MMS OFFSHORE GULF OF MEXICO

ORAL HISTORY PROJECT

Interviewee: RAY GALVIN

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Bio

A native of Cisco, TX, Galvin graduated in 1953 from Texas A&M University and joined Gulf Oil Corporation. In the 1950s and 1960s, he served in various natural gas production engineering assignments with Gulf, eventually in 1975 rising to district engineer in New Orleans. In 1979, he became Gulf's vice president of production, U.S. operations, and vice president of the company's South and East offshore division in 1981. After the Gulf/Chevron merger in 1985, he became regional vice president of exploration and production for Chevron's domestic oil and gas operations. He retired in 1996 as president of Chevron U.S.A. Production Company (a position he was elected to in 1992). A highly visible leader in the industry, Galvin was chairman of the Natural Gas Council and the Natural Gas Supply Association in the mid-1990s.

Summary

Good discussion of Gulf Oil's early production activities in offshore Louisiana. Mentions specific fields and blocks. Moves on to the marketing of natural gas, especially the corporate warranty contract with Texas Eastern in the early 1960s. Talks about gas pipelines and compressor stations, natural gas shortages of the late 1960s and early 1970s, 1960s lease sales, and his work in natural gas acquisitions to supply the Texas Eastern contract. Some information on platform technology and the impact of hurricanes in shaping industry knowledge. Some discussion of the Gulf-Chevron merger and the challenges of integrating the two organizations.

Side 1

TP: This is an interview with Mr. Ray Galvin at his home in Houston on January 29, 2003. The interviewer is Tyler Priest.

Lets start off with a little bit of your background and how you came into this whole business.

RG: I will start from the very first. I was born in Cisco, Texas, which is an oilfield town, a division point for Humble Oil and Refining Company. My father worked for them, and worked later in exploration and production as a field employee in various places in West Texas and New Mexico. And so, I grew up in oil field towns like Odessa and some others.

I attended Texas A&M and got a bachelor's degree in petroleum engineering in 1953 and went to work for Gulf Oil Corporation in Seminole, Oklahoma. I worked in Oklahoma and at Gulf's research lab in Harmarville, Pennsylvania for a total of one year and served two years in the Army at the tail end of the Korean conflict. I came out and went to West Texas to work for Gulf. Gulf had a number of term leases in West Texas, leases that were acquired in 1925 and had 50 year terms. They did not go until production ceased. They went for a 50 year term, which everybody at that time thought it was way more than you would need to deplete any reserves you found. Well, they had found lots of reserves which came out slowly. They were initiating water floods and considering tertiary recovery. And so, they were very active in trying to actively develop those leases.

I was there at a very interesting time. At that time, Gulf bought Warren Petroleum. Warren Petroleum became the gas processing and gas marketing on Gulf Oil Corporation, and they needed people to work on the interface between the production department and the Warren Petroleum processing, natural gas marketing as well as LPG marketing. I came out from being a water flood engineer to a job like that. First I was in Midland and then I was transferred to Houston in 1960.

It was in Houston that I had my first experience with what you might call offshore production in a gas platform we had down at Corpus Christi at East Mustang Island. I was in Houston five years as a district gas engineer working on gas contracts, gas marketing, the administration of contractions, installation of compressors, etc.

It was during this five years, between 1960 and 1965, that Gulf signed the contract with Texas Eastern, which was referred to as a corporate warranty contract. It was a contract for the delivery of 4.436 trillion cubic feet of gas over a period of years. That was unusual in that it did not require . . . It was a firm commitment to deliver this volume of gas, and it did get somewhat of a premium price over what the Federal Power Commission was permitting. But it had many additional obligations. And, of course, the premium price started out as a price of nineteen cents, which was a premium over this sixteen cents or seventeen cents that they might have permitted otherwise at that time.

The administration of that major contract and of contracts for the marketing of a lot of the natural gas which Gulf was finding offshore Louisiana. It was much more active than offshore Texas at that time. What we refer to now as the Middle Gulf or Central Gulf had been the most active area for movement offshore. Most of the Texas offshore movement was pretty minor. Most of what was being found over here was natural gas and there was not a tremendous market for the natural gas at that time. So, I was transferred from Houston to New Orleans, Gulf's New Orleans's district, in 1965, just a few months after actual deliveries under the corporate warranty contract with Texas Eastern were initiated. It was all coming, at the time, it was all coming from the Gulf with the option . . . and this was one of the advantages of the contract. You could deliver gas from anywhere you wanted as long as you delivered it at a delivery point which was right at Venice, Louisiana, right at the

mouth of the river.

At that time, in the middle 1960s and late 1960s, you had proration of oil onshore and in the bays, and even the federal oil. You had limitations on how much oil you could produce from given wells or properties. But because of the overall world oil market situation, and certainly the U.S. oil market situation, proration was becoming less and less of a limitation. They were permitting more and more production, and as they permitted more and more oil production, it caused the production of a lot more casing head gas. Casing head gas either had to be sold or flared, or you had to shut your oil in or curtail it. There were active efforts on the part of the Department of Conservation in Louisiana, on the Railroad Commission in Texas, and on the U.S. Geological Survey from the USGS for the offshore to reduce or eliminate those flares. So, you were cramming a lot of this casing head gas into gas contracts which really were, at that time, designed to allocate a purchase from a producer based on a 20 year depletion rate or even 23 or 27 year depletion rate.

