SHELL OIL COMPANY

ORAL HISTORY PROJECT

Interviewee: CLIFF SWANLUND

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Bio
After graduating Purdue with a degree in Civil Engineering in 1953, Swalund began his career with Shell. He served in the army soon after his assignment with Shell forcing him to come back to the company in 1956. He first worked in the Delta division in New Orleans but later spent time working in New Orleans Marine Division, offshore. During that time he was Project Engineer for Eugene Island 188, and block 100. He also served as Division Drilling Engineer. In 1960 he moved to the design group and worked developing various offshore structures. In 1966 he began work for Esso Production and Research and stayed there until his retirement in 1995.

Summary
This short interview discusses various designs of offshore technology. Some discussion of the Shell training program, including training as a diver. Significant discussion of his "Report: Economics of Deep water Hydropressure Exploration and Development Drilling." Some discussion of the research structures of Esso and Shell.

Side A

TP: This is an interview with Cliff Swanlund at his home in Houston. The interviewer is Tyler Priest. Today is September 17, 1999. I thought we would start off today, Cliff, by just maybe summarizing your background and how you got involved with Shell.

CS: O.K. I went to work for Shell, actually, in the summer of 1953, for just one week, and then went in the Army for just about two years. And then returned to the Shell training program in, like, April of 1955. I was on the training program until July of 1956, when I was assigned to New Orleans. My first assignment was in the Delta Division, which was located in Westwego at that particular time. So, I spent two years in the Delta Division, mainly working on pipeline systems, structures for the East Bay development. It was mainly all in regards to East Bay.

TP: South Pass 24?

CS: 24 and 27. I was also involved in putting some facilities in what was called the discovery in the Burwood field, which didn't amount to much.

TP: So, can you go into a little detail about your work in the East Bay?

CS: Well, I was mainly involved in, probably, contracting for building well structures.

Of course, most of the development then was done with mobile rigs.

TP: Submersibles?

CS: Submersible mobile rigs, *Mr. Charlie*, *St. Louis*, and *Eldorado*, I guess . . . the ODECO submersible rigs. And so, we designed and built small well structures for those, and then central gathering platforms involved in designing and getting those built and installed. And then, we . . .

TP: Is your background as an engineer?

CS: A civil engineer. I graduated from Purdue in 1953 [as] a civil engineer.

TP: Are there any memorable events during those early years? I know there was a lot of question over whether or not *Mr. Charlie* was even going to work, if you could really build a submersible platform like that that could drill out of 20 feet of water.

CS: Well, by the time that I was there, they were pretty much . . .

TP: I suppose this was about 1953-1954 when . . .

CS: Yes, when those questions . . . so, by then, they were . . . I think while I was there, they contracted and built the *St. Louis*. And later on, the *Eldorado*, I think, which went down to a little bit deeper water, like 60 feet or something like that.

TP: Who headed the Delta Division at that time when you first started working there?

CS: Well, Bags Newman was there. I guess he was division manager. Art Williams was division engineer. More or less, when I went in the Delta Division, I took Dean Cox's place, and he went down to the design group then, at that particular time. Well, there were so many changes in the people and everything, but I think Bags was there mainly for one of those two years that I was there. I guess the other . . . Of course, Hurricane Audrey happened in June of 1957.

TP: That was pretty devastating. Shell didn't lose a lot, but other companies did, if I remember right.

CS: Well, Shell had some stuff out in West Cameron and some of those areas. And then a group of us were trained as scuba divers to go out and inspect, so a bunch of us went out and inspected all those . . .

TP: You were trained as a diver, too?

CS: Yes. Dean Cox and I . . . I forget who the others were, so that was kind of interesting.

TP: Did you do your training after you joined the Delta Division?

CS: Yes. They got some guy from Scripps Institute in California to come and train us for . . . well, we spent a week working the swimming pool and then a week in the Gulf diving. We went out after Audrey, then, and inspected all the . . .

TP: I guess this was . . . the commercial diving industry hadn't really developed to a point where, you know . . .

