

PETROLEUM INDUSTRY ORAL HISTORY PROJECT
TRANSCRIPT

INTERVIEWEE: V. J. "Tip" Moroney

INTERVIEWER: Aubrey Kerr

DATE: October 1981

AK: . . . 3401 - 8A St. S.W. and today is October 15th, 1981 and I am about to interview Mr. Moroney, more familiarly known as Tip. Tip, could you tell me how you obtained that nickname?

TM: I inherited that nickname, you might say, from my older brother, whom I called Tippy when I was just learning to talk. Years later, when I followed him in university, there were people in post graduate there, friends of his, who immediately hung the name on me and I have lived with it ever since.

AK: Fine, thanks Tip. Where was your birthplace and when were you born?

TM: I was born December 17th, 1903 in Marietta, Ohio. My family moved to Oklahoma, in 1907, before Oklahoma was a state. So that I lived in the Indian Territories in Oklahoma for a short time before it became a state.

AK: You were saying Tip, that your father was a tank gauger with the Buckeye Pipeline in Ohio and this line ran from Toledo to Sarnia. Tank strapper, sorry. These were the old wooden tanks put together with staves and it required a little more than just gauging. The point that we want to develop now is, your father decided to move to Oklahoma in 1907.

TM: He went out in 1906.

AK: He went out in 1906 and. . .

TM: ???

AK: Right. One of the things that he seemed to like to do very much was write and with that in view he set up a newspaper. Now where was that newspaper?

TM: Father bought a newspaper which was already in existence, in Okmulgee, Oklahoma, which by the way, was the capital of the Creek Nation. These Creek Indians had been moved out from southeastern United States in the 1880's. My father went to Oklahoma because it was frontier country that seemed to be on the verge of a boom. Oil had been discovered in several parts of Oklahoma and he was interested in the oil business and he just decided that it would be a good place to look over. So he went out in 1906 and moved the family out there in 1907. When our family moved to Oklahoma it was my father and mother and 3 older brothers and myself and 1 younger brother. I have a sister who was born in Oklahoma after we had lived there for some time. So there was a family of 6 children. My mother was a little bit apprehensive about moving so far away, out into the wilds, into Indian country, but she went along with the move of course, and was really a pretty good pioneer mother and housewife. In a little community which at that time, I don't know what the population was but it was quite small. The couple of blocks of the downtown area, the so-called centre of the town, were board walked and the streets of course, were unpaved. They were just dusty roadways. There were lots of Indians there

and quite a few recent arrivals and a few people, old ranchers that had lived there for a good many years before. When the oil development started, it was of course, all cable tool drilling in those days.

#052 AK: Now Tip, you were explaining the sooner??? run, which involved untitled, unpatented acreage on the northern edge of Oklahoma. This had already taken place prior to your family arriving in Oklahoma but this did not alter the allotment of treaty land to the different nations, as you term it the 5 Civilized Tribes. If you'd like to relate that story about the Snake sub-tribe, which created a bit of a flurry in and around Okmulgee and also, tell me the year?

TM: The Creek Nation, along with the other 5 Civilized Tribes, who had been moved out from southeastern United States, and were occupying these various nations, they called them, they signed treaties with the federal government, under which treaties, instead of holding the lands communally, they selected individual 160 acre allotments, which could be chosen by the people who were already living on them, or selected them. These then were transferred from the communal holding to individual holdings, and the minerals and the surface were under the same title. The treaty was finally signed in 1908, it may have been the latter part of 1907 when the treaty was actually signed. The treaty with the Creeks was signed in Okmulgee at the Creek Council House, which was the capital of the Creek Indians. That old Council House is now a museum in Okmulgee. I was just about big enough to walk under a horse with a high hat on but I was there during the time when all these Indians were assembled at the Council House. The Under Secretary of State was out there to explain, along with some military brass escort, to lend some prestige to the occasion I presume. This treaty was signed by the Creeks, except for the fact that they had 1 clan of the Creek tribe which was quite rebellious and they were under the sub-chieftainship of Crazy Snake, Chekahochoe??? was his Indian name, which simply means Crazy Snake. He led this group and these people did not agree with the fact that the white man had any right, or the government, to divide the land, and they rejected it. As a result of their rejection when the time came for filing on individual pieces of land which an Indian might want to occupy because it was reasonably good farmland or because it was a place that he'd maybe lived on for a good long time, he did not file. So when his time was up, these people that filed were all on the tribal rolls of a certain date in 1908, and I don't remember exactly what that date is except that it was in 1908. Everybody on the tribal rolls at that time was entitled to a homestead or an allotment of 160 acres.