Casing head gas came out a lot faster and created lots of difficulties. It created large flares, created lots of controversy between producers in the gas pipeline companies as purchasers. The warranty contract that we had with Texas Eastern gave us lots of flexibility to sell our casing head gas. We actually had one offshore field, or two offshore fields: South Timbalier 131 and 135. I believe that is subsequently called 131 and 151. We were under instructions to either substantially reduce the flare of casing head gas or shut the oil producing fields in.

We had an oil line to shore there at Bayou Lafouche and we were piggybacking using a three phase line to take gas in to shore in a line that had been strictly designed to carry primarily just oil. And then, we were separating and compressing some gas. But we were in the process, in 1965, 1966 and 1967, of laying, at Gulf's expense, lines from Venice out to South Timbalier 131 and 135 in order to get the flare out so we could produce the gas. And, of course, we could get some revenue from the gas we sold.

TP: The South Timbalier fields, where they older fields?

RG: They were probably . . . I am not sure. They might have been a little bit before, just before the 1962. But probably got some of them and some additional leases in 1962 because although they were beginning to get fairly well-developed by 1965. They were new, but since I didn't get over there until 1965 . . .

TP: There was so much acreage coming out of the 1960 and 1962 sales.

RG: There was a tremendous amount picked up. To digress a little bit, Gulf's big lead in leasing was occasioned because they had made an arrangement to get an early look at some of the geophysical technology that was used in the offshore seismic work, and that came as a result of the work on sonar during World War II. Some of that work was utilized. They made an arrangement with people who had access to that to

give them a very small override interest in properties that we leased in order to use that technology early on. That gave Gulf a big jump in the 1950s on understanding and knowing where some of the larger structures were. And so, they got off to a very big start.

In the very early 1960s . . . from probably 1955 to 1962, almost everything they drilled in the Gulf on some of the major structures was successful, some more than others, but they just had an outstanding run of success. And it was in that framework, and knowing that they had many other leases yet unexplored that had structures that looked the same, that they bit off big chunks and commitments to deliver gas. Unfortunately, the success on some of those existing fields they had after 1962 did not continue in the same way.

Here is an example. The largest gas field that Gulf was involved in was West Delta Block 27, which was near Bastion Bay. Down below 27 to the south was West Delta 117, a deep-seated structure that looked with the technology that was available at that time, very similar to what Bastion Bay and West Delta Block 27 did. But when it was drilled, it was primarily all oil, and it was much more faulted and chopped up. It was a very big disappointment. The disappointment got even more so when there was a fire on one of the platforms, and when it was replaced, Hurricane Betsy came through. The center of it came right over that field and destroyed a couple of platforms. But it turned out to be, with advancing technology, an okay oil field but not a great oil field.

TP: I remember Shell lost a platform in Betsy. The Bluewater 1 also ended up crashing into one of their platforms.

RG: Yes.

TP: Can you recall some of the other big fields, major blocks that Gulf had at that time? You mentioned, before we turned on the tape, some of the marsh areas.

RG: Well, of course, Gulf had been working since the 1930s in Timbalier Bay, starting in the west in Timbalier Bay. And they had substantial holdings in East Bastion Bay and West Bastion Bay. And then, West Bay. They had offshore holdings . . . Well, West Delta Block 27 was very close to shore, about 10 miles west of Venice, just offshore in the shallow water.

TP: Was that a state lease?

RG: Part of it was a state. It was on the Border between state and federal. West Delta 41 was a federal offshore lease just down a little ways from that. South Pass 27 was in federal offshore. It was being developed in 1965. It was fairly small. Across the river in the coastal zone was Grand Bay. Then, north of it, along the river, close to the river, was Quarantine Bay. It was right by the Ostraca Terminal which was a tanker loading terminal. And at that time, Gulf had tankers there that went to the

Philadelphia refinery. And then, on up on the east side of the river were the Black Bay fields - West Black Bay, Black Bay, East Black Bay, and North Black Bay - a family of fields that had considerable production. Those were the big ones.

One of the early offshore fields further west was Ship Shoal 154. Eugene Island 238 was an example of a particular field where it was very interesting to see the cycles of technology and how it was rejuvenated several times as different generations of seismic in 3D and drilling technology enabled us to learn more about what was down there and be better able to drill . . .

TP: Funny how a field can grow over time.

RG: Yes.

TP: This is good. I did not mean to interrupt your train of thought. You were talking about, I guess, the corporate warranty contract and casing head gas.

RG: So, the industry, from 1965 to 1969, the industry was moving into deeper water and at that time, deeper water was not very deep. I can remember the gas pipeline that we were laying to the South Timbalier 135, 131 and 176 fields, which crouched through, what they called the trench. I guess probably the deepest it got was 190 feet. It was back up a little shallower than that when it got to the other end, but in 1966, we got it laid and found we could not properly bury all of it and trench it in

accordance with . . . the equipment the contractors was using . . . When we would find a fairly hard bottom, and that is comparatively speaking hard bottom, the equipment could not handle that. And we had to wait another year to come back out and finish burying that line in accordance with the permits that we had. So, we were pushing the existing technology at that time.