CS: Well, it had, more or less. You could use them, but the big question was, you know, when you sent a diver down, if you sent two divers down, you would come back with two different stories, quite often. So, there was always a question of what really was the situation. So actually, after Hurricane Audrey, we went out and spent a week diving off all the structures in the Gulf of Mexico. And we had quite a few that had damaged braces and things like this over in the Cameron area. We even dived on one in the Vermillion area. But then, I guess Gallagher became chief engineer, and he didn't think we should be out diving. He was afraid of the insurance aspects. And we were saying that well, if we had to dive, we had to do it, you know, kind of continuously. We didn't want to not do it, and then all of a

sudden somebody call up and say, well, "would you go out and inspect something for us?" And so, they were unwilling to let us spend the time to maintain it. And we actually maintained our own equipment for a while, because the Scripps guy didn't trust the people that were maintaining the equipment. So, we maintained our own equipment. He trained us to do that. And it pretty much went away after . . .

TP: So, you didn't do much diving after that?

CS: After that . . . no.

TP: So, you worked in the East Bay until . . .

CS: 1958. The summer of 1958.

TP: So, right after Audrey?

CS: Well, no, Audrey was the year before, 1957. June of 1957. We actually did some little diving out there in the East Bay. Dean, I guess, and I did it. But that was . . . and the thing for Audrey, that kind of ended it.

TP: So then, where did you go from there?

CS: I went to what was called the Marine Division then, on Lee Circle.

TP: So, the Marine Division was different than the Delta Division?

CS: The Marine Division had all the rest of the offshore.

TP: I see.

CS: That is basically from the mouth of the Mississippi West, in a sense, was the Marine Division. So, it was mainly Ship Shoal, West Cameron, Eugene Island, all those particular areas. So then, I spent, well, two years in the Marine Division, from 1958 to 1960.

TP: Doing similar things that you were doing in East Bay?

CS: Well, pretty much. Putting in structures. Of course, back then, deepwater was, well, I guess the early structure we put out in Vermillion 164 was like in 100 feet, and that was really deep water back then. So, when I started in East Bay, deep water was 50 feet.

TP: This was such a nascent industry at this time. Did you have any idea how far out

they could go or how far you thought you would be going? Did you have any inkling that in 15 years, you'd be in ,1000 feet?

CS: No. One thousand feet? I think we even . . . well, in these studies we were doing, you know, we were really concerned about building a structure out in 300 feet. So, of course, in 1958, all in through there, even in 100 feet, we were very concerned about it.

So, in the Marine Division, I was mainly doing pretty much the same thing. I was Project Engineer for the initial facilities on Eugene Island 188. And then, I also acted as Division Drilling Engineer and just did a lot of different things like that.

TP: Did you work on pipelines as well?

CS: Yes. Installed pipelines. We installed some pipelines in Eugene Island 128 and several places.

TP: Now, Shell didn't have its own lay barges?

CS: No.

TP: They contracted with Brown & Root or McDermott?

CS: Generally, yes. Brown & Root, McDermott. We had none of our own equipment.

TP: Was Shell Pipeline involved in any of these?

CS: Not those. Not then. Shell really didn't have pipelines coming to shore. We pretty much . . . well, except in limited areas and everything; whereas Humble had the Grand Isle facility . . . well, except for East Bay, of course. They had all the pipelines and everything coming into the big shore facility at East Bay, but they really didn't have the big onshore terminal stuff until much later, is what it amounts to.

And then, I was Project Engineer on Eugene Island Block 100, which was a fairly shallow water development.

TP: It was a pretty dangerous business to be in at this time, wasn't it?

CS: Oh, not particularly.

TP: Getting on and off the platforms . . . did you have to go out?

CS: Oh, yes.

TP: I think Sam Paine told me some stories about it could be rough kind of getting loaded onto the platform.

CS: Oh, yes. The platform . . . I remember being out, in one case, out in Ship Shoal, I guess installing the well jacket or something. Well, we couldn't get a helicopter to get back, and so we finally got somebody else's boat, Brown & Root or somebody's boat, and it took us about 12 hours to get into Morgan City from out there.

