Saturn V vehicle, was completed and I was done with that job.

I continued my work in what I called the Office of Facilities. I began to help with completing the facilities in Houston. Houston was pretty well built by then except for one major facility, which was the Lunar Sample Lab.

Dethloff: The receiving lab. The lunar receiving area.

Hlass: Yes. I had quite a lot of fun with that because there was a lot of scientists that differed on what it looked like, how to quarantine the astronauts when they came back, and how to receive the sample, test it, et

cetera. So I had a lot of fun. The folks I was working with at Houston at the time from Washington was Joe Piland, Bob Piland's brother.

Dethloff: I know Bob; I don't know Joe very well. I do know Bob Piland.

Hlass: Joe was sort of the center operations director, and ground facilities fell under him.

Dethloff: Was he Bob's brother?

Hlass: Yes, he was Bob's brother. And he was fully involved. I made sure he was fully involved with the lunar receiving lab because I felt that if we don't get top management attention to it, and he was one of the first line directors, then we were not going to get it in time.

Dethloff: Yes. Yes, that's quite a story, that lab.

Hlass: That's a different story, but that was one of my involvements. The second involvement was—

Dethloff: Was your primary focus still here basically through all that?

Hlass: No, I finished that.

Dethloff: No, you were finished, OK.

Hlass: Once you finish with something, I had other jobs. Looking after Michoud and developing it to support the production of the S-IC stage, which was going to be done by Boeing. So Michoud existed, so there was a lot of modification, upgrading and—

Dethloff: How old were you when you joined headquarters or NASA?

Hlass: NASA?

Dethloff: Yes.

Hlass: It was in '61; I was thirty-three years old.

Dethloff: OK. The reason I asked that question is so many people comment, you know, “We were a bunch of young guys doing big things.” I think that is exciting.

Hlass: I felt young because I was single, I was young, well, I was engaged at that time. I got married, the funny part about it, I got married in December of '63, after I joined headquarters. At Goddard I was still single. It wasn't shortly afterwards talking, about this place, that this became a crisis. The S-II stage became the pacing item in the Apollo programs, in my opinion.

Dethloff: Yes.

Hlass: At least in the judgment of the space flight. And as a result of that the construction of the S-II stand became the most critical facility in the program. And therefore, Dr. Mueller at the time was the associate administrator. Bill Lilly was still there—you know, they brought me together and they said, “We want you to live there. We want you to go there on Monday and come back on Friday.” This I remember clearly because the direction was rather straight-forward. They said, “Get this facility back on schedule. If you can't, don't bother coming back.” That was pretty explicit instructions. (laughter)

Dethloff: Yes, it is. (laughter)

Hlass: So I used to come here on Mondays and go back home on Fridays. And I was just recently married practically. My wife thought I had a second life here. I became part of the scenery. I spent a lot of time here, you know—

Dethloff: That's another side of the story that I've gathered, is that NASA was very hard on married life.

Hlass: Right. It was extremely hard.

Dethloff: You are putting in sixty-and eighty-hour weeks.

Hlass: I later traveled to Kennedy and I found more divorces as (inaudible).

Dethloff: Oh, yes. I found that in Johnson too.

Hlass: Yes. But anyway I had a lot of fun overseeing the construction of this facility. And as you see, my job was varied. The primary thing that they hired me for is to oversee the overall construction and defend the money for the facility. We had to budget for it every year. It was a pretty big budget when you think about it, sixty, seventy, eighty million dollars a year for several years. But anyway it became more direct involvement when they said, “You better live there with those folks. When there is a problem you solve it. And if you can't bring the S-II test stand on schedule, don't bother to come back.” That was the words of Bill Lilly. (laughter) Supported by George Mueller and I guess the associate administrator. So they were very explicit instructions, and I intended to do that as good as I can. I could go into the history of the construction but it was a diverse effort of the Corps of Engineers, the Marshall Space Flight Center, the company called Aetron, where they were designing the technical systems we call it. Which is the Data Acquisition and Control System for the test complex.

Dethloff: Who is the prime contractor for that? Or was there a single prime contractor for that?

Hlass: Actually NASA or the Marshall Space Flight Center went to the Corps of Engineers, and the Corps became our agent for two purposes: one is to acquire the land and that was a project all by itself. It probably caused as many headaches to me as the actual building of the facility.

Dethloff: I'll bet.

Hlass: Because we were trying to acquire essentially a hundred and thirty-nine thousand acres in some way or another. That's a lot of land.

Dethloff: Yes.

Hlass: And probably as much land as there is in the agency. Kennedy has more land

that we own in fee simple, as you know. But when you combine the buffer zone here and the area that we acquired in fee simple it overshadows anyplace else in the agency. It's a pretty big chunk of land.

Dethloff: Did you have any kind of directive, incidentally, to be, let's say, I guess the best word is fair to the people you are dealing with down here. In other words, a fair return or whatever.

Hlass: No, no such explicit directive. It was objective driven. “We've got to get the facilities in time. Get on with it. We want to launch before the end of the decade and this is a critical facility because it's starting from scratch. It has to test the S-II stage.” Which was very critical at the time.

Dethloff: Yes. Incidentally, another question on the side, when this thing was conceived apparently in the back, maybe in the front of people's minds, was still the possibility that they might go the Nova route.

Hlass: Right.

Dethloff: And you were conscious of that.

Hlass: I was conscious of that.

Dethloff: OK. I just wondered.

Hlass: In fact in the first budget prepared, which I was not part of it, there was a stand for Nova, from recollection, but then it was canceled.

Dethloff: Yes, that's interesting.

Hlass: And the thing was canceled, my thesis referred to that.

(“Search For a Role For a Large Government Test Facility” master's thesis, George Washington University, 1971)

Dethloff: Yes, I think I saw that.

Hlass: It was the way that we were going to go to the moon. There were two alternates ways. Two schools of thought. One is you launch directly towards the moon.

Dethloff: That's what Faget wanted to do. (laughter)

Hlass: That's what you needed the Nova for.

Dethloff: Yes.

Hlass: You needed a very powerful rocket, maybe on the order of twelve million pounds of thrust.

Dethloff: That's what Max Faget wanted. He wanted that Nova.

Hlass: Yes, a direct passage to the moon. The second option which prevailed, you go into a lower orbit, you go towards the moon and go into an orbit around the moon and then you descend to the moon and come back. When that was adopted the Saturn V vehicle was the right launch vehicle for the job. And I say I became very intimately aware of what's going on in the S-II stage and the S-IC stage because my job was to build the test facilities for that.

Dethloff: Yes.

Hlass: And that was a heck of a job because I was the guy in Washington, usually the center looks to Washington, “Just give me the money and get out of my hair.”

Dethloff: “Leave me alone,” yes.

Hlass: (Laughter) That was the saying.

Dethloff: That was certainly the JSC attitude, yes.

Hlass: I could not do that based on the instructions given to me. And Washington was prepared to take whatever action was necessary to see

those facilities built on time. And that brought me at times in clash with the Germans that controlled Marshall at the time.

Dethloff: I want to follow up on that in a few minutes.

Hlass: (Laughter) It was really funny in some respects. I highly respected them because they were super engineers. But it put me in clash with some of them who had the responsibility for this facility, for the conceivement of it. You know, it was conceived in the Test Laboratory at Marshall.

So anyway that was my job and I did everything we can and the test stand, fortunately for me and my career, was completed on time. And I was able to get back.

Dethloff: And you got to where you are. (laughter) Otherwise you would be back to Africa. (laughter) I've heard so many, incidentally, nice things about Bill Lilly.

Hlass: He was a son of a gun.

Dethloff: But honest as he could be.

Hlass: Honest and straightforward. He became a good friend of mine later on. But in those days I considered myself a young engineer. He wasn't much older than that, but I guess he was six or seven years older. But he was a tough son of a gun.

Dethloff: That's what I hear.

Hlass: Once he gives his word to someone like Holmes or Mueller—and facilities were under him. Ground facilities for space flight. Today, as you know, there is the Office Facilities, and sort of, for the whole agency. But at that time manned space flight had their own facility division.

Dethloff: Yes.

Hlass: And I was assigned to that. And as such Bill Lilly was in charge of getting the ground facilities. Really he was the man that Dr. Mueller looked

to to get them. And the man he selected for that was Rodolfo Diaz, and I'm not sure what his background was. He was Spanish or of Spanish background. And I was one of the project managers. And they were organized on a project manager basis. And the first project I had was the Mississippi Test Facility. Later on several others. So I was involved in all of the Apollo facilities. I was involved at Kennedy after I finished this and my main involvement there was to get the Complex-B, the 39-B ready. The 39-A was just about ready and we were on the last phases of 39-A when I got involved. And I did have an involvement in 39-A but it was peripheral. We were trying to put a system there, an escape system.

Dethloff: Yes, I remember that.

Hlass: In the event that there was a fire or an emergency. It was a slide wire system. That has a story of its own. I built up some friendships with a lot of folks in Kennedy and I have fond memories of that. Astronaut Stuart Rossa settled down in Gulfport, and we were sharing those memories one time. Because we had a system that was crude, but here we are before Apollo 8, that was the history of that, and I was advising Kennedy, “Let's go with it. It's not the best thing we could do, but at least it's something. And should there be a fire and the astronaut come down as well as the final crew, finishing crew, at least they could escape by that slide wire.” But it wasn't perfected. So we were putting dummies on the wire.

Dethloff: OK.

Hlass: And I stood there day after day and those dummies crashed with each other and their heads would come off. And I'd call my wife in the evening and I say, “Well, we killed three more dummies today and I feel terrible.” Well, finally Dr. Debus, who was the director of the center, came up with a sketch and we implemented that and it worked. We couldn't control the braking on the thing, and the astronauts were supposed to leave within three seconds of each other. The dummies simulating that will—

Dethloff: I'm glad you simulated that before we tried, huh?