Compressors were . . . I had mentioned that we were increasing oil production, and therefore, the casing head gas production was rapidly increasing. And there was strong pressure to keep the fires out and minimize the waste of gas. So the installation of compressor horsepower was a continuing challenge. You kept having to add to existing stations and put in new stations. And to put in the big slow speed, heady reciprocal compressors out on platforms had some particular challenges because of the harmonics, the weight, the harmonics in the spare parts or the maintenance of them out there.

In 1965, some of the first utilization of turbine compressors operated in series was successfully accomplished. And part of the reason that was sort of delayed until then was that if you operated turbine compressors in series and one of them shut down, if the others did not shut down essentially immediately, too, there could be a catastrophic failure in there. So we were enabled to operate in that way because some computer controls that could exist in that moist, salt air had been developed. We were able to operate them out there and really increase the speed with which we could get compression, greatly reduce the rate and eliminate some of the harmonic

problems that you would have with installing the compressors on there. So, that was a technology change that was occurring at that time.

As an historian, in watching the technology, in watching development on the Gulf, a person could just find . . . if they could find, well, I would say the Transco map. Tennessee made maps and some of the others, too, but Transco [Transcontinental Natural Gas], the Transco map was kind of the accepted industry norm that showed the blocks, the ownership blocks, and all of the gas pipelines that were out there.

TP: We have been looking for historical maps to get a picture, a representation . . .

RG: You could just see those fingers begin to move out from . . . in 1965 in South Marsh Island, that is the mother . . . South Marsh Island 23 and South Marsh Island 48 were two other Gulf fields, were gas fields. Ship Shoal 169. They all sold to Transco. They were in considerably less than 100 feet of water and that was as far as the pipelines had gone in 1965. They had not even gone to 48. It was just 23, I guess. You can just see that curve. I don't know if Williams Brothers, surely they have an archive of those old Transco maps because they've published them . . .

TP: I doubt it, but it is worth looking into. USGS had some good maps in Washington. I have looked at some of them. There might be some that are still left but I think they have thrown away some of those old ones. That is just too bad.

So, in the mid 1960s, is Gulf really starting to shift towards a new emphasis on gas in the Gulf?

RG: No. At that time, they would have preferred to have found oil. But having made that commitment to sell gas to Texas Eastern, and then they had compounded their need for gas because Texas Eastern was delayed in building their big main line down to getting certificates to lay that down to Venice. And it was going to be delayed a couple of years. And Southern Natural was there or could be ready to take gas much sooner. Gulf, along with what is now Exxon with Humble, made a contract with Southern Natural to sell them a portion of the gas from West Delta Block 27. And so, they could initiate gas sales earlier and get some return on the investment they had made in drilling those deep wells there immediately offshore. So, Gulf had not only a commitment for 4.436 trillion cubic feet of gas to Texas Eastern, they then had picked up, again, in about 1963, I believe, a commitment to sell their portion, which turned out to be about 62% of 1.25 trillion to Southern National from that one field. And then, along in that timeframe, after production began and after some additional development in some of the deeper zones, it turned out that the field did not have, while it was still a very major field, nearly the reserves that some people thought it had at first. Part of that was because, in some of the very deepest zones, which appeared to have some of the most production, it turns out that part of those zones had, I will call it a fresh water or much less saline water. It showed up on the logs used at that time, which showed up as gas because the regular formation, whatever you would anticipate, would show up differently. But

there are lots of arguments about how early that was known or how early it was suspected and whatever. But certainly, Gulf was very ambitious in biting off commitments for the sale of natural gas. But they were still trying to increase their production of oil.

It was by 1968 and 1969 that the overall natural gas business in the country began to turn around, and people began to recognize it. This industry had all essentially developed after World War II with the construction of the new pipelines, and the fact that the cost of the natural gas under the Federal Power Commission price controls was held to such a low level made, it was competitive with coal in many locations. And certainly, it was environmentally, operationally far superior. As a result, they ate up that surplus that had existed from all that time. When gas was discovered, the well was capped and left, and that surplus had been eaten up. Gas began to get in short supply and people began to see, by the late 1960s, that there was a pending shortage. It was in the very early 1970s that . . .

TP: A couple of cold winters . . .

RG: A couple of cold winters on the East Coast and particularly some of them where we had bitter cold in the Gulf of Mexico at the same time they had bitter cold in the east. And there was a shortage of natural gas, we had the congressional investigations, and some of us testified before the Federal Trade Commission. And some of the early laws about limiting use of natural gas for borrowing fuel and things like that

came about.

Of course, a watershed event occurred in 1969 in the Santa Barbara Channel, which had a profound effect on the Gulf. There were no lease sales until, I guess the first one was in 1972, after that.

TP: Yes, there was a moratorium, it might have been in 1970, but there was a suspension of leases . . .

RG: If they had it in 1970, it must have been shortly after or . . .

TP: I was thinking it was a state of Texas sale.

RG: Yes, I do not think the feds had one until . . . I think the first one was in 1972 after that.