TP: By that time, you must have been pretty seasick!

CS: Yes, boy, it was bad! Of course then, there were no helicopters being used. You generally tried to go by helicopter if you could. Of course, now, the helicopters are a lot more available than they were then.

And so then I was in the Marine Division then until, I guess it was like about the summer of 1960, when I went to the design group.

TP: Can you talk about how the design group was created and what the impetus was, how you got selected for that?

CS: Well, the actual design group, I guess, was actually started, I don't think it was in existence when I first went to New Orleans, but I guess in 1957, somewhere along in there, they started the design group. And I think the realization that they needed a specialized group to design these structures, they were getting more . . . whereas, when I first went to the Delta Division, the engineer was supposed to design the structure as well as . . . having never seen anything like that, it is kind of hard to do. As technology improved and things like that . . .

TP: There were no models for you to work with?

CS: No. Of course, it was all done by hand then. There were no computers available to do that type of thing. So, the design group started, I think, along about 1957, with the idea that we needed the capabilities to design these . . . as we were going in deeper water, more complex . . .

TP: Working on the subsea . . .

CS: Well, no, the design group was not . . .

TP: It was mainly just the drilling?

CS: Or just the structures, just the development structures.

TP: The fixed structures?

CS: The fixed structures.

TP: And then they developed the *Blue Water* and the semi-submersible after that . . .

CS: Well, that came along in the early 1960s. They set up that group to develop that subsea drilling system with the *Blue Water*, which was, to an extent, an outgrowth of some of the early work done in California, but back in that time, there was almost two entirely separate Shell companies as far as E&P is concerned -- the one in California and the one . . .

TP: East-of-the-Rockies?

CS: Yes, East-of-the-Rockies. And they were just entirely separate . . .

TP: But there was some communication? They first started looking at the deepwater drilling in California?

CS: Well, that is where they first started it, and the systems they used. But the systems that they were using were mainly . . . they weren't looking to go out to the

much deeper water, and they were much simpler systems, in a sense. Well, the Molino gas seal that was developed out of there was just a conventional wellhead. And one of the deepest water developments that were done for years and years in like 200 feet of water. But it was just offshore. And so, it was not the remote systems, in a sense, that were being developed with the capabilities with the group of the *Blue Water* group.

TP: So then, when you came to the design group, what were you assigned?

CS: Well, the first two years, I was just doing the concrete compressor platform in East Bay, and just miscellaneous structures. And then, I guess, along about 1962 . . . well, the big lease sale, I think, was in 1962.

TP: That was when they first did the area-wide leasing.

CS: Yes. And Shell got a huge amount of acreage. And then, of course, they got a big jump on everybody with the *Blue Water* system and all. And so, then I started working on how are we going to develop these if we make a discovery? Because mainly, what the *Blue Water* group was really developing at that time was the capability to drill exploratory wells. And so, then, what would we do if we actually made a discovery? So, that is what . . .

TP: Three hundred feet of water, so you had to contemplate what kind of structure you could conceivably build.

CS: That is what this is.

[PAUSE]

TP: So, this is what you worked on?

CS: Yes.

TP: "Report: Economics of Deepwater Hydropressure Exploration and Development Drilling?"

CS: And really, primarily, what it is, is justifying the system of drilling and abandoning all exploratory wells and then doing all development from platforms.

Prior to that time, in shallow water, if you drilled a well and made a discovery, you would just complete it and then, you know, wait and try and design facilities and things like this. But in remote, deepwater locations, the real question was what were we going to do? And so then, an outgrowth of this study was really this . . . I guess we in Shell were the only ones . . . Well, it was fairly obvious later

on that everybody realized that we were drilling exploratory wells for probably one-third of the time compared to the average. After I went to work for Exxon . . . I forgot what it was then . . . Esso Production and Research Company . . . I saw a similar study that Humble had done, and their drilling times were probably three to four times greater, and the cost of drilling exploratory wells was much greater.