#109 AK: Very interesting experiences of your father was, during an abortive uprising of this Snake subclan, a chap rode into the town on a lathered horse and sent out the alarm that there was a bit of an uprising. So in order to try to communicate with the outside world, the only way of which was using the morse telegraph over in the station depot, your father was identified as being the only one around that could send a message this way, the station agent wasn't around. So he went over and they broke the window and got into the station and sent the message to the governor. The next morning a train arrived with some

cavalry, the horses in one car and the troops in another, probably militia. Then they headed south and by that time the whole crisis had evaporated. Would that be about right Tip?

TM: Yes, that's right.

AK: That would be about right, yes. One of these people that you were mentioning was ??? Barnett. He was a Snake, a very crafty individual. He wore his hair in the traditional fashion and wore the black hat. The courts declared him an incompetent and a guardian was appointed to look after his affairs. He wouldn't take any more than the rental that the rancher was giving him for the running of cattle on his lands. He chose not to take the royalty revenue. Tip, could you give me a little outline of your early education and the schools you went to in Okmulgee?

TM: I went to grade school and high school, 2 years of high school in Okmulgee. Then I went away to school in Atchison, Kansas, to St. Benedict's College, they called it. I finished my high school and took 2 years of college there. And then I transferred, at the end of my sophomore year I went to Georgetown University in Washington, DC, where I took my bachelor of science degree, majoring in chemistry and physics. I graduated in 1927 and went back to Oklahoma and went to work for the Carter Oil Co. in Oklahoma. Prior to my going away to university I had worked during the summers, even from my fairly young days. Am I going too fast?

#150 AK: No, I just thought maybe, first of all, if I could just... this is fine what you've got on there, that's swell. What I was wanting to develop a little bit was, in Okmulgee, as you were growing up and high school, how far away was the drilling? Was the drilling nearby Okmulgee?

TM: Yes, it was nearby.

AK: A few miles or...?

TM: Yes, just a few miles.

AK: So you got to know about the oil industry at that first hand. Then you became familiar with operations and with the cable tools and all that sort of thing.

TM: Yes, I could expand on my experience at Seminole just a bit maybe.

AK: Yes. The other thing that I'd like you to comment on is, when you graduated from Georgetown, there wasn't really anything in the form of what you might call a petroleum engineering corps.

TM: That's right. It was just about that time they started the petroleum engineering course at ??? State and at Oklahoma University but I didn't attend those.

AK: No, you didn't have the advantage. I think the other thing too is, if you could comment on, you might call it the state-of-the-art. You know, as you're going into Seminole, I'll just make a few paraphrasing comments.

TM: Carter Oil Co. was a 100% subsidiary of the Standard Oil Co. of New Jersey, which is now called Exxon. I might just step back a bit and say that in the days when I went to Seminole for the Carter Oil Co., engineers, like geologists, had to fight their way into the business because the old established operators looked...they considered these people sort of screwballs. If you could read and write there were 2 strikes on you. As a result of this