TP: You went to New Orleans . . .

RG: I went there in 1965. I stayed there until 1975 but I had the job basically working on natural gas until 1968. And then, I had to move where I worked in production engineering, the production of oil and gas and just basically a more generic engineering job in 1968. And then in January of 1969, by that time, Gulf became aware that our commitment under the warranty contract was going to be very

difficult to meet - even among the people within the company who were the most optimistic about us being able to find additional gas. And drilling on some of the structures, really from leases secured after 1962 and before 1972, was dismal. And their success in drilling after 1964 and until the leases we got in 1972, on leases that we had already secured before 1964, it was just a real long dry spell of lack of success on finding new structures.

TP: The leases Gulf got in 1962, they were not that good?

RG: The ones we got in 1962, we got some good ones there but not all of them. The good ones were the ones they drilled, and I have to defer to some people that were there at that time to define that a little better. But certainly ones we secured in the lease sale in 1964 and other times were not successful.

TP: Then you had the international . . .

RG: Well, yes. And people said, "That is okay, we are going to develop an increased production." We had a production curve which was based on oil. It was named after one of our top corporate managers because he had put it out there and we did everything we could to increase that production and meet those production goals because that enabled the growth in corporate profits. It funded the investments in Bantry Bay and development in the Middle East that Gulf was moving its emphasis to.

In 1969, by that time, we saw that we had a problem. We had a sale, I guess it was in 1968, the West Delta Block 79 field. We went in and it was down. And it was a structure that was on trend with these ones that I talked about - West Delta 27, 117 and others. We went in. I sat in for the lease sale and for about two minutes, we had the highest bid that had ever been made on an offshore track out on the table. Maybe it was not two minutes. Maybe it was less than one minute because then they read the bid by what was at that time called the SLAM group - the Signal Louisiana Land and Exploration, Amerada and Marathon, and they topped our bid substantially. And they got the field, and they drilled the field. And it was successful. It was a fine combination oil and gas field.

I was moved to a job with Warren Petroleum where I was the manager of gas acquisitions. I stayed in New Orleans. I had an office in New Orleans and one in Tulsa which was where Warren's headquarters were. I traveled the country, and my job was to buy gas to go against the Texas Eastern contract and also buy gas for a refinery, for fuel for refineries. And we were building a new refinery alliance just below the river at New Orleans at that time. I was to buy gas for us to use at Port Arthur, our other corporate refineries, and our petrochemical plants. I was on that job not quite a year and then was assigned back to New Orleans as the district engineer. I was the manager of all of the engineering. And I stayed in that job for five more years. Well no, four years. I stayed in that job four years, and then I had a job as manager of one of the production areas - the one that was called East Delta.

And it had the Black Bay fields, Quarantine Bay field, Grand Bay field, and some other smaller on shore fields. So, I spent 10 years in New Orleans, 1965-1975, in those various jobs.

TP: That was a fertile period for offshore technology.

RG: It was, and one of the things that I was successful in doing, or we were successful in doing, was buying the gas from the SLAM group off of that field that we didn't get for the Texas Eastern contract. And we did it because we provided services and provided processing. They were very attractive terms. Of course, we were limited. You were in a competition where you were limited, as were the gas companies who were trying to buy it, too, on how much they could pay for the natural gas. So it is what other services could you perform that were of value to them that were not regulated by the Federal Power Commission that gave you an edge. And we were able to work that edge and purchase that gas.

TP: Can you talk a little about Gulf's research capabilities? I am interested in the research function in the departments in these companies. And seeing that Gulf had a pretty reputable research organization. I know Shell, Exxon, and some of these bigger companies, do you feel that it gave the companies an advantage in pushing harder for technology or pushing deeper?

RG: I think that in the 1930s, 1940s, and 1950s, that probably, as a nonexpert in it, but

my read is that in the 1930s, 1940s and 1950s, Gulf's exploration technology was one of the real leaders or way up at the front. I think I would have to say that after that, it would appear to me that while there were still some things that we did well, that we were not nearly the leader that we had been in some of those previous decades.

TP: What innovation came in the contracting industry.

RG: It began to go separately. At the time when 3D was coming out, we did some 3D and how it compared to the first generation of others as problematic but certainly it was very beneficial to us. But then, we were able to go back in another five or six years to the same place improved and look at it again and so on. So, we were learning and then the industry was beginning . . . later on, they got to the place where you realize that unless you had something that was going to give you a superfantastic advantage over others, it was better to jointly pay for some of this research because the period of time that you had available to use it to benefit yourself was usually not very long. And it did not pay to maintain all your staff and all the costs you incurred to do all your research on the sole basis. Obviously, some other corporations had a little bit different attitude about that, but I think as a whole, the industry moved a little bit in that direction. But that was maybe a little bit later than this first time period we are talking about.

One interesting thing in the technology that came in this 1969 as a result of the Santa

Barbara and some of the things that happened . . . in 1969, Chevron had the fire at Main Pass Block 69. And then, in 1970 or 1971, Shell had the fire at Bay Marchand. That, coupled with the things that had gone on with the situation at Santa Barbara Channel, led to, I believe, the USGS to impose some of the quality standards and quality of process checking and process testing and equipment qualifications that came out of the space program. I do not know how much other people that you have talked to, what they might have said about this, but I guess my impression was that we dug in our heels and fought that quite a bit as an industry. And actually, overall, it ended up being very good for us.