TP: So, they would do initial field development still from floating or mobile rigs, and you were moving forward doing it from self-contained and . . .

CS: Well, doing it entirely from platforms. In other words, just drilling . . . well, in East Bay, we developed and kind of grew out with mobile rigs. And we had so much acreage in remote locations, you just weren't going to be able to do that. So, really, what this was . . . you could drill and abandon all the exploratory wells, and then re-drill the well from a platform at less cost, so you really weren't losing anything. As a matter of fact, you were gaining.

TP: How did design considerations change going up to 300 feet from, say, what were you working on in East Bay? Twenty to fifty feet, somewhere in there?

CS: Well, I guess East Bay went out to maybe 60 feet, and the old South Pass Block 42 platform was in about 70 or maybe 80 feet or something like that. So, really,

the study focused on shallow out to 150. And then from 150 to 300, we were looking at ways to maybe put storage in a platform. That was always a big question, too, is what were we going to do . . .

TP: With all the oil.

CS: What were we going to do with the oil because there, again, they were in remote locations. We wouldn't have pipelines. And, again, when Humble, they kind of restricted their exploration and development back in those days to places where they could tie into that Grand Isle pipeline system. And they weren't willing to go explore elsewhere almost, just because of the limitations on what they could do with the oil. But one of the things we looked at was ways we could store the oil. We developed a structure that had storage underneath the structure, and some things like that, which we never used, in retrospect.

TP: You just ended up tying in pipelines eventually, right?

CS: Well, what they did is put storage on all the platforms initially, and then just sent barges out and got the oil and brought it back. Of course, they were doing that for years in a lot of the fields off Eugene Island and places like that.

TP: I guess the pipelines didn't move out to deeper water as fast as the platforms.

CS: No. And, of course, when you had a discovery . . . one of the things everybody was always concerned about, during . . . I don't know when the "Blue Water" actually started . . .

TP: In 1962, I think.

CS: 1962? And the first, oh, year, to year and a half, they really were not very successful. But everybody was always concerned about what would happen if they made a discovery. Of course, the vice-president Bouwe Dykstra was there and everybody was afraid that he was going to say if they had a discovery, you know, go complete it and start producing it. Nobody knew what they were going to do. And so, that was part of the justification for the study that I did, was really to justify, primarily to him and everybody else, that we could abandon the well and re-drill it later from a platform. And, of course, they really didn't make any discoveries, I don't think, on that acreage until, well, maybe late in 1963.

TP: Were these mostly self-contained or were they platform tender types?

CS: Well, both self-contained and tender, but an outgrowth of that study was also the drilling system which became company rigs, I think it was 10 and 12, which were the platform rigs. That was one of the last things I did before I left the design

group after the study, was involved in putting together those . . . I think, was it 10? I don't know, I have a hard time . . . but there were two company platform rigs -- one was a converted land rig, and the other was a new rig that we built. So, that was kind of an outgrowth of this study, too. And then, later on, well, by the time Shell had made the discoveries in 1964 and 1965, and although this study recommended, you know, going to tender platforms, by then, they developed the eight-legged, self-contained platform and had the rigs and everything, so there was no reason to really try and go to the tender platform. And that system stayed pretty much the same well into the 1970s.

TP: So, what were some of the other special design considerations? Were you working on waveloads and soil problems, all those range of problems?

CS: Yes, those things were always there. Of course, then I left the design group and came over to Houston here in 1964 then, early 1964. So, I kind of got out of that, all that business then. So, I really wasn't that much involved in what became of South Pass 65 and all those things, all their big fields, big discoveries.

TP: Right. They got in the 1962 lease sale, right?

CS: Yes, right. And they pretty much led the industry, then, in development of those eight-legged, self-contained platforms.

TP: About this time, Ron Geer and Bruce Collipp organized a school for industry . . .

CS: Right.

TP: . . . to bring other companies up to speed.

CS: Well, they sold the system then, and Humble bought . . .

TP: Licensed . . .

CS: Licensed, yes. Humble bought into it.