Hlass: But anyway that was a story by itself. But the majority of my work at Kennedy was involved in the 39-B because that was not ready yet. The

39-A was just about ready except for that system which I got in on the tail end of it. And finally made it work.

Dethloff: Yes.

Hlass: Anyway as I've gotten through NASA there my boss retired and I was given the job which is basically to look after all manned space flight facilities. So I became involved, but by that time the major facilities were done.

Dethloff: Were done, yes.

Hlass: And what we were doing, additions, modifications, rehabilitations, finishing up some things we brought in Apollo. It wasn't a huge program like it was in the early '60s.

Dethloff: Right.

Hlass: But I still was responsible for all those.

Dethloff: Sure.

Hlass: Then I went to college. I said, “Look, Apollo is now behind us, '69, we flew to the moon. Would you send me to college? Would you give me a year off?” Well, Bill Lilly approved that. And so did General Curtin, who by that time was the head of the Office of Facilities for NASA. And I went full-time to George Washington University and got my masters in engineering administration which is kind of a unique program. It combines—

Dethloff: Well, I kind of assumed that. Was that a new program? And I assume probably directed toward that sort of—

Hlass: Well, it sort of—you know a lot of engineers get into management and yet they're technically engineers and sometimes they don't understand what makes a manager tick.

Dethloff: Right.

Hlass: And so G.W. was an early pioneer in trying to come up with a program that combines, say, business management, but more on a technical basis. Like you're dealing with technical projects rather than regular projects. So it was a bastard program between what I call engineering and business administration.

Dethloff: Yes, but you certainly need it. And you could really see that in NASA.

Hlass: I enjoyed that program. NASA let me go for a whole year. When I came back I had fulfilled all my course requirements, my comprehensive, started my thesis, and finished it while I was working again at NASA.

Dethloff: All right, why did you pick that topic?

Hlass: Let me tell you why I picked that topic. I spent four good years of my life worrying about this facility.

Dethloff: OK. (laughter)

Hlass: It was the largest project that I've ever handled. Most of my other projects in the world of facility construction were, you know, a million dollar project like a satellite tracking station. A two million, four million, here was a three hundred million dollar project and as a young engineer that is a huge challenge to see it done and done well. You know, done on time, done within the money and done to support the program that it was intended to do. So I had a great deal of sympathy for this facility.

Dethloff: You had a personal investment.

Hlass: Yes. Early in my working with this facility, I could see a problem developing. I said to myself, “Here we are building a huge facility, over three hundred million dollars in total, between the construction and the equipment, and it's supposed to test so many S-IC and so many S-II stages. What happens when that program is done? What happens then?”

Well, sure enough while I was going to college, and you know you are under stress to come up with a thesis title, and the thesis that we were asked to do by the department of engineering administration is to find a problem, a management problem which has technical implications. Set your objectives and solve it, or give options and then select the option that you think is the best solution, verify the solution, test it, and that will be your thesis. And I said, “What better problem is there than building a huge facility, spending a lot of money, getting a lot of local communities excited because there is a lot of impact on them”—as you see Mary Holman had made economic impact by the direction of George Mueller, not only on this facility but of building the JSC and building Kennedy. And what's the impact of that on the local community, and then saying to ourselves, “Well, now this facility is completed, let's close it down.” That was the attitude, really.

Dethloff: That's what I want to ask. Now this is what—'69?

Hlass: Yes.

Dethloff: What was going on at headquarters in terms of—I know they were beginning to develop the strained sense that “we have a problem coming,” down here. And as I see it incidentally Balch, I guess, and the Mississippi Test Facility were really out on a limb pretty much on their own. My thought is, and I'd like you to verify this, was that headquarters was trying to stay out of it in a way. That headquarters assumed several possibilities. One is that the situation would take care of itself, possibly with the shuttle, was one option. Or that maybe this earth resources thing that they were stirring around would be a possibility. Or maybe we'll just close it down. And there is a memo in there where—I can't think what the date is; I should have brought it—“preparing for the closing of the Mississippi Test Facility.”

Hlass: Let me tell you what I thought the headquarters thinking is. As we were finishing the Apollo facilities and before I went to school, Dr. Mueller called me in one time on Saturday. I was his facilities man for space flight, with a much smaller group than when we started with to build the Apollo facility. And he said, “Jerry, I'm making an exercise of, what does it cost me to run all of this huge base that we built for Apollo?” And it turned out to be over a billion dollars. He says, “I got to spend a billion dollars of earnest

money, hard-earned money just to run all that big base. I want you to go and make a study of what facilities we need to close." The man making those facilities for him was—I forgot his name now, but he followed Lilly. Lilly by that time went in the front office there as sort of the preliminary for being the comptroller of the agency. The assistant administrator for administration, I think they called it. But the man that followed him is a nice man but he died of a heart attack with all the pressure up there, I guess. Anyway he told them it was going to cost over a billion dollars to maintain this manned space flight base, if you will. And he wanted to consolidate; Mueller wanted to consolidate. Among many recommendations I made to him was to close the Edwards Test Facility where we tested the F-I engines. To close down Santa Susanna where we tested part of this—supposedly we were going to test the S-II; we never did. We transferred all of that down to Mississippi. It did test some of the J-2 engines and other propulsion, but mainly the J-2 engine. I recommended that possibly he could look at Seal Beach, where we had a lot of North American Rockwell people at the time. And we were manufacturing the S-II stage, in fact stages, we manufactured the last of them, what do we need that for? And these were not hard decisions because California, as you know, is a big state and a small thing like closing a small facility doesn't have a big impact—

Dethloff: Yes.

Hlass: But I did not recommend closing Stennis at all or the Mississippi Test Facility simply because I realized this is a big deal in a small rural community and what it would do to the local economy. But that was only part of my thinking. The thinking that I had at the time, having built those facilities, and this is not an exaggeration, I had to become familiar with all the propulsion test facilities in the agency because of the nature of my job. I had to go to Edwards and look at the F-I test stands. We had five of them.

Dethloff: So you knew what the whole (inaudible).

Hlass: I was well familiar with White Sands, for example, what it can do. And it's basically tested small rockets in the order of six, seven thousand pounds of thrust or even smaller than that. So it has no capability for doing big rockets.

Dethloff: Right.

Hlass: This place was the best place in the country for testing rockets. I mean the S-IC, to give you an example, the S-I C stand has a thrust of seven and a half million pounds. We designed that stand to test rockets on the order of ten million pounds of thrust, as most conservative engineers do, you know. (laughter) So here is the capability to test a heavy lift launch vehicle, I call it. At the time, that was my thinking. The S-II stage was a million pound of thrust. We developed the stand and designed it from a facility point of view to test a million and a half pound of thrust. There were no places in the country where you can do this. No place at all. The nearest thing that came to it was in Marshall Space Flight Center, where they liked to simulate nearly everything, but they never built a facility similar to the S-II stage.

Dethloff: Can I pause for a moment?

Hlass: Sure.

Dethloff: You raised another thing that fits here in a way. I felt somewhere along the way as I began probing into this thing, that Marshall always sort of kept the Mississippi Test Facility at arm's length. That it was, I won't say jealous, but nonetheless not convinced always that the test facilities really needed to be here. That they could do it themselves quite a lot.

Dethloff: Well, I think you are right. I think what I perceived—and I had close association with Marshall; I worked with them to develop this facility. Wernher von Braun was a visionary type man. He thought that this program would continue to grow and grow and grow. We'll build a space station and go to the moon and colonize the moon. We built the Saturn V, the next thing could be a Nova or something like a Nova, bigger and bigger and better things to come. With that in mind they built this facility for the large rockets.

Dethloff: The big (inaudible).

Hlass: —stuff. Now as became obvious in the 1970 time frame, that Apollo, Saturn V is coming to an end, that we are going to complete the

production of the Saturn V and close down the facilities that produced them. That we are going to launch the last Apollo, whenever that was? In 1971, I think, we launched the last Apollo shot to the moon. There wasn't anything in Congress telling us that we were going to go further and build a space station. I sat there in the hearing with Dr. Mueller where he supported the space station in 1969. He was giving them the ideas of a space station, also the shuttle. And the space station, he was testifying on those in 1969, yet I didn't see anything in Congress, "Well, take one or the other." And we took the shuttle, you know.

Dethloff: Yes.

Hlass: And then it was hand-fed or spoon-fed in terms of money. That it began to affect, what kind of shuttle do we design? But we did come up with a good shuttle in spite of it. But the point I was trying to make was that Marshall became aware of it, "Hey, we don't have a huge propulsion program." Nothing followed Apollo, Saturn V. And therefore something—this is my interpretation of their thinking, "Maybe this Mississippi Test Facility is a threat to us."

Dethloff: Expendable, because they were really fighting for their lives. I was really aware of that. They began realizing that.

Hlass: They were fighting for their lives. And their lives are the propulsion, you know, managers for the agency. They are the propulsion developers for the agency. They felt they had those facilities required to test whatever propulsion there is. What aggravated things, and I will come to that point, is I was making my analysis where the shuttle engines should go. You probably read that.

Dethloff: Yes.

Hlass: It is in one of the first, at that time the engine was not the same as it finally came about.

Dethloff: Yes.

Hlass: Because the engine was to support both the orbiter and the booster. The booster later became (inaudible).

Dethloff: It changed their—

Hlass: But if you read my thesis, the first program that I recommended for here was the space shuttle main engine.

Dethloff: Yes.

Hlass: I was doing that for the sake of a thesis. And this is my own analysis. The agency hired the outfit of Ralph and Parsons to look at the proposals, where to do the SSME [Space Shuttle Main Engine] testing. And the agency appointed a board headed by Dr. Thompson, I believe, who was the director of the Langley Research Center. What is his first name?