you didn't brag too much about having an education. You just simply went out there and proved that you could do the work to start with and then use whatever technical talents you might have to make the thing go. It took quite a long time to build up confidence on the part of engineers in the oil patch, as it did with geologists. They were all, all of us were crazy because we could, you might say, just were able to read and write. I started off, as I said, a few moments ago, as a hand in the gasoline department in this plant. Within a short time I was appointed, not necessarily because I could read and write but because I got along pretty well, to the chief engineers job in which I had charge of several plants. At the time I was given charge of these things I didn't even know where some of them were. I think there were 5 of them and we had a combination [tape turned off] time that gas lift or air lift came into prominence in the oil business. This was introduced by Mr. S. S. Shaw, who had been an engineer with one of the big mining concerns. He had been de-watering mines using air lift and knew that fluids could be lifted at a very high rate. He convinced some of the Standard of New Jersey directors that this would be applicable in the oil fields. He was hired by a Mr. E. J. Saddler, then vice-president of Standard of New Jersey, and sent to Oklahoma to see what he could do to increase daily production from the wells which Carter Oil Co. had in the Seminole field.

#218 AK: One could call the Carter Oil Co. as you might say, a front runner experimental arm of Jersey, as it was then known, and this came out also in Carter running its own seismic crews, even in Canada. But getting back to the Seminole field, there were several innovative procedures there, taken to optimize the extraction of liquids from the gas. The other interesting point that you mentioned Tip was that you shipped your tank cars of liquids to Sarnia. Trains went every day, is that right?

TM: Yes.

AK: If you could just outline that new procedure that you were developing in the south Seminole field?

TM: This experimental unit, which was at that time, called a deflecmator??? was really the forerunner of the reflux fractionation method, where the liquids that had been extracted by absorption or simply by pressure and temperature control, were run back through, over a bubble tower, where the pressure was controlled and the spray nozzle was distributing this stuff over the proper level of towers, gradually it eliminated, there was evaporation of the various light hydrocarbons, would come off and be eliminated, leaving hexanes and heavier, which was shipped at that time, with 88 gravity and a certain vapour pressure, which I believe was supposed to be 28 lbs. as I recall it. [tape turned off] of 4 people who were chosen to operate this experimental still and keep the necessary technical records so that we could finally make proper designs for the following [tape turned off]. I shouldn't have said we could make proper designs but the data we gathered was used in the design of subsequent units of [tape turned off] the same purpose. In those days in Seminole, the Carter Oil Co. shipped every day to Sarnia, Ont. 40 cars of crude and 20 cars of casing??? head gasoline. When I went to Seminole in 1927 I had been married just a few months before that to a girl whom I had known when I was in university in Georgetown. She was a Washington, DC girl and we went to Seminole and we lived in 1

room of a company house, which was occupied by a family. The husband of this family was also working at the Grissow??? plant, where I first went to work for Carter and they rented us 1 room in their home and that's where we started housekeeping and everything. Later, a few months later, we were given our own company house and I was transferred from the scaffolding department to the engineering department as a gas lit engineer, no sorry [tape turned off] the gasoline plant at Grissow to this experimental station which was set up on the Walkerwise??? lease in the south of Seminole, in the oilfield. [tape turned off] plant used for gas lift and gas casing head extraction. Seminole was a wild boom town, very rough and not an ideal place to live really. So we considered ourselves very fortunate to be able to rent this 1 room in a company house right near where I was working. I think the rent was of the order of \$10 or \$15 a month, my wages were of the order of \$125 a month as I started off. The quarters were rather close of course those few months we lived in this 1 room. But later on, I was given a company house in that same camp and I was able to keep that house even after I was transferred to the engineering department, a year or so later.

#318 AK: Despite the fact that there was an awful lot of waste in general in the industry, you were realizing more and more, that there was a need for maintaining reservoir energy and you were saying that prior to the initiation of the gas lift program, that the field was producing about 25,000 barrels a day. Some months later you had increased this amount to 95,000 barrels a day, mainly by installing gas lift. Although the concept of lift by a gaseous substance, air, had been introduced, it was abandoned because of the extremely explosive nature of a mixture of natural gas and air, which could blow up a gas plant. So you were instrumental in pioneering some of this gas lift work. Is that a fair summary Tip?

TM: I'd like to point out that in those days the equipment that we used was very often put beyond its rating, particularly with respect to fittings and the tubular products, the compressors and so were all of these mechanical