TP: Why did Shell decide to do that?

CS: Oh, I think the realization that it was going to get out to the contractors and everywhere, so you might as well . . .

TP: Might as well make a little money . . .

CS: . . . make a little money off of it and probably then, you will probably develop the capabilities, increase the industry capabilities anyway.

TP: You bring the contractors up to speed. You are going to need to use them anyway.

CS: Yes, so there really wasn't any reason not to go ahead and do it that way, in a sense. And, of course . . . everybody in the industry had been trying to develop the subsea development systems for 20 years. You know, for 20 years, those people were telling the structural people that they were going to replace us.

TP: It just wasn't economical for especially larger fields to drill multiple wells?

CS: Right. And, of course, now, in the last five years, it has really taken off, but prior to that, just the costs were so high, and you were limited in productivity and a lot of things. There are a lot of problems you get into. In Louisiana, the paraffin. And the front line tools and all the complications you get into. Of course now, what they are getting into with the big flow rates and things like this . . .

TP: In really deepwater.

CS: In really deepwater. It is making a lot more sense now.

TP: So, you moved to Houston? How long were you in Houston, and what did you do

in Houston?

CS: Well, I was project engineer on "Buccaneer."

TP: Oh, really?

CS: Which was the offshore . . .

TP: The gas line?

CS: Yes, on the gas field, the gas line and all that business.

TP: What was the name of the pipeline?

CS: Blue Dolphin. It went into Freeport.

TP: What was the "Red Snapper?"

CS: Well, there was one other . . . what was it? "Black Marlin" or something, came in from High Island area. It was later. I think it was the "Black Marlin." But the "Blue Dolphin" was the one that went into Freeport to a chemical plant there. So then, I was involved in that until the middle of 1966, when I went to work for

Exxon.

TP: Are there any highlights from that project that you want to talk about?

CS: Oh, nothing significant other than what was then, conventional water depth, 60-70 feet of water. So, there really wasn't much . . . and, of course, then, Shell in New Orleans was doing a lot of this deepwater development. So, we were having, a lot of times, trouble getting derrick barge equipment and things like this, because it was all busy on Shell over there.

TP: Was there tension or jealousy between Houston and New Orleans E&P?

CS: I don't think so, not particularly.

TP: New Orleans was so much more active, and the offshore Texas didn't really prove to be as significant.

CS: No. But along about then . . . well, of course, initially, while I was in the Fannin Bank Building, it was more or less the Houston division, and it was just a small part. But then later on, they kind of set up a separate offshore group which stayed around for a while.

Gordon Sterling started working for me there in that particular group.

TP: And you were in Houston until?

CS: I was just looking through some stuff the other day . . .

TP: Is that for Pecten?

CS: Yes. I don't know if you've got those.

TP: We have them in the archives.

[PAUSE]

CS: This was another one I found. I don't know if you've got that one, too. That was . . . somebody sent me that from Louisiana. That was when they were, in 65, when they started going to put those deepwater platforms in the Gulf.

TP: I believe I have a copy of this. We have gone through all the *Shell News* and photocopied everything we could find. I think we might have, I do recall seeing this. These were the big platforms?

CS: Yes, the first really big platforms.

TP: 1965 . . . O.K. Did you work on these?

CS: No. Those all happened after I had left.

TP: Now, you were in Houston until 1966, you said?

CS: Until July of 1966, when I left and went to work for what was then Esso Production and Research Company. I don't know if you've run across the name Dick Howe.

TP: Oh, yes.

CS: O.K., well, he was division manager for Esso Production and Research Company then.

TP: He wrote a lot of the early technical stuff. I remember going through the OTC proceedings, and there are a lot of publications by him.

CS: He would work with Shell there in New Orleans. And then, he left and went to work.

TP: I didn't know he was originally from Shell.

CS: Yes. He was in New Orleans when I was there. And then, I guess, he quit and went in, oh, maybe 1962 or somewhere along in there, quit and went to work for what was called JPR, Jersey Production and Research, in Tulsa. Then, somewhere, 1965 or so, they combined what was Humble Research, which was here, with the Jersey Production & Research which was in Tulsa, to Esso Production and Research Company. So, that was like . . .