Dethloff: Isn't it Ray? Ray or Roy.

Hlass: (Inaudible) my memory. I'm getting old.

Dethloff: Mine too.

Hlass: But I believe it was a Dr. Thompson.

Dethloff: Yes, it was Thompson.

Hlass: I believe he was the director or the deputy director. One or the other. I believe he was the director of the Langley Research Center. And he had a board. And I was familiar with one guy on the board, and he is still with NASA. He's a black scientist and his name is—I'll tell you his name, I can't forget it. He works for the associate administrator for science. He is one of his assistants. His name is Dudley McConnell.

Dethloff: OK.

Hlass: He was one man on the board. And he used to come and talk to me because I had knowledge of the ground facilities at Mississippi, obviously because I was the project manager. But the point I was trying to make, too,

is Marshall proposed the Marshall Space Flight Center as the place to do the SSME.

Dethloff: Yes.

Hlass: The other options they had were to reactivate Edwards, which was built for the F-I engine, or Santa Susanna. Now you can see maybe a slight bias, but those places could not possibly compare with Mississippi. For example, in the Marshall Space Flight Center as in Santa Susanna, the city of Huntsville was closing in on the arsenal, and I didn't think we could get by testing large rockets.

Dethloff: That close to the proximity of —

Hlass: At the time we were talking, of course, not just the SSME, but a cluster of SSMEs. Like for the orbiter, it was three. For the booster it was going to be many, many more. And that's the way that we were going at the time. A reusable booster. And we couldn't do it from an environmental viewpoint. As in Los Angeles we were getting lawsuits in Santa Susanna because Los Angeles was closing in on Santa Susanna. They didn't have a buffer zone. And that was one of the biggest assets for this installation.

Dethloff: Right, right.

Hlass: So it left it really technically to do it here or Edwards, in my point of view.

Dethloff: Right.

Hlass: Well, Edwards doesn't have any hydrogen capability. It was the F-I engine and it was built to do—

Dethloff: Small.

Hlass: Not small, relatively small, a million and a half pound of thrust. No hydrogen capability. And people here were experienced in handling hydrogen because the S-II stage used hydrogen. And so it had an overwhelming advantage over Edwards, although from a buffer viewpoint

Edwards is fine. It has a big desert; you are not going to disturb any developments out there.

Dethloff: How did Huntsville deal with the buffer problem, in other words, the environmental encroachment problem?

Hlass: They didn't. And my thesis does.

Dethloff: Yes.

Hlass: I later found out, and I maybe shouldn't say that because you might publish it. Maybe you won't publish it, but Bill Lucas himself, who was a branch or division chief at the time, made a briefing to the board, you know, proposing Huntsville as a site for the SSME.

Dethloff: Well, Huntsville was proposing everything for itself. From then on and JSC was fighting all of that at the same time. I knew that. There was a lot of heat—

Hlass: And therefore, when I began to look for a role for this facility, the SSME to me was a basic role, the first role so that you can build on. And recommended that in my thesis. Fortunately for my career and many viewpoints, the board, headed by Dr. Thompson, recommended to NASA that this is the best place for it. And I don't know what their analysis was, as you know they—

Dethloff: They never read your thesis? Do you think? I wonder.

Hlass: They were getting information about Mississippi, but they weren't getting any information about Marshall or Edwards or Santa Susanna. Obviously, I was a little bit—and Parsons company was providing them with data on all the facilities. In terms of how much does it cost to do the job here? Or how much does it cost to do the job there, in terms of facility modification and construction. And they had written a report that went on to the board. But the board, you know, in a sensitive way, they don't tell you what their analysis is. But all I know is shortly after I wrote my thesis the board came up and recommended Mississippi for the thing, and Mississippi was selected for the SSME sometime in 1971. My thesis was already at

least with the committee at the time, the engineering department of George Washington University. But you see why again, to answer you, I have a lot of empathy for this facility. I felt that it was the best facility from a technical viewpoint to test the large rockets of the agency. As I felt that White Sands is the best facility to test the very small rockets.

Dethloff: Yes.

Hlass: Like what it does today for the shuttle. Or what it did for the shuttle in terms of the OMS and the RCS. That's what it's designed for.

Dethloff: Do you think then the SSME decision was the—

Hlass: Was a good decision.

Dethloff: Well, but also it was critical in the life of—

Hlass: It was most critical.

Dethloff: OK.

Hlass: If it had not come to be then I believe this facility would have been closed.

Dethloff: OK. That's what I—

Hlass: Because I was well aware of Bill Lilly having a press conference and I cite it here. I quote from his press conference; what he in essence said was, “We are going to close.”

Dethloff: Close that, yes. There is a document in there that has all the plans for closing.

Hlass: Right.

Dethloff: Now, there are several other ingredients that are coming along at the same time that your thesis and the Thompson committee meeting and so forth are going on. One is that Balch apparently really is concerned

about the future and has really been working hard. Can you tell me anything about him?

Hlass: I can because I came and interviewed him when I wrote my thesis.

Dethloff: OK.

Hlass: Can I get a glass of water?

Dethloff: We can take a break if you want.

Hlass: When I talk I always get thirsty.

(The interview continues on tape one, side two)

Hlass: —the objectives once you change that. And I felt so good, gratifying things that it finally happened, that the state felt that this installation is high-tech, is perceived as the high-tech in the state of Mississippi.

Dethloff: Yes, it is.

Hlass: And they wanted to show their support for all the work we've done by appropriating something like four million dollars to build this facility.

Herring: Four and a half I believe.

Hlass: And donate it to NASA.

Dethloff: And when was that now?

Hlass: In 1987 or '8.

Herring: Eighty-seven, wasn't it? Was it '87?

Hlass: Yes, somewhere in that time frame. We can check the date.

Herring: Yes, we'll check that. But, you see, this was the state legislature in there so they had to have the support from this entire state.

Dethloff: Well, that was a good demonstration, yes.

Hlass: But to me it reflects the good relations that we were able to build with the state and the local communities after a very rough period of time.

Dethloff: Yes.

Hlass: In the '70s.

Dethloff: Back to the critical thing, Balch.

Hlass: Back to the critical thing. I came in—I knew Jack Balch.

Dethloff: OK.

Hlass: I knew him in 1965 when he was appointed the manager of the then Mississippi Test Facility, which was a subsidiary installation if you will or a satellite of the Marshall Space Flight Center. He was the manager of this facility. And he reported I think up the line to Marshall. And I talked with him at length. I told him I was writing a thesis and I'm searching for a role for this facility because I felt it was—

Dethloff: I have a feeling that you and he were both very much on the same wavelength.

Hlass: In terms of keeping this facility open. At some point we diversed. I'll tell you where that diversion is. He told me his ideas of turning this facility into what I called an environmental laboratory. Bringing in outfits like the EPA and elements of environmental type activity if you will.

Dethloff: Right.

Hlass: And I agreed that they will have a role to play but I felt that these roles were so small they do not hit on the strength of this facility, which was propulsion testing. Where he and I diverged is he felt that the propulsion program, of course, was a big letdown. Here it was big for about three or four years and then it was shut off and he felt there was no future in that.

And I had felt that if we are going to be a NASA there will always be a rationale for having a very good test facility to test the rockets of the future for the agency. And I felt that the strength of this facility, as I've learned in my GW thing, when you are in a company you look for your major strength. You know, we could do a little bit of environmental work and that's wonderful, it's great. Goddard would do a little bit of that, but that's not our strength. We couldn't stay alive by just doing that. The way to stay alive is where is your expertise? And our expertise is in testing rockets. We have the best facilities not only in the country, but in my opinion in the world, for testing large rockets, not small ones.

Dethloff: Yes.

Hlass: We could test small ones. Then we could be in competition again with a facility like White Sands. And there is no reason for that. We have an established facility for testing rockets that use hypergolics, for example. And that's what White Sands is all about. And so why compete with that.

Dethloff: Yes.

Hlass: There is no place in the world that can compete with us in testing very large rockets, particularly ones using liquid oxygen and hydrogen. And I thought that was the wave of the future, you know, in my opinion.

Dethloff: Sure.

Hlass: And therefore I felt if you wanted to make a case for this place you've got to make it on the basis of long term continuing need of the agency to test the rockets of the future. Not on the basis of others. Now I agreed with him on what I called diversification. You shouldn't have one role because you could see if that role is finally completed then people would say, “What do we need you for?” And could shut you down even if it's a mistake? Then when they need you it might be too late to reactivate you. They might find that they could do something in another place. And so I felt that there is a need for diversification, there is a need to look at other things for this place, but the heart core should be testing rockets. That's what this facility was built for, that is the strength. You can't test rockets at Langley. You can't test them at Goddard. You can't test them at Kennedy. You can't

test them at Houston. The only place you can test them is here. Or build some new facilities elsewhere. That's why I have felt very strongly about rocket testing. And that's what I pushed when I first came here.

Dethloff: Yes. Now had Balch as of '69, '70—there really wasn't too much diversification. There was somewhere the—

Herring: BOMEX?

Dethloff: BOMEX had developed. I can't remember any other laboratory type—

Hlass: He had also, I think he had by that time enticed NDBC, which is the Data Buoy, were talking about coming here.

Dethloff: Oh, yes.

Hlass: Whether they were here or not I can't honestly remember.

Herring: They were a part—

Dethloff: So that could not have been critical in the decision to preserve—

Hlass: He was fighting hard to preserve.

Dethloff: I knew he was.

Hlass: Right. Which I think is a very good thing. He kept it going in a time of—

Dethloff: Yes. And he was in a way in my mind also fighting Marshall and headquarters in a sense. But you were very much on his side, I mean not—

Hlass: But not in fighting NASA.

Dethloff: No, I understand. Yes, but in having common goals.