TP: Well, the safety record since those platform fires in the Gulf and Santa Barbara is quite good.

RG: Absolutely. To me, it is a prime example of where some things where the space agency pioneered or set out or established and gave us the ability to look at processes and look at equipment . . .

TP: I did not realize that the space program had that much influence on the USGS conservation.

RG: Yes, some way, some people said, "Hey, you should be able to and here is the way that these people attempt to assure that they do not have a catastrophic failure. Now, what can you do to be sure that you do not have a catastrophic failure?"

TP: Really, a watershed period, not just because of Santa Barbara but you had Hurricane Camille come through . . .

RG: Come through in 1969.

TP: The Offshore Technology Conference had just started so the industry was pretty willing to share some of its knowledge and practices.

RG: One of the other things that came out . . . I think Camille, a couple of those fires, and some other things that came out was that storm chokes were not effective. They were not as effective as they needed to be. The velocity actuated device to shut off the well if the wellhead was sheared off or otherwise compromised had been basically the only safety device they had, or the only one that was widely used and was required. It was very difficult to test, and it tended to cut out with production of sand which is certainly very common there. And so, it was at that time and with some indication that because of the problems as the allowables, that in 1969 or maybe 1970, the USGS said, "Okay, we are no longer going to prorate the federal offshore. You will go on an MER basis, maximum efficient rate." And it was supposedly the fastest you could produce a field without economic damage to your reservoirs or that formation damage to the reservoirs which resulted in loss of recoverable oil and gas.

End of Side 1

Side 2

RG: . . . efficient rates could be, and our producing people were being encouraged to produce the high capacity wells as fast as they could. And they began putting storm choke devices in there. If you had one in there that would not set itself and shut you in at the maximum rate that you could produce against, maybe 200 back pressure, that was too close to your setting for having a wide open flow. So you either had a device that was not too likely to actuate when needed or you had to encourage a field operating person to not necessarily have that storm choke in there. That created great difficulties. And it was at that time that the MMS required that we put the surface controlled subsurface safety devices in which we had a valve down below the mud line that was actuated from the surface, from some other pilots. That was not a volume throughput actuated device. That has been very helpful in accidents that occurred after that: hurricanes, ships running over . . .

TP: That was in the 1970s?

RG: That was also in the 1970-1971 timeframe. That was maybe 1972. This was all happening in one big swoop. And the triggering events were Camille in 1969, the two fires, the Santa Barbara Channel, and the fact that we were, at that same time, opening the fields wide. So, it was a period of fast ferment out there. We got the lease sales in 1972 and they were catch up sales. So, people really leased a lot of properties. I think the fabricating yards were ready to go to work and there was a lot of rapid . . .

TP: There had been a hiatus.

RG: Yes, backlog . . .

TP: A back log . . . the price of oil . . .

RG: Yes, you were getting to the beginning of some of the Middle East wars that created some encouragement there.

TP: Platform technology.

RG: Platform technology. 1972 Gulf, Chevron, and Texaco bid on some of those in South Pass 77 in the mouth of the river, and had significant discoveries in the

mudlump area right where the river dumps the silt. Chevron was a leader in platform technology. From my viewpoint, I would say Chevron and Shell were the two . . .

TP: They probably had the highest decks.

RG: Yes, they were the leaders in technology. They had people, and I am sorry I cannot remember the name of the one individual in particular who, from the late 1950s, were gathering information about sea states and wind states at a number of their locations. Hurricane Betsy in 1965 was a real revelation to a whole lot of the industry because the wave heights - they did a lot of what you would call "hindcasting" - going back and looking and seeing what the wave heights had to have been to create some of the damage they have and equate it to the known wind velocities and the data they had. And they came up with a whole new set of calculations about what you needed at various . . .

And Camille came through and gave us another four years later and helped, I guess you would say, fine tune that. Gulf had used a consultant named Wendall Netterman who was in Arlington to design their platforms. We put a lot in, in the early 1960s. When they actually went in, they were sort of designed with a 10-year life. There was not the degree of knowledge. In 1965, we were gathering data, wind and wave data off of those platforms. But we already had 100 platforms out in the Gulf that were designed not where they would be likely to last. And surprisingly,

more of them stayed up than you might have anticipated, but we did have to change our design substantially after Betsy. We just had so many already in, we actually went back on some and essentially put crutches on them. We put platform structures, tripod structures at either end of the platform to help support and give added support to some of those. Because we already had the wells drilled off of them. And it was something that we had to do.

TP: Yeah, well, people just did not have knowledge of maximum wave heights.

RG: Yes, and we found out that actually, water depth made a difference on it. And the extent that water depth made a difference, that it was a high wave and then a low wave. And then as you got even shallower, it could be a higher wave again, and then, a lower.

TP: That brings up the problem with mud slides, too.