TP: That was based in Houston?

CS: That was based in Houston, yes. They shut down the research group there. Jersey Production and Research was kind of international; whereas Humble was for the domestic company. And so then, of course, knowing Dick, I went to work for Shell in New Orleans. I got in touch with him. I wasn't too happy with the way thing were going in Shell, so . . .

Oh, there were a lot of things starting to happen around the world, and Shell was pretty much limited to the U.S. then.

TP: Right.

CS: I got in touch with him and they made me a job offer.

TP: So, you were interested in working in other countries, with other projects elsewhere?

CS: Yes, elsewhere. So, the first two years, I spent most of my time working on developments in Australia. Well, and then came eventually Malaysia . . .

TP: So, you live in Australia?

CS: No.

TP: But you work out of Houston for these projects?

CS: Out of Houston, yes. Well, we set up a design group in what was then Esso Production and Research to design these structures for all these various locations around the world. So, we had that design group which started in, well, 1966, is what it amounted to. Designed those structures for them.

TP: So, Exxon had . . . this was its main design group in Houston for the entire world?

CS: For the entire world, right. That was probably an advantage that Exxon, or Esso it was at that particular time, had over Shell. Of course, they had two distinct groups that not only were very distinct but very . . . that Shell International and The Hague would almost do the opposite of whatever Shell Oil was doing!

TP: Wasn't much of the offshore technology developed by Shell eventually transferred and used by the Group for . . .

CS: No.

TP: So they were doing two different things?

CS: They were almost doing two different things, especially a lot of the subsea. They had developed kind of their own subsea system. It was very much they didn't want to use anything that came out of the . . . well, of course, a case in point is the UK North Sea, which was a Shell/Esso development. Still is a Shell/Esso development. And so, there were some Shell people that went over there and worked in that. Dean Cox was one of them. Shell was the operator. But, by and large, they pretty much used almost just contractors, consultants, to design the structures. In other words, in one or two cases, they got the Shell Design Group, but they really didn't have a design group *per se* in The Hague. Shell was set up with a system that gave an awful lot of autonomy to the local operating company.

So, by and large, they didn't do the design work in The Hague. The local companies did it, primarily.

TP: Was there a noticeable contrast between Esso, or Exxon, and Shell at this point in time? Was Exxon a much more centralized organization, do you think?

CS: Yes, probably was. I think it probably always has been, in a sense, except, well, from an international standpoint, that is true. Now, in Humble it was not the case. In other words, Humble really had their own design group in New Orleans first, and then, I guess in the late 1960s, they moved that design group to Houston, and they were in their building right next to us. So, we had two design groups there. Humble's was doing their structures and ours doing the international structures. We shared a drafting room, but there were separate groups. But we used, primarily, the same technology. And then, all the technical development stuff -- oceanography and a lot of those things, pipelines and things like that, was being done by EPR then. That was probably another advantage, I think, that Exxon had, is that when I started out there, I was in a group that was really a technical service group. That is all we did. We had a whole division that did reservoir engineering. Humble and Esso were probably known primarily as reservoir engineering companies. And that was probably their one area that they are stronger than anybody else. Everybody was trained as a reservoir engineer in Humble. And so, that was always the way it was. And so, they kind of downplayed the mechanical

aspects of things; whereas Shell had two separate engineering groups: the mechanical engineering and the exploitation engineering. So, that enabled the mechanical engineering side to work, to push the hardware side of it.

TP: At Shell . . . you are talking about their technical services? You are not talking about BRC, or are you? The Bellaire Research Center?

CS: Well, the Bellaire Research was more of what Humble research was. And the group that I was in really came down from JPR, from Jersey Production Research. And it was mainly a technical service group. And we used the technical groups, you know, for specialized areas, but primarily we did all the technical service work; whereas, Shell's, the Bellaire Research Center, was always just a pure research group. And people on operating companies always looked down on . . .