Hlass: Right. The common goal was to get this place open.

Dethloff: Yes.

Hlass: He and I were very strong on that. I perceived it as the agency's future rocket testing facility, and it shouldn't be closed for that reason. He was, I felt maybe wrongly, that he was just interested in the environmental aspect of the laboratory or anything that would keep it open without the long-term hard core expertise that should keep it open.

Dethloff: Do you think maybe, and I won't put this in the book, but do you think he had so much ego on the line that that was part of that?

Hlass: I don't know. I really don't know. But I know the Washington viewpoint of him was not good. And the reason it was not good is because he made very strong contacts with the congressional delegation.

Dethloff: Now that is another story.

Hlass: OK. He made very strong contacts and the story was, which I heard in the halls of Washington, that Dale Meyers, who is the associate administrator for space flight, one time in the early '70s was out there waiting to see Senator Stennis. And waited a long time.

Dethloff: And Balch walked out. (laughter)

Hlass: And the reason he was waiting a long time, Balch was walking out of the office. You could see the frustration of him and George Lowe, who was at the time the deputy administrator of the agency. At one time, as you know, he was the manager of the Apollo spacecraft.

Dethloff: Yes, I think (inaudible) from the manned spacecraft center point of view, Lowe was the man who made the thing work.

Hlass: Yes, work. And he came back to Washington and he became the deputy administrator. And he's one of my heroes.

Dethloff: Yes, mine too. He really is.

Hlass: He is to some extent responsible for my career. I have to defend the program before him, et cetera. And I admired his tenacity, his strength, his ultimate attention to detail.

Dethloff: Yes.

Hlass: He would not let you alone unless—you know. And so he did not like Balch. And it was very clear because Balch put the agency on the defensive versus, say, the congressional delegation. So when I came here, and this is you know, I said, “Look, I work for NASA. I want to get the congressional delegation to support all the NASA programs and particularly here. But not to participate here at the expense of the NASA program.” He did one thing that probably gained him enmity throughout NASA, and I'll tell you what it is. It's referred to in my thesis but it's not referred to in that light.

Dethloff: Yes.

Hlass: As he was bringing small elements of other agencies in here. He felt obviously the need to modify the facility to accommodate these new programs. You obviously don't bring the program and just do it. Well, there was no money for that. So he through Stennis, I think, he was able to lay a claim on ten million dollars of R&PM [Resource and Program Management] money. It's mentioned in my thesis. To modify facilities with, not for NASA, but to support the programs of other agencies.

Dethloff: Right.

Hlass: Well, if you were a Langley man and your R&PM budget was cut, you can imagine how you feel about Mississippi.

Dethloff: Yes, OK.

Hlass: If you were a Goddard man and your R&PM budget was cut, which is to pay the bills for your personnel and institutional services, you can see what happens. If you are a JSC man and your R&PM budget is cut to make this ten million. The R&PM money then, as it is today, is a prime thing for the centers. It supports their personnel, it supports their institutional services, it supports all of those things, travel. And therefore, he made

enemies with everybody when he did that. Yes, sure enough ten million dollars was transferred from the R&PM budget to do the facility modification for these small programs that were being talked about.

Dethloff: So you think then that in a way that cost more in terms of—

Hlass: Goodwill among all the NASA centers.

Dethloff: Goodwill, yes.

Hlass: As well as Washington, which didn't want to do that.

Dethloff: Yes.

Hlass: Now and so the perception in Washington before I came because I was in Washington is, “Hey, this place is out there to support other agencies at our expense. With our money, with our program money, our R&PM money.” And so it was hated. (laughter) It was not like—now, Chris Kraft did the right thing. And I don't know how it came about; I don't have the inside story, but obviously NASA headquarters was looking for something to go in there while you know, huge programs were being shut down. And there was a need at the time for application; that was the first time we talked about application.

Dethloff: Right.

Hlass: And so Chris Kraft established a laboratory called the Earth Resources Laboratory. Joe Piland, I mean Bob Piland was the first director of that activity. He came here and established this laboratory and it was like a twenty-five-man lab, civil servants, plus say, forty contract employees. It was something; it was a useful thing. JSC wanted to investigate remote sensing and how, you know, the LANDSAT type satellites or their predecessors even. And why not put it here because at least it would lessen the impact of all this exodus going out of here.

Dethloff: Yes. My guess is, too, incidentally is that JSC may have had a little surplus right there they needed to cover.

Hlass: Sure.

Dethloff: That helped them too.

Hlass: But in my strategy, when I came and I recommended that program being stationed here, the Earth Resources Program you recall in my thesis, it's a good thing I did a little research. NASA was not aware of it except for Bill Lilly that I'm doing that, because they were aware they sent me to school, but I wasn't going to distribute my thesis to them.

Dethloff: Well, that was a question I raised. I didn't know if you were doing it as sort of a directive, sometimes that can happen. But it had nothing to do with that. That's interesting.

Hlass: It really was to get my masters.

Dethloff: Yes, right.

Hlass: But I gave it everything I had with my knowledge of this place and the politics of the agency and all of that. But when I came here I said to myself, “Why should the Earth Resources Lab belong to JSC? They don't need it. That's a side issue with them.” Their job is to train astronauts, to build spacecrafts, to design, you know, the space station or the orbiter. And so I put in the ears of headquarters that this lab should belong to the NSTL. At the time it was called the National Space Technology Laboratories. And they discussed it with Chris, and I discussed it with Chris. And he said, “Hey, there is more than one way to do the job.” And the only thing that he asked me to do is, “Will you take good care of my men over there? These are my people. If you promise to take good care of them, then that's great for the lab to be under your direction.” He was very generous about it, very broad-minded. I felt that he is very NASA oriented, not so parochial as to think only of the parochial interests of his center.

Dethloff: Yes.

Hlass: And that was the first program I landed. I had felt when I came here if we don't have a major program, you know, why would NASA need us? Yes, we do have the propulsion, but I didn't see anything beyond the

SSME. And at the time they were talking of shutting down the SSME in 1980. They thought.

Dethloff: Yes.

Hlass: And everybody said, “Well, you are going to go down. Within two or three years the SSME is going to be shut down and what else will you do?”

Dethloff: Yes.

Hlass: And, “Then you will have to shut down the place.” And I said, “I don't go to any place to shut it down. If it needs to be shut down I will shut it down.” But I had in the back of my head that this is the rocket testing facility for NASA. And if NASA is going to be involved in rockets, they have to test them somewhere. Why not here? Since we built the best facility for them. And that was always in the back of my mind. Unfortunately, Balch had turned his people around the other way. When I came they were not interested in the rocket test complex we had. They said, “Let Marshall do their thing over there and we'll go on and develop the environmental thing.” And I had to preach to my staff day in and day out in staff meetings that the reason we are here is because we have the best rocket testing facility in the world.

Dethloff: So you had to do a little retraining.

Hlass: Turn them around. You can talk to them. That was in every staff meeting I had because they were not oriented in that way. They were defensive; they thought their jobs were on the line. They might as well go with the Navy. My job was to build them back up, but to let them know where the focus is.

Dethloff: As NASA, as a NASA institution.

Hlass: As NASA, right. And NASA needs us, not because we can do this or that or the other thing or take care of our facilities. They look at us; they need us because we built the best test facility in the world. And that's why they need us, now and in the future.

Dethloff: Right.

Hlass: And I believe my employees followed. My senior staff began to see that. There were a few things that used to aggravate me at the time because my comptroller, the head of my finance, in a staff meeting we were trying to develop a reimbursable policy, how to charge a tenant? And he was talking of the shuttle as a tenant. And I shut that off very quick. I said, "The shuttle is why we are here. That's us. They are not a tenant, that's us."

Dethloff: That's right.

Hlass: But anyway.

Dethloff: That's interesting.

Hlass: That answers your question about the Jack Balch connection and what I felt. He's done a good job; he worked hard to keep this facility open. Where he and I differed is he did not emphasize what I call a major strength of this facility which is the rocket complex that we built here. And I felt that is where the strengths are. It's like being with GE and you go emphasize something other than electrical.

Dethloff: Yes.

Hlass: You know, their name is General Electric and you go emphasize something that has nothing to do with electricity, you know.

Dethloff: So you think though that the ten million dollar kitty, or whatever it was that came through because of Stennis and Ellender and all that group, probably in itself was not critical to the whole future of the Mississippi Test Facility?

Hlass: I felt you needed some money to transform the laboratory, but to go and get it out of RPM, the RPM budget. I'd have tried to get it out of the facility budget and let one center be unhappy about losing a facility project, for example. But to take it out of the RPM, which is the heart and soul of every personnel NASA civil servant and every center sort of created ill will. Not only in headquarters, but throughout the NASA centers.

Dethloff: Yes.

Hlass: And I had to try to overcome that when I came.

Dethloff: And did you?

Hlass: Yes. I feel we did. It wasn't easy.

Dethloff: I can imagine.

Hlass: And it wasn't done very quickly.

Dethloff: There was a lot of tension between centers.

Hlass: I recall being in one of the administrator receptions, you know, the Administrator used to hold receptions whenever a senior NASA employee retires, et cetera. And I recall just hearing conversation, they didn't know who I was, some senior people were saying, “Maybe this will get the albatross off our neck.” Referring to this place, and it shook me up. So I felt that I had hard work to do to get NASA to feel that this is part of NASA. That this installation will contribute to the NASA objectives and not to some other objectives.

Dethloff: So NASA was beginning to look on the Center as NASA's albatross. That's a good—

Hlass: Yes, that was one official.

Dethloff: I know, but that's a good characterization.

Hlass: Characterization of the way they felt about it. And I believe that ten million dollars of taking their RPM money, you ought to talk to other people about RPM in other centers.

Dethloff: Yes.