RG: The mud slide, that was a very particular challenge with South Pass 77, those platforms, and we were fortunate to have Chevron as the operator, who had a lot of technology and [had done] a lot of work on that. They had the special mud slide design which made them much more expensive. And it was not a platform that our operating people enjoyed working off of because the civil engineers that designed it were more concerned about designing it in a way that minimized the possibility of mud slide damage to the hole than it did to the set up that your drilling rig would

have while you were drilling. But they were successful with those platforms, and our biggest problem was having the pipelines between the platforms and to the shore apart when we would have the periodic mud slides. And you could have mud slides created with a lot of these little winter storms. You did not have to have a hurricane. It was just periodically, that stuff was going to move as more of that sediment was dumped down the river. The sediment that used to be dropped all across the Delta and all across South Louisiana was channelized down the river and all dumped out there.

TP: So, you were in New Orleans until 1975.

RG: Then I went to Houston to be the production coordinator for Gulf for all of the United States. In 1975, we had extended some of the term leases in West Texas, and we had lost some of them. The Gulf of Mexico was still our major focus in the United States. We were doing exploration in the Rockies and in other places. We were down in South Texas, some of the trends have kept on down there. But still, a major part of our expenditures were in the Gulf of Mexico. And we were trying a little bit in Alaska and in the Santa Barbara Channel, but we did not have much success. And we early on decided that it was going to be so difficult to get permits to work offshore California, that unless it was going to be a world class field, it was not going to be economically feasible to be out there.

I did not return to the offshore. I went to other jobs. I went to two district manager

jobs, having overall responsibility. One was in Oklahoma City which looked after, from Oklahoma City, California and Alaska. And then, I went to Midland which was a much more focused area. In the Permian Basin, Gulf was a major operator or the major operator, had been, for many, many years. I was there until 1979. I came back to Houston. I had the title of vice-president of production for the United States. I had essentially the same duties I had had four years before when I was called a coordinator and there was a change. And then, I went back to New Orleans in 1981 as the manager of what was called the South and East Offshore Division, but still included the Bay fields and the offshore.

TP: So, this is right before the big area-wide sales in the Gulf.

RG: Yes, it was just about the time that was occurring. And Gulf was going through reorganizations because we were dissatisfied with our exploration success. We kept going through reorganizations. The question was whether you would have the top man over there who would be responsible for production and exploration, or whether you would have the top exploration man and the top production man who both reported to functional bosses in Houston.

TP: This was exploration in the Gulf or just in the United States in general?

RG: We were doing a little bit in the United States generally but the big bucks and the big focus was still in the Gulf. It was at this time that Gulf was working on what they

call Project Alpha, and it was the subsalt in the fairly shallow water. This was at the time then that the takeover attempts of Boone Pickens began . . . his initial attempts to take over Gulf. The explorationists, and again, this is kind of a lead position . . . they were showing there in the West Central Gulf, were seeing very dimly, then extrapolating a lot of that knowledge and saying that there are features down beneath this sheet of salt and there are some structures down there that could be massive and could be company makers if we can see well enough to pick some good ones. And then if we can meet the challenges of drilling through the salt and being able to keep the well bore intact and the casing intact, and then drill on below there. And so, we drilled.

The management bought into that, and we drilled, I believe, three wells, in that salt play. We called it Alpha play. We were not successful in that, and, interestingly, because we were not successful, this was part of the knock that Pickens and others put on Gulf. They did not have good ideas, exploration ideas, and were not successful at exploration. Now, it turns out obviously several years later that the subsalt play . . .

TP: You hear a lot about subsalt today . . .

RG: Yes, but we just did not have the ability. We did not have basically the computer capability and knowledge to be able to see below the salt as well as they see today. They were pushing the edge a little bit far, but you can go back and look at the Gulf wells that drilled in 1982 and 1983, along in that.

TP: Was Gulf looking at extreme deep water at this time? I know Shell was . . .

RG: We were beginning to look at deep water and we were looking at deep water. In fact, I can remember being at a luncheon. I was over in Houston for some meeting and there was some sort of gathering of young explorationists, geologists and geophysicists, and they invited some of the management to go to lunch and meet some of them and interact with them. While we were there, this young woman, an exploration geologist, asked the top gentleman named Mel Hill who was then the head of exploration at that time. Actually, I guess he was maybe president of the U.S. operations. She asked him, she said, "We are looking at some prospects," and I am not sure I can remember exactly what year this was but said, "We are looking at prospects in 1,200, 1,400, 1,500 feet of water, yet, when I talk to the production people there in the office, they say that they would never be able to produce anything that is deeper than 900 feet," or something. It was something less than that. He just looked at her and he smiled real big and he said, "You find it, they'll produce it." I thought that was very well said and I thought it was also kind of interesting that you always have to be concerned of that in your organization. You may have some people pouring cold water on some of the great ideas that people have because

they are not able to look out and see that progress continues to be made and will continue to be made.

TP: It seems that they were finding them, and if the fields were big enough . . .

RG: And actually, it turns out that they really do not always have to be as big as you thought they had to be. If you go out and you do not find the big one but you find two or three small ones in a fairly tight area, that sets you up, too. I guess there is one thing I have learned, and I think people still have to learn it: Too many times, we based our budgets and what we could do and could not do based on continued real growth and product prices for the oil and gas. And that is not a good bet. I have found that that is not a good bet at all. But there is a good bet, and that is that technology is going to continue to improve. And if you make your plans and make your bet based on technology, new technologies being developed and being applied better, you will make far better decisions than if you make them based on some anticipated real growth and product prices.