TP: The research group.

CS: The research group.

TP: I got the sense that . . .

CS: The ivory tower people . . .

TP: People in the field know what is going on, and a lot of the real innovations come out of the operators. And it is true, to some extent.

CS: Oh, yes. Well . . .

TP: Pure researchers tend to perfect things.

CS: Yes, and I know what I thought of the Shell Research Center group, and that is the way Humble people thought of what was then Esso Production and Research. Of course, they had their big engineering organization, so we didn't really do any technical service work for Humble. They did all their own work. But that was the way the operating companies always looked at the research group, and that is the way they always thought of EPR, as just a bunch of ivory tower people that don't know what is going on in the world. But that was, I think, an advantage Exxon had, is, from a worldwide standpoint, that we did have people with operational experience and could design structures and things like this for around the world, which I think was an advantage.

TP: How about the culture at Exxon versus Shell? Was there much of a change when you went to them?

CS: Really not . . . very little. Of course, both Shell and Exxon, which was Jersey, or

whatever you want to call it, were engineering-oriented companies. Chevron is pretty much the same. In most cases, top management were engineers. This was different from, say, Texaco, which was mostly business types. Or say, Gulf, which was mostly explorationists. So, it really wasn't that much . . .

TP: Chevron, Exxon, and Shell were really the technical leaders in the industry?

CS: The technical leaders, yes, pretty much so. And they are the ones that emphasized that particular side of the business.

Actually, from my viewpoint, where I was and what I was doing was not that much different than what . . . now, Humble, I think, was . . .

TP: A different story.

CS: A different story. It operated entirely different, I think, than just about . . .

TP: It enjoyed a degree of autonomy. Probably not the same kind of autonomy that Shell Oil enjoyed within the Group, but Humble always seemed to be kind of on its own.

CS: Yes, they did, pretty much. They had their own management structure, all their

own engineering organizations. But it was . . . to me, when I started working at Shell and everything, Shell gave the individual engineer an awful lot of responsibility and authority to just go do a job. And Humble was much more rigid and . . .

TP: Hierarchical?

CS: Yes, very much so. What they called the "operations manager" ran everything, and it was a much more controlled structure. The individual engineers I don't think ever had the amount of authority that the individual engineer had in Shell. I think there were some people in Humble that realized that, and they tried to make some changes in the late 1980s and early 1990s. With the downsizing and what happened in the industry and everything, it finally just went away. I think there were some people that were trying to make some of those changes, and they just never got made. I think a lot of people realized that they needed to make those changes.

Dick Howe, he actually went down and was working at Humble and Exxon USA for . . . when was he down there? He finally resigned. And then, he was president of Pennzoil, I guess, when they had the big battle over Gulf.

TP: Yes, right.

CS: No, it wasn't Gulf. When Texaco tried to buy . . .

TP: Pennzoil?

CS: No, Texaco was trying to buy . . . I can't think of the company. They got in the big lawsuit, and Texaco was . . .

TP: Yes, I am trying to remember . . .

CS: But anyway, he was president of Pennzoil. And then, not too long after that, he left then . . . I think they got that big settlement, and then they . . .

TP: So, you started in 1966 with Esso Production and Research. And you spent the rest of your career with them?

CS: Yes, 30 years. So, I retired the end of 1995.

TP: Mostly working on international projects?

CS: Yes. Essentially entirely on Australia, Malaysia. We got involved in Norway and the North Sea. We got involved in working with Shell in the UK North Sea. And

then, there were some people that were assigned from Exxon into Shell for some projects in the North Sea. And then got involved in doing a big project in Iran until the late 1970s. So, that was . . .

TP: You never did any work on the Gulf of Mexico after you went to Exxon?

CS: No. Occasionally got involved in some special studies, like in some load out studies for Lena Guyed Tower and some special studies on some of the developments in California, but that was really very minor. So, it was pretty much all 30 years, all international.

TP: And mostly offshore?

CS: All offshore.

TP: In depths ranging how deep?