Hlass: I mean if you cut one project, you cut one project. If you cut a facility, you cut one facility, which they will try to get next year.

Dethloff: Right.

Hlass: If you cut their RPM, now they have to tighten up and maybe lose some people.

Dethloff: Yes.

Hlass: They have to cut down on travel, they can't maintain their facility.

Dethloff: Sure.

Hlass: And therefore you are affecting them where it hurts. And the centers that depend a great deal on that are the research centers, Langley, Ames, Louis, they depend on it even more than the space flight centers.

Dethloff: Your operating centers, yes.

Hlass: Because the space flight centers have other things like ETB, you know, they have big R&D budgets. They can take a little something and do something with it, but the research centers look at that as part of their research. I mean if it's an investigator he gets paid by RPM, so they also develop a bad feeling for our facility even without knowing what goes on.

Dethloff: When did you come as director?

Hlass: In September of 1976.

Dethloff: September of '76. Both before and after that, I guess, how did you perceive Stennis' relationship to this place? While you were director—

Hlass: Senator Stennis?

Dethloff: Yes, Senator Stennis. While you were director and before that while you were overseeing the construction and so forth.

Hlass: Let me tell you this: I believe that Senator Stennis, after dealing with him on a personal basis for more than ten years, he is an outstanding

American. He certainly is probably the most outstanding Mississippian in the last hundred years. But why do I say he is an outstanding American? He was not parochial. Oh, he loved this facility; he was personally involved with this facility. He told me stories upon stories, nearly every time I'd see him he'd repeat at least a couple of stories, but give me a different light on it. When NASA started to take the land away from people, remember there was maybe three or four hundred people affected. We had to remove them from their houses and relocate them. Yes, we purchased their property, but some of them did not want to sell it.

Dethloff: Sure.

Hlass: So we had to condemn their property through the normal condemnation proceeding when, you know, the government needed something and you couldn't negotiate it. And therefore he personally felt that this was the right thing to do. It was good for Mississippi, it's good for the country, you know, the whole Apollo. He was very supportive of Kennedy, he mentioned that in some of his speeches. Supportive of Kennedy because he announced his trip to the moon, et cetera. He felt very proud that his state was going to participate in that gigantic effort. But he came to make a speech in Logtown. And people were jumping over him all over the place, pointing their fingers at him and say, “Senator, you allowed them to do that to us. You allowed them to take us out of our ancestral homes.” And therefore he was emotionally tied to that. He still did it.

Dethloff: Yes.

Hlass: But he felt that, “Hey, I've put my thing on the line for NASA, and NASA in return should at least support this facility which we've established.” And I guess he was aggravated in 1970 that he could see an end to that and a disaster for the community, that he had a personal hand in turning them around.

He was telling me a story one time—

Dethloff: So in a way you and Balch and Stennis all have felt the same way about this.

Hlass: Right. Except Stennis, I felt that Jack—bless his soul, he is dead now—I felt that he was using Stennis as a club on the agency. I wanted to the extent that I can have Stennis support me very much here at Mississippi, but support the agency's program as a whole. I felt that I'm a NASA man; I worked at Goddard, I worked at headquarters, now I'm working in Mississippi. I felt that I want to contribute to NASA. I don't want to become parochial. We are all parochial to some extent.

Dethloff: Yes. True.

Hlass: But I didn't want him to attack NASA and threaten NASA if they don't do this, you know. So I was trying to bring him to become a supporter of all NASA. By the time I left I felt he was. For one year I know personally that if it wasn't for him the space station would have died.

Dethloff: Yes.

Hlass: And he asked me point blankly when I went to plead for its support, he said, "What's in it for Mississippi?" I said, "Very little, Senator Stennis. We get about a half million dollars out of that program. It really isn't that and if it was only for Mississippi, if that's all, it doesn't sell. But for the nation, for the country, it's a great project." And if you convince him it's a great project for the nation, he will support it.

Dethloff: Yes.

Hlass: He went out and wrote an article for the—which Mack may still have.

Herring: Yes, I've got it.

Hlass: In support of the space station. And I know from personal knowledge, I mean I won't go into the extreme details, I certainly don't want them published, but Fletcher asked me to see if he would put his full support behind the space station and he did. And survived. We even got money out of the DOD.

Dethloff: That is when he was head of the Senate Armed Forces Committee.

Hlass: No, he was the head of the Appropriations.

Herring: Appropriations.

Dethloff: Yes, that's right.

Hlass: But he had a lot of leverage with the armed services because he used to head it for a long period of time before he—

Dethloff: Did you know him then?

Hlass: No, I knew him, the only relationship I had with him before coming down is as my job as project manager of the construction of this facility.

Dethloff: Yes.

Hlass: I had to provide him with our bi-weekly report.

Dethloff: OK, during the construction.

Hlass: During the construction days. And tell him what is going on in construction and how much manpower is now in construction. And how much manpower is permanent, what's being built and how it was coming. And that type of thing. And who's there. I provided him with a two-, three-page report every two weeks. It was a bi-weekly report. And I finally ended it in 19—I believe '67 when everything was operational, I wrote something to show that this may be the last report since now everything is operational, you know.

Dethloff: Yes, that's good. That's a good point. He was really watching it day by day in effect to see what—

Hlass: And he did have staff and I dealt with them on the phone.

Dethloff: Did you? I know Jim Smith was a good friend of mine. I don't know if you knew Jim Smith; he was with the Senate Armed Forces Committee staffer. Did you ever run into him?

Hlass: No, I didn't run into him. But Senator Stennis saved the space station when it was in trouble. It is in trouble today; I wish he was back here because I think he would do his best to bring it back to the extent that he prevailed on his friends in the Armed Services Committee with Sam Nunn to make money available for something that wasn't very hot, to put money into the space station. And I won't go into any more detail.

Dethloff: No, OK. Let me go back to your tenure as the director.

Hlass: Right.

Dethloff: You now have a multi-agency facility here, whether you like it or not I guess, by the time you arrived. And I suppose other agencies will come in. How do you manage? What was your total term, you retired when?

Hlass: I served as director for thirteen years. Well, between twelve and thirteen years. I came in September of '76 and I departed at the end of January of '89 to work in headquarters. That puts it at what, twelve and a half years. I'd say twelve and a half years to be exact.

Dethloff: Were there any special management styles or approaches or problems with this kind of a facility they were developing here in the terms of diverse agencies?

Hlass: Well, let me tell you the context in which I came. Todd Groo was the director of Center Operations.

Dethloff: Todd Groo?

Hlass: Yes, Todd Groo. He was the director of Center Operations, which today is called the Office of the Associate Administrator for Management now headed by Dr. Robbins. The difference at that time is from an institutional viewpoint the center directors reported to him. From a

programmatic viewpoint they reported to the program associate administrator, like associate administrator for space flight. In my case in Houston and Marshall and Kennedy. So he was our institutional boss in terms of facilities, personnel, all of that. And so he was very active in the affairs of the center at that time. Things have changed, we are back to reporting—at one time in my tenure here I reported directly to the Administrator, as every other center director did.

Dethloff: Yes, sure.

Hlass: And then back to the associate administrator for the program that you are in. But let me tell you the context in which I came. NASA had just made a decision with the department of Navy to relocate some twelve hundred Navy personnel. That was the number at the time. It ended up to be fifteen hundred people, incidentally, to National Space Technology Laboratories. A small number of those had already arrived by the time I was here. They were an elemental thing. The move started in early '76 before I came and was completed in 1978. So they asked me a number of things. Todd Groo was the institutional boss, he said to me, “One of the first things you want to do, Jerry, is to develop a reimbursable policy. How do we charge a tenant? Because you are going to have a large number of them. The Navy is a biggie.” It's not like twenty people in a laboratory like what we did before. A total of three hundred people that were the work of Jack Balch that were already here. But the Navy was a different matter; it was a large number of people.

And the guidance I got from him and Bill Lilly, who was the comptroller of the agency, is to develop a policy that's fair and equitable. Where we are not subsidizing them, but they are not subsidizing us either. That was the only sort of guidance I got. I had felt that short of a good reimbursable policy, I would be subject and NASA would be subject to a lot of criticism. While still in Washington just before coming down I managed to read as much as I can about what is going on. Well, the GAO [General Accounting Office] had finished a study about what is happening here in terms of the three hundred tenants that we have. Different small tenants. And we have only three hundred people, and they accused NASA of subsidizing the tenants in the order of more than half a million dollars a year. It wasn't a huge amount, but it's still a criticism by the GAO. I felt I

needed to come up with a policy that is so-called fair and equitable where we are not subsidizing the tenants at all. I felt subsidizing the tenants will contradict not my viewpoint first in trying to, you know, be fair, but also in trying to attract some programs because every time you wanted to attract a program the perception is you are subsidizing the tenants with it. And nobody wants to put a program if they think you are going to tax them to help the geological survey or the Navy or whoever.

Dethloff: Sure.

Hlass: So I took that assignment very seriously. I asked for some help from the Comptroller's office since he has the best financial brains in the agency. And two or three of those folks came down and worked with my financial people to develop a policy. We came up with six options and I recommended a solution, or I recommended what I call option six, to both Bill Lilly and Todd Groo. They were the ones to say, "Yes." And they accepted that. And it was sort of the baseline of how to run our operation with the tenants. To explain that in a little more understandable English, I guess, first I asked myself, "What is my role concerning the tenants?" The first role was to provide them office and laboratory space. They've got to have a place to work. That's the first role. You know, obviously they need the office space, the lab space, they needed their facilities maintained, well-kept. They had to depend on me for what I called institutional support in things like fire protection or property management or all the things you call institutional. But the tenants wanted more. As soon as I came they all discussed their needs with me. They wanted us, NASA, to provide them with, what I call, technical services that would help make their programs successful. And these services varied widely. Some of them wanted, for example, computer services. Some of them wanted us actually to develop software programs to do certain things. Some of them wanted us to develop even hardware for them. One of them was NDBC, where their job was to deploy buoys around the world to measure weather and oceanographic data. And so some of them wanted to calibrate their instruments in our laboratories. Some of them—all that kind of what I called technical support from our laboratories.