TP: That seems to be the story. In the Gulf of Mexico, you quoted someone saying the story is there has always been a race between the technology and depletion in the United States, postwar.

RG: Yes, it is Matthew Simmons . . . if you have not interviewed him, that is somebody who would be an interesting. Actually, Matthew has quoted me on that. I did not

get that from him. I got it from Mark Wright. Mark was assistant secretary of energy at the time. He made that in a speech. He was right. He is, I guess, head of the Democratic party in Texas now. He is back in private. He was an attorney. He was not really a technical oil person, but he was around. He had a good knowledge of oil. He is just a brilliant guy. Not Mark White. What is his name? Mark White was the governor. Bill White? I will have to get that name right for you.

TP: I think it is mentioned. Shell had big battles all the time over this question and there were people who just believed in their technological capabilities. And they believed in learning curves. And you will always be able to do it better the next time. And you can bring down your costs that way. Just incremental technological innovations, not to mention the real breakthroughs like 3D. But you have to have people who can work with it.

Can you talk about how you came through the merger with Chevron? What was it like in terms of joining these two organizations?

RG: I was in New Orleans and all this turmoil was going on as to who was going to take over Chevron, whether it would be Boone Pickens and some of his cohorts. In 1984, it ended up getting finally to the point after . . . We beat them back one time in 1983 on a vote, but they came back. And one of the major companies basically encouraged Boone and the people to get Gulf back in play. And they thought that one more time . . . They did not do it directly because that was not viewed as being

appropriate to go but they did it indirectly. This is documented in some of the books. And so, they got it back in play and the day before Mardi Gras in 1984, well, Chevron was the leading and was the winning contender, and Gulf sold to them.

I had been told earlier that year that because of the medical situation with one of the managers, that they wanted me to be prepared to step up to a higher level job in Gulf. And the chairman, Jimmy Lee at the time, told me that I might not ever get to be in that job because he had asked the people to come through with business plans for the next several years. And he had looked at those and said, "Even the one that I think is the most optimistic and yet, still reasonable, does not let me get the value of the shareholder's stock up to the point that some of these people appear to be willing to bid." He said, "If I do receive bids for higher than a certain dollar amount," and he told me what that was. He said, "I would feel, in the interest of the shareholders, I would have to sell the corporation." And I will just say that the amount of money per share that he ended up getting for the corporation was, I guess, substantially above that number that he thought was the best that we could expect to get the price up to. And he was not willing to try to preserve that as a company just to preserve jobs of the existing management and all.

And so, that happened and I participated in the merger team for the exploration and production part of the corporation. Kinder, who was later the chairman, was the one who was in charge of that for the whole corporation. He was a vice-chairman then. I had the opportunity to work with him and work with some of the management: Al

Martini, Larry Funkhauser, Glen Sherman and others in there. And so, I went over there basically as being regarded as a management potential person within Gulf, and I was given every opportunity to work that.

They set up a fourth region which was 80% here in Houston, to go with one they had in Denver and one they had in California and one they had in New Orleans. And they set a fourth one up in Houston, and it had 80% former Gulf people and 80% former Gulf production because of our big Permian Basin and some of the onshore Louisiana, Oklahoma and New Mexico stuff. So, it was a job to change the culture of this group. And they brought in a bunch of their good management people in a layer under me and it was a good chance to learn the corporation and work. We went through some difficult times.

In 1984 and 1985, we finally had a year of whole separate and got to do that. In 1986, the bottom dropped out of prices, and so we had to make another cut back and kind of survive from that. 1988 came and we had another price dip, and we had to go through another reduction. At that time, they promoted me to the . . . Well, I had moved in 1987 back to New Orleans. New Orleans was the place where the merger was head on head. Both of us were very big operators. And we both had large staffs, and it was about a 50/50 deal. So, I went back over there and was the regional vice-president there for 18 months. That was really Chevron's big operation, and I had a chance to run that and look at that. We had a whole new regime of seismic capabilities and 3D capabilities. We were going back and reworking fields. You were seeing more the subsalt . . . Chevron had not believed in the deep water.

TP: No, they did not.

RG: At the time of the merger, what they picked up was what Gulf had. And we even got rid of some of the deep water. They got rid of those leases.

TP: Why?

RG: They apparently just did not believe they could make it pay. I think a little bit, there was a concern about the quality of the sands out there, that that was not conducive to overcoming all the high costs and things. But that would be a good question to ask Larry Funkhauser and Al Martini, but I think Larry was probably a big one involved in that.

Interestingly, we sold an interest that Gulf had in Green Canyon 205. We assigned it, traded it to Tenneco's production group, and they had a discovery on that. Green Canyon 205, and it is about 2,800 feet of water, I believe, if I remember correctly. And they had a discovery on that. And in 1988, we bid on when Tenneco got out of the production business, Chevron bought all of Tenneco's Gulf of Mexico producing properties for $2.4 billion. So we got back, as a producing property. Well, as a discovery, we got Green Canyon 205 back which they had earlier acquired when they got Gulf and had traded away and got it back as producer. And it has been put on production in the time since then.