CS: Oh, mostly what was then relatively shallow water. In Australia, we went out to 300-400 feet. In Malaysia, it was less than 300 feet. So, in most cases . . . in Norway, we got out in somewhat deeper and certain things, but it was pretty much conventional, what you would call conventional water depths.

TP: Well, is there anything else you want to add, any stories that you can remember, anecdotes . . .

CS: No, not really.

TP: The early period of offshore must have been exciting for you. You must have felt like a pioneer. Or did it not seem like that to you?

CS: No, not really. Of course, the offshore was pretty much ignored by the American Society of Civil Engineers It didn't become a major part of the technology thing until later on, well, until you got in the late 1960s, early 1970s. And, of course, along about 1958, they pretty much shut down in Louisiana.

TP: Right. There was a recession after Audrey.

CS: The only company that really . . . Humble shut down everything. They just moved everybody to Houston, just shut it down completely. And, of course, Shell, we had East Bay and that stuff going, so it was kind of . . .

End of Side A

Side B

CS: . . . Shell primarily, because I know we were building structures for East Bay and everything along Harvey Canal there, I would go down and we were the only ones that were building anything. A lot of the contractors went out of business.

TP: Because the East Bay fields were so prolific?

CS: Yes, right.

TP: They ended up financing further developments.

CS: Yes. But Shell, you know, East Bay provided the incentive to get into deepwater in the early 1960s. And they have pretty much stayed that way, you know, ahead of the industry, so to speak, on deepwater leases in the Gulf of Mexico.

TP: The strategy was to get the deepest water cheap and then find the technology to develop it.

CS: And they have done a very good job. And, of course, obviously, the "Cognac" platform was, you know, really quite an achievement. And then, the "Bullwinkle" platform also. So, I think Shell pretty much stayed ahead of the rest of the industry.

It was always . . . I guess, one of the concerns that I always had was that Exxon and Shell were both engineering-oriented companies, which, in a sense, makes the exploration side a little bit difficult, because engineers are just the direct opposite of the explorationists. The engineers are all pessimists, whereas the explorationists are all optimists. I was in a car pool in New Orleans, and we had about half engineers and half geologists. And you can't believe, just the entirely different way the engineers and geologists look at things! And in an engineering company, it is always difficult. Shell has done an exceptional job, I think, of working that particular problem probably better than any of the rest of the engineering-oriented companies have done.

TP: I assume the explorationists were allowed to do their thing.

CS: Yes, right. Well, of course, Exxon has tried to go that way with setting up Exxon Exploration Company, which is a separate exploration company. But I am not convinced that they have been that successful. So, a lot of our big production, you know, in the North Sea, was really Shell. And, of course, Exxon, or Esso, got into the North Sea . . . I don't know if you know what the story of that . . .

TP: I know the vague outlines of the . . .

CS: Well, Esso was going to let Shell into Cuba, and they were going to let Esso into

Holland. This was the trade-off. Shell made the big discovery in Holland, and that grew in the North Sea. And then, of course, Cuba ended up being . . .

TP: Not much happened there.

CS: . . . absolutely nothing. So, that was . . .

TP: I never heard that story.

CS: Yes. Of course, we got Australia because the former geologists . . . well, those leases down there were actually held by BHP, which is a big steel company in Australia. And their advisor was a guy named Weeks, who had been the chief geologist for Esso. So, he got . . .

TP: I see. So, that is how Exxon got into the offshore in those places.

CS: That is how we got that 50/50 operating arrangement with Shell. But I think Shell in the Gulf of Mexico has obviously done a really superb job of keeping their eye on the ball.

TP: Well, they are always pushing.

CS: Yes. And certainly, with all these deepwater tension leg platforms. Of course, I guess the one big thing that Exxon did was the Lena Guyed Tower, but that was pretty much late in the development scheme of things.

TP: Well, this is all good information. If there isn't anything else you want to add, we'll shut the tape off.

CS: I don't know. Do you have any questions or anything that would . . .

TP: Well, I think I have exhausted them. So, this is good.

THE END