Dethloff: So you were going to be a servicing agency for all those single agencies?

Hlass: Now I have to make the reimbursable policy fair and equitable, but I have to find a way to collect all that cost. And identify and collect it and then put some kind of add-on, if you will, so that NASA doesn't lose any money. But at the same time, you know.

Dethloff: Yes.

Hlass: So we developed a policy which says like this, the charge you are going to pay, tenant, is based on three things: first, I broke the cost into two. One is what I called the occupancy charge. Being here at this center is going to cost you something to pay for you being here. Now what is that cost? I said to myself one of it is how many people you have got. OK, now you say now why how many people you got. Well, I've got to give them a physical exam like the NASA guys. They have a lot of impact on my things because of their numbers. If somebody, you are going to take a thousand physical exams, you pay a little more than if you have only twenty people taking twenty physical exams. That's an example.

Dethloff: Parking and food and all the other.

Hlass: So all of that, food service, mail service, medical service, all of that depended on how many people you've got. So I developed a charge where I take all of that cost for the whole thing, divided by all the numbers of people and you get a per person charge. Then you multiply it by how many people you've got in this Navy or USGS, et cetera. The other one depended on how many square foot they occupied. That meant maintenance, air conditioning, the janitorial, and on and on and on.

Dethloff: Sure.

Hlass: Really that was the basis for their occupancy charge. They paid per square foot and they paid per person. And I developed a policy that developed that. The other charge was what I called demand charge. A demand charge is where I get called and they want me to provide technical services. Which is developing some software or something. Or calibrate so many instruments. Or modify the facility I've assigned to them. Well, I can collect that cost. It's a one-time cost, whatever they are demanding. I add to it all the overhead that costs me.

Dethloff: Cost plus your overhead, OK.

Hlass: And then I say, “Your demand charges are so much.” They are translated here into what I call facility requests or technical requests, FSR and—what is the other one we call it?

Herring: TWR.

Hlass: TWR, Technical Work Requests. Or FSR, Facility Service Requests. So that is how I developed it with the cooperation of the—I could go into detail but that's the elements.

Dethloff: I understand, that's good. Perfect, thank you.

Hlass: Now I began to concentrate on headquarters to convince them that the reimbursable policy I've developed in support of the agencies will not take away from NASA money. That when they give me NASA money for programs or for institutions, it's spent on NASA programs. That the money that I was getting from the tenants was plenty adequate to take care of the tenants. So this was not easy to sell.

Dethloff: Keep these pots apart.

Hlass: Yes. This was not easy to sell because there was perception starting from the GAO report and the fact that those guys worry about the tenants, not about NASA. I needed to lift that, I needed to begin to feel that this facility is a NASA facility. Yes, it has a role of supporting tenants, but it will do that with their money and not with NASA money. That was what I was trying to convey. I finally succeeded in that to the extent that Dr. Loveless, the deputy administrator under Frosch if you recall, when the shuttle flew first he was the acting administrator, came to me and he said, “The policy that you developed seems so successful that NASA will use it in the future at other centers.” For example, Goddard was negotiating with the Navy to bring them to Wallops. And they brought the people from Goddard to talk to me about that. NASA doesn't have that kind of relationship as much as we do here. But they do have relationship beyond that in various places with other agencies. And so he began to look at NSTL as the model for reimbursable policies when NASA has to accommodate non-NASA tenants like DOD or others. I felt very gratified about that.

Dethloff: Incidentally how did—you may have had a role in some of them like the naval labs. How did they get here? Is this an active solicitation on the part of NASA or—

Hlass: Both, everything, both.

Dethloff: —or sometimes they're just picked up and quit. How did the naval facilities—

Hlass: The Navy has a history in Washington where I think Senator Stennis and Congressman Lott, at the time, now Senator Lott, have played a role in that.

Dethloff: OK. Am I wrong incidentally in my perception and indeed a lot of this probably happened because of—I won't call them manipulations, but emulations out of Stennis' office and Congress.

Hlass: Some, yes indeed. There is no question about that. He supported that, but he was also supported by NASA since 1970 because they didn't perceive—there was a role for this place.

Dethloff: There was a future, yes. We can use that.

Hlass: And get somebody to use it. And the pressure will be a little bit less on us.

Dethloff: More of a position of being tolerant.

Hlass: Tolerant. But at the same time while the headquarter top officials were tolerant to that and supportive of it.

Dethloff: Yes.
Hlass: I mean we built facilities, we don't need them. Why not have some other government agency use them.

Dethloff: Sure.

Hlass: You know, make full utilization of them. However, I say there was resentment because of the perception that whatever little NASA money comes down here is being used to support the others.

Dethloff: Used for somebody else.

Hlass: And I have to overcome that and make it fair and equitable. At the same time I perceived that the support of the tenants is significant. To give you in monetary terms; when I started there was a half a million dollars coming to NASA from the tenants to support their activities because they were small.

Dethloff: Yes.

Hlass: By the time the Navy came down and the Army came down and all of that and we had a large population of tenants, which you can get from various reports, before I left it was in the order of thirty-five to forty million dollars. Any time a manager like myself, there is that much at stake you have to pay a lot of attention to it.

Dethloff: Right.

Hlass: And you have to keep the tenants happy. At the same time make sure that they do not interfere with the NASA objective. Now to do that I organized what I call a council.

Dethloff: That's what I wondered, OK. Just a council? It didn't have any other name?

Hlass: What did we call it?

Herring: The management council.

Hlass: Management council. Not management council, we called it—I have the name, I'll find it for you.

Dethloff: I'll find it. That's OK.

Hlass: I met with them as often as once a month early in the program, once a month. And later on when things were very smooth we were meeting on a quarterly basis. And I meet with the head of the tenant agencies and listened to them because they may have some concerns that we should correct.

Dethloff: Yes.

Hlass: Or they may have some suggestions. At first it was a bitching session.

Dethloff: Yes.

Hlass: At first. But later on they became very supportive. And I felt that we needed to go to the outside world as one institution and that's the National Space Technology Laboratories. And I felt it was in NASA's interests that the tenants are satisfied. Not only with the services they are getting from NASA but being here. And I feel that we accomplished that primarily through communication, primarily by doing some of the things they wanted. For example, the Navy wanted me to provide some services which are not common at NASA installations. A gas station, the only place I know that has it is Kennedy. They wanted me to provide a laundry facility, at least where they could drop their uniforms.

Dethloff: I know that's unique.

Hlass: They wanted things like that. And I looked at them and I said, “If they don't cost us any money. If we can bring a gas station that operates as a private enterprise, why not?” And so we were able to do those things.

Herring: A daycare center.

Hlass: A daycare center. They had more young wives obviously because there are large numbers of them. And their women were after me to provide them a daycare center. I thought NASA was very supportive of them. They've done it at Goddard, they've done it elsewhere. So I proceeded to do that. They have asked things that I couldn't do.

Dethloff: Yes, sure.

Hlass: They also knew that whatever I provide, if it costs money, they are going to share in that. In fact I like to recall to you my first meeting with the tenants. I thought here I was here about one month. And I had so many things to work on, but one of them was to tell them that I was working on a reimbursable policy. It was really several months, it was about the time the policy began to look real. And I had one or two meetings with headquarters with Bill Lilly and Todd Groo to make sure that that is the policy they were going to approve. But it was obvious as soon as I looked at the numbers that their cost was going to quadruple in some instances. We didn't have a policy so each tenant was paying a different thing. So how was I going to go tell them that and survive it. (laughter)

Dethloff: Yes.

Hlass: So I decided in my own little feeble mind that I'd call them to a little coffee. And I had my wife make a cake. And I would introduce myself as the new manager. At the time it was called the manager of the National Space Technology Laboratories. My title as director came in the late '80s when Stennis became acknowledged as a center. Anyway I called them in and I said, “I'm delighted to meet you. I wanted to assure you that as the new manager, director of this place that I will provide you with your needs. I will provide you quality services to do things that we can do for you to make your projects successful. I'll commit to that.” But I said, “I also have some other news to tell you. Your rent has just gone up.” And there was a big, you know. I didn't know what to expect. There was a laughter, somebody broke the ice and laughed. And it came out maybe in that fashion, and I was delighted. One guy, and I believe it was the head of EPA, says, “Well, we knew it was about time. We knew at some point, we are getting excellent services and that you would raise the rent.” I didn't bother to tell them at the time how much it was going to go higher. I thought one shock at a time. And that's the way I broke it to them.

Dethloff: I'm glad you told me that.

Hlass: In a light manner. After telling them I would provide them quality services, I told them your rent is going to go up. (laughter)

Dethloff: (laughter) That is a good story.

Hlass: But I had a goal based on my training at GW, that when you organize a company in Timbuktu or any city, you need to gain the goodwill of the surrounding community. And so one of my goals was to first gain the confidence of my people here and the tenants that I'm supposed to serve and then broaden it out to gain the confidence of the local community. And I worked hard at that. And I say that it finally was rewarded when the state of Mississippi donated a four-million-dollar building, this building we are sitting in, to NASA. Dr. Fletcher couldn't believe it. (laughter)

Dethloff: But that came out of the legislature, didn't it?

Hlass: That I believe is in evidence.