TP: We interviewed Joe Foster about all that at Tenneco. It is too bad because they were a very successful exploration company.

RG: Oh, yes.

TP: In oil and gas.

RG: Yes, they were.

Gulf had partnered with them in a lot of lease sales. If you would go back and look, you would see that Gulf and Tenneco had worked together and bid together in several of the Gulf of Mexico lease sales.

TP: I had not realized that Chevron had bought most of the producing properties.

RG: Yes, they had it in several packages. They had a Rocky Mountain package and some other onshore packages. But that one was the largest value package. It was $2.4 billion. And I think the next largest one was $900 million or something on another geographical group of their properties.

TP: So, did Chevron . . . I do not know successful they are in deep water now but did they finally see that . . .

RG: Yes. They were very ready, and we bid. Even while I was over there in subsequent sales we bid, and they are involved in several things. And if you look back and see, we are up in the top group, half dozen or so, of holdings.

You would have to kind of look at it year by year, but I think in the middle 1990s, we were probably in the top 5.

TP: Did Chevron, like a lot of the other companies, sell off a lot of the shallow water properties?

RG: They were selling it on a one-off basis. One of the things, I was over in New Orleans only 18 months in that time from 1987-1988. Then I went to California to run all of Chevron's . . . at that time, just the USA. Before I retired 9 years later, I was running all of North America, but I ran the exploration land and production for the U.S. We had still not . . . While there had been a continual effort to sell off the marginal "properties" from the middle of 1985 until even 1988, there was such a concern that we might sell a diamond in the rough and they had so many centralized corporate controls on the sale, that it allowed people to keep the properties. And production people hate to sell producing property. That is like selling one of their kids. And unless it is a really bad loser, they are going to want to hang on to it because the price of crude might come up and it will be economic again. All of these justifications. And it was causing us to be noncompetitive as far as operating costs were concerned because we had this typical deal/curve where something like 80% of our profit came from about 15% of our fields. And somewhere down about 50% of the fields, although they were the very small ones, were costing us money. And probably one-third of our total fields were costing us cash flow. So, I imposed a very rigorous sales regime on them and told them that they got to pick which fields they would sell. But I wanted to have, and I assigned to the offshore. I wanted them to sell, in 1989, $100 million worth of properties. I wanted to bring that much cash in. And I said, "During that time, you can come up and we can agree on where the actual cut point is on what kinds of properties we will keep and what kinds we will sell but we are not going to fool around any longer. We are going to begin to bring that in." So, they have never sold just so we don't get out of this part or that part.

There might be some very small geographic area but that is the way they have operated it subsequent to that time.

The one time we sold a large group of them was in 1992 when we made the trade with Pennzoil. Pennzoil had bought a bunch of Chevron stock with money they had gotten from their lawsuit with Texaco. And they bought a bunch of Chevron stock and had it. There was kind of a standoff about what was going to happen there and we ended up trading about $1.1 billion worth of what we called "Portfolio B." It was properties that we had decided were the ones that we were willing to sell and that included onshore, offshore, all around the whole U.S. And we exchanged that for the stock in 1992.

Also at that time, we moved out operating headquarters for the North American E&P here to Houston from San Francisco. We decided we could not be a low cost operator if we had our operating headquarters in a high cost area that was remote from the oil fields. And we had further decided that except for the San Joaquin Valley, we really did not want to spend . . . I was quoted accurately as saying I would not recommend to our management that we spend another dime for exploration offshore California because of the inability to get any kind of reasonable regulation there.

So, we were here from 1992, and I retired in early 1997. We were just continuing to try to explore, primarily in the deeper water and look at some of the subsalt but we

didn't do too much. Much of that had already been pretty well picked over by then, and while there had been some successes, I think the more successful parts had been actually in the deeper water than back onshore where we originally were working.

TP: The great story of the 1990s is how the major companies turned to deeper water, selling a lot of the shallow water leases to independents who used new technology to make money from these smaller fields.

RG: Absolutely. That is a normal progression, and I have had occasion to sit on witness stands and other occasions just in depositions and talk about that. Because of all of the properties that we sold over that period of time . . . And there has been opposing attorneys that have tried to take the position that the major oil companies would have sold that particular field just to get away from certain environmental liabilities that they might have caused or might have felt was going to happen and that is the only reason we would have sold properties. And I would just have to educate them about the fact that onshore and offshore, throughout the industry, there is kind of a life progression that, in many cases, has the large companies starting out and developing and producing for a long time. And then, turning that over, getting out of it economically and turning it over to someone who, because they are focused, who do not have all the overhead, because they have a focus in that particular area, because they are able to just really look at it in a different way, they are able to economically-operate and get much more oil and gas from it, then maybe we could, as a major company. And certainly the shallow water Gulf of Mexico, has been a major example of that.

TP: The incorporation of 3D which has been used very effectively in production.

RG: Absolutely.

TP: It is a great story. Well, I do not want to take up too much of your time. You have been very generous and very helpful. We can shut the tape off.

THE END