Herring: Henry, if I might just bring something up, and Jerry might comment on and that
I think I observed in Jerry's tenure is like he was talking about before he came here and some of the tenants were here and all. There had been—

(The interview continues in progress on tape two, side one)

Hlass: —center when it's supposed to be one of the major programs of the center at the time. You know, that was another problem. There was so much to do when I came, Henry, that, you know, you didn't know what to hit first. Or what to work on first. And so I worked on many things. One of the things was to raise the morale of my employees, to develop a reimbursable policy, to get the perception in Washington that this facility is part of NASA and will contribute to the NASA program. The other thing is to get programs for this place so that it will become a viable NASA installation and not just by name only. So I had to work on many of these concurrently. The other thing was to organize, you know, a way to reach the objectives I wanted. It didn't have an organization, signed by the head of the agency. Can you believe that? It didn't have job descriptions for my NASA employees. What is it they are supposed to do? And I had to undertake that.

Dethloff: And here you are—

Hlass: And at the same time headquarters, at least one office, they were always supportive of me because I came from that environment. Except one office I felt at the time was the personnel office, I guess in their way they thought they were supportive. But before I had my feet on the ground, I mean that was late in '76, I had only been here two or three months, they informed me of an audit survey. A classification survey.

Dethloff: Oh, yes.

Hlass: I hadn't even gotten my organization chart approved by the administrator yet. That was one of the negatives I felt. Especially when they called for lowering the grade of—

Herring: Oh, I know, I went through that as a department head. That used to burn me up. They had no business walking in my office and trying to tell me what my employees should be.

Hlass: And here I am trying to raise the morale of my employees and here is an outside factor which tends to be more negative because they felt those guys are out there looking carefully at their jobs. And if you are a GS-13 you might go to a 12 or—

Dethloff: Yes, that would be demoralizing.

Hlass: So it was rough.

Dethloff: Yes, I bet it was.

Hlass: It was that kind of environment, you know. But we overcame that as other things. And we didn't lower the grades of anybody.

Herring: I'll tell you what the grades pretty much still reflected by as if we were a component of Marshall.

Hlass: Right.

Herring: They still, that perception was in people's minds at NASA headquarters and at Marshall, and it's just been, you know, that was a hard thing Jerry had—

Dethloff: Being treated like the stepchild.

Herring: Right. It was the stepchild perception.

Hlass: Sometimes. It took a while.

Herring: I would say it's gone now.

Hlass: It took a while to overcome that. A few things you could overcome in a hurry, but a few things took several years to overcome. But I'm very pleased that we did overcome many of those things. NASA when I left and today based on what I know, they look at the center as an installation that supports the NASA objectives. It's in the long-range plans of NASA. For example, the national launch system, the ASRM, and all of that. They look at it as you're not supported, you provide quality service to the tenants which is what I wanted, but at the same time they do it with reimbursable money and not hard-earned NASA money.

Dethloff: Was there any sense in your management council, or the council you were
talking about, we had to present a unified image to the outside.

Hlass: Right.

Dethloff: Do you think those people ever really came to that kind of a sentiment?

Hlass: Yes.

Dethloff: That indeed you are part of a—

Hlass: Yes, they did. In fact I'll give you examples of that. We had one commander—unfortunately the DOD is different than NASA.

Dethloff: Oh, yes.

Hlass: I stayed here as the director for thirteen years. The DOD in their, not policy, but overall, they change people every few years. By the time you get a Navy commander that really understands what is going on and is beginning to contribute, they ship him elsewhere. Well, one of those commanders was Captain Roger Onoratti, who headed one of the Navy commands here. It's an R&D function similar to that of NASA. See, R&D worked for the Navy across the ocean, you know, the research in understanding the ocean technology, broad ocean technology. But he also, besides that, was very supportive of my goal of goodwill in the local communities. And he and I sponsored what I called “Partnership in Progress” with Hancock County, which is the nearest county. Where we are, we are in Hancock County. And we brought those people, the community leaders, the business leaders, the political leaders, et cetera, for a whole day here at Stennis. Showed them what we were doing, told them how we related to them, told them how we interacted with them. Not just from a business viewpoint, but our people lived there.

Dethloff: Yes.

Hlass: They needed to understand that. Our employees were their Little League coaches, their church-goers. You know, besides the money we poured into their community, our people were an integral part of their community. I wanted them to understand that. And we helped them in many ways. For example, we have a project for mosquito control. It was started in the beginning of the construction; we still continue to cooperate with them in that. We had projects with them in many areas. Our education program, which probably you are familiar with it at JSC.

Dethloff: Yes.

Hlass: We bring the teachers here and give them the resources to help them with their elementary kids and high schools, you know, technical material about the space program, about sciences, et cetera. We went over all of that and by the time we finished and he made a speech and I made a speech and we took them around and we discussed, we listened to them, they listened to us, and I thought it was the most successful thing that we've

ever done. But I've done it jointly with the commander of the Navy, and he felt like I did. He was very active in the civic affairs of the local area. So I feel very strongly and it could be influenced by one of my professors at GW, he hammered that point; you can't operate a plant, whether it's GE or General Motors—

Dethloff: Totally alienated from your environment, right?

Hlass: And alienate the local communities. And his favorite word is you've got to gain the goodwill of the local communities for you to succeed. And if you go blindfolded and say how many cars I can develop or how many cars I can sell or how many gizmos I can do, and you don't pay attention to the local communities and their needs, you are bound for failure. And it's made an impact on me. So I wanted to have the goodwill of the local communities because I felt that was needed in doing my business.

Dethloff: Yes.

Hlass: I emphasized that. And the Navy to their credit was very supportive of that goal. So we could jointly do things like that with the communities.

Dethloff: So there was a real sense of cohesion by those people that we were in this together.

Hlass: Together. And when you provide them quality technical services, their programs are successful. So we have a direct impact on the success of their programs.

Dethloff: Do you think that having those people here together, was that in any way—I don't know quite—I don't remember all the mix, but somehow or another that mix itself became greater than the whole.

Hlass: Yes.

Dethloff: Greater than the parts.

Hlass: Yes, with one exception. And that exception is gone now.

Dethloff: Which was?

Hlass: The Army Ammunition Plant.

Dethloff: I was going to ask you about that. Yes, it's gone?

Herring: It's gone.

Hlass: Yes, it's closed down. Not that I'm happy to see it close down because it has an economic impact.

Dethloff: Well, when I read the literature, you know, and there are all these other laboratories and outfits and so forth and this is sitting there—

Hlass: Let me tell you how it's related. Here is a link, the Navy has three commands, and one of them is Research and Development program of the Navy. You know they look for undersea acoustics, for example, to detect submarines better, that is one of their big projects. Another one, listen to that, is remote sensing, how to understand the ocean from a satellite. Now you see the connection right there. I mean, you can do hydrographic surveys, but you only cover small areas. Here from a satellite you can understand currents and waves and the behavior of the ocean from satellites. Well, who can better do that than NASA? In fact, on the high level NASA and the Navy cooperate in developing the C-Sat, for example, and later on NROSS satellite, which I don't know whether it'll ever be built. But both agencies have an interest in remote sensing. And therefore we can cooperate with them in that field.

I'll give you another example. The Navy went around the country looking for an outfit, an organization, a company that will help them update a satellite data acquisition facility on the ground. To process satellite data from the meteorological satellites, the Navy has the responsibility for the meteorological besides the ocean to understand the weather. And the weather is very significant to the operation of the fleet. So they have a facility in Monterrey, California, where they receive weather data from a number of satellites. One of them is the DOD meteorological satellites; I'm not sure of the exact name of it. But they receive data from six satellites. And they want to be able to process that data and transmit it to the fleet in

as real time basis as you can. So that it's meaningful. Well, they couldn't find—at least when they came and talked to me—they couldn't find anybody to help them with that. And their system is quite old. So they found that we have a tremendous capability in developing data processing systems. Because of the remote sensing technology we have developed quite unique and inexpensive systems to do that, to handle a lot of satellite data. To make the story short, we helped them develop with their money. It's a special project, not because they are tenants. I wanted to sign special MOU with the head of the Navy to develop a system that can receive, process, and disseminate data from six meteorological satellites. They are so happy with it, you can't believe it. It was, I don't know, a fifteen-million-dollar R&D program. Our guys, some civil servants, but a lot of contractors, we used Lockheed, who is our support contractor in that arena. But I had assigned a couple of project managers, a project manager with some help, and they are so pleased with that.

So there is room not only for cooperation. Now you say what is in it for me as a NASA guy. Well, I keep my guys at the very edge of the technology, at the pacing edge of the technology in developing data systems which they can turn around and develop some in support of NROSS, let's say. Or some other program, right? So right now they are developing data systems for the SRM, to acquire the data and analyze it. So it meant something for me. I made sure that they paid for every cent of that. And I made sure I didn't use too many civil servant resources because I didn't have that many. It was supported by the OSS, Office of Space Science in Washington. They came down and said, “We want you to do that. It's in our interest.”

Dethloff: You know, I kind of had this foggy notion, and you seem to be confirming it, that maybe the Stennis Space Center is unique.

Hlass: It is unique.

Dethloff: Part of its uniqueness is in its capacity to assimilate or transmit space information to earth resources.

Hlass: Yes.

Dethloff: That's what I'm saying.

Hlass: And to work with any number of agencies that are somewhat involved in it.

Dethloff: Yes. It's a transfusion process that may be occurring here moreso than in any other single NASA institution.

Hlass: Some of the technology being transferred is being transferred to other agencies and to some extent sometimes, you know, we might get something out of it.

Dethloff: But there is more of that active thing going on here than any of the other facilities.

Herring: Yes.

Hlass: Yes.

Dethloff: The manned space program which is operations basically.

Herring: Right.

Dethloff: And Goddard is still wired into that.

Hlass: Right.

Dethloff: Of course Ames has all those traditional—

Hlass: Ames has a little bit of that because the Army comes to them and uses their wind tunnels, you know, to simulate flights of future military aircraft or other aircraft. So there is some of that going on at the other NASA centers. But I think Stennis is quite unique. We work with a large number of agencies, large user community out there. With their money, without NASA money, except when we think it is appropriate to put NASA money in a project.

Dethloff: That's a good—user community—that's a good phrase.

Hlass: Yes. And to answer your question, yes, it's synergistic, if that's the right word.

Dethloff: OK.

Hlass: It's synergistic. Now, why did I say the Army is not in that? Because the Army is so many factoring things for—

Dethloff: No, it didn't seem to fit.

Hlass: The good thing is it provides some jobs. But there is no real interaction. The only interaction I had with the Army was to help them when they first came in in trying to activate the facility. They have a large number of people; we took care of them in terms of fire protection. I drew up a fire protection agreement with them. And instead of building a fire station they used ours.

Dethloff: (Inaudible).

Hlass: And we were able to reduce the cost, not only for NASA but for the others.

Dethloff: For them, too, yes.

Hlass: Because now the fire department, half of it the Army paid for a long time.

Dethloff: Sure.

Hlass: The other half was, a quarter was NASA, a quarter was the others. And so I had to have the fire department anyway. At the time it was costing me a million bucks to have people around the clock to respond to fire. And I would have to pay as an insurance whether I had one single tenant or not.

Dethloff: With the Army your risk goes way up.

Hlass: I ended up paying two hundred and fifty thousand and the tenants paid seven fifty. Isn't that good for NASA in some respects?

Dethloff: Certainly.

Hlass: Because I have to do it anyway. And yet the Army didn't have to go and build a new facility and buy fire trucks. Wasn't that good for them?

Dethloff: Certainly.

Hlass: They were saving money. They were only paying half of what a fire department would cost and they didn't have to build a facility. So I think what we were doing is synergistic because it cut down on their cost, it cut down on our cost. By sharing costs of things that we could do together. And I took care of their personnel in our medical clinic, you know, they used to get cut on the job and the doctor would sew them up and send them back on the job. So we did have some interaction. But the work they were doing was not research, was not, you know, things that we were interested in getting into.

Dethloff: What direction do you see Stennis going from here basically? Continuing pretty much in the broadening profile?

Hlass: I believe the direction that Stennis is going to and should go into is to become the agency lead role in rocket testing. They are beginning to be perceived that way. For example, we have the ASRM is going to be tested here. We have the national launch system, which is a joint program between NASA and the Air Force. It hasn't gotten kicked off on high. It's low profile that we arrived at how NASA should do it. Marshall would develop the hardware and we would test it. And these are the heavy lift launch vehicles of the future.

Dethloff: Yes.

Hlass: And so between the SSME and the future SSME, the follow on, the next generation, which now they call the STME, Space Transportation Main Engine, for the NLS will be done here. And I think that is a major program

which will have a tremendous impact both technically and economically on this place.

Dethloff: Is there any direct space station activity? I didn't see any.

Hlass: Very small – only in terms of the user community. We work with the space station basically to get those users who would have a need to communicate with the space station and will have a little computer. And we developed a simulator for that. It was done in the Science and Technology lab. And you can talk to the people who developed that. It was very useful in the overall design of the data management system for the space station. But how does the small user fit in in the spectrum? But the rest of our job was in the utilization aspect of the space station, which is small, but how would you utilize this space station? And we were trying to find, encourage and identify the user communities so they could put their inputs into the design of the space station.

Dethloff: The naval labs and oceanographic, I'm sure they would. It would be a natural.

Hlass: Yes. And many others, private, et cetera. Because we have a connection to the private world out there through the application program and the technology utilization program. We have a little program here that we acquired—I don't know if you are familiar with the commercial centers for development?

Dethloff: Yes.

Hlass: Well, we have one here on remote sensing.

Dethloff: See, my areas are business history, I—

Hlass: Well, we are one of the first few centers, commercial centers that was located here for remote sensing technology. And it's located in this building. And so it's through that connection that we can identify and understand the needs of the user out there, that may be using the space station.

Dethloff: Right. Well, that's good. That sounds like a good bright future you would say.

Hlass: Right. It's not a big—

Dethloff: No.

Hlass: —program for us. The biggies are the SSME, the ASRM, the national launch system, because that's hardware and its components have to be tested here. And we proceeded under my tenure, and this is interesting, it might interest you, here we developed remote sensing technology in trying to understand how to manage the earth resources. You know, agriculture, forestry, geology, and all of the aspects of it. And I turned to my guys one time, and I'm not deep into that science, and I said, “Look, is there any use of that technology in propulsion testing or in launch operation?” And let me tell you what, our guys developed to let you see the significance of that. Here's the technology that is developed by NASA for one specific thing, application or science. And my guys found applications for it and we delivered. You recall the Challenger.

Dethloff: Oh, yes.

Hlass: One of the problems that came out of the Challenger is the ice detection came at Kennedy. Do you know how they found ice? It was a small group of people who would run to the pad and look and say, “Here's ice.” They would look with their eyes.

Dethloff: Yes.

Hlass: And see that, “Hey, there is a little too much ice here.” Well, what a way to detect ice. So we developed a very nice simple but sophisticated system at the same time which can detect ice remotely, not only detect the ice but can detect a hydrogen leak. Now this system is a sensor which you can place far away from the launch pad in three safe positions. Two of them were camera positions near the pad. And you look at the tank. And you look at the other component of the shuttle, like the SRM or the orbiter, and you can identify ice.

Dethloff: With a color spectrum type—?

Hlass: It's a multi-spectral, yes. In the thermal range, and we developed this thermal sensor here for remote sensing. And so we can tell the temperature. And we have a little computer that you can read on the monitor, the temperature is X. Well, that doesn't tell you ice, but now we've come up with a system that can not only tell you ice, but the thickness of the ice at any part of the vehicle, from remotely. Isn't that—

Dethloff: That certainly is interesting. So there are spinoffs from having these other people here with NASA?

Hlass: Spinoffs. Say JSC for example—

Dethloff: You always think of NASA as spinning off the other way, but—

Hlass: That was Marshall stuff. They wanted to see the accumulation. But look at JSC, they said, “Well, can this sensor tell us what the temperature of the tires are when we land?” I said, “Yes, it can.” Because they were concerned about the heat generated as you touch the runway. So, we sent the sensor up there and it told them what the tire temperature was when it hits the runway or shortly afterwards when it parks. When it hit the runway we couldn't set up the sensor well enough to look at it. But shortly after it parks we took the measurements remotely, and it will tell you what the temperature of the tire is. So I felt we were developing some nice technology that has application not only in the application world, but also in the world of, “Can we make test operations and launch operations a little bit safer? Can we detect problems before they happen?” And this is an example. You can perhaps touch base with Roy Estess and others to see how far we advanced into this world since I've left. But I think they are still going on.

Dethloff: Well, that's a very good example. Well, I better let you rest a while.

Hlass: I don't know how far we've come.

Dethloff: It's been a great interview.

Hlass: I don't know that I've given you much to write about, the history.

Dethloff: You've given me a great deal. I appreciate it. In fact, I don't know, when I start generating this material, I don't know if you care to be a reader or not but I'd appreciate it.

Herring: Jerry, I was thinking about that. We're going to be setting up a sort of review board to read—

Dethloff: You might want to be on the board. You might want to do it informally or something.

Herring: We'd like to get you to be on that.

Hlass: My dream was to not personal, from a personal, but from a NASA viewpoint was to make this the future center, NASA center for testing large rockets, and I think it's well on its way.

Dethloff: That's good. I'm sure glad I talked to you early on in all this. That '69 and '70 period was so critical and I wasn't sure where I was going from there. And you've helped.

Hlass: Well, you know you spent four years and then you see it about to be dismembered. And I felt a lot of affinity for this place obviously because I spent my young days here and so for a thesis it turned perfect. They wanted a problem, they didn't want anything, you know. It wasn't solved at the time.

Dethloff: No. (laughter)

Hlass: And it was so—you know NASA—

Dethloff: It is still being solved. (laughter)

Hlass: And so I felt, “Why not try it.” And when I left I donated my thesis to the library. I didn't do it before because I felt some people would get the idea that this fellow came in with some ideas.

Dethloff: (Inaudible), yes.

Hlass: Not that I've tried to implement everything in the thesis but I've done enough research to kind of see some of the problems before I came here.

Dethloff: That in fact I know when I read this I said, “Now why, how did he know this? Why did he get into this?” That was my big question. You've certainly answered that. Where do you live now?

Hlass: Long Beach, Mississippi.

Dethloff: Long Beach. OK.

Hlass: Right.

Dethloff: So this really did become home.

Hlass: It became home. My wife is a native Virginian. When we went back to Washington she was looking forward to it.

Dethloff: Yes, but those Virginians don't like those native Virginians.

Hlass: But she was a little bit disappointed with the hassle and the traffic, and my kids were not as happy. So when I retired from NASA I got a little job consulting with McDonnel Douglas. I accepted it, it's a NASA project that I'm consulting on. With the idea that they will allow me to set my headquarters here. And they did. I worked there until my kids finished school and then we came in August just before school began last year. So we've been back almost a year.

Dethloff: I see.

Hlass: Family life is better. No hassle with traffic going to work.

Dethloff: I noticed one thing at JSC, for example, most of the people who retire there, all the Langley bunch, wherever they are they stay there. It's amazing. They've adapted.

Hlass: Right.

Dethloff: I really appreciate the time. It's a great interview.

Hlass: There is so much to talk about I guess we could talk a long time.

Dethloff: I've really enjoyed it and benefited tremendously.

Hlass: I don't know whether it was coherent?

Dethloff: Yes, it was. In my mind completely coherent, I really understood. Thank you. So I'll turn this off.

Hlass: Sure.

(end of the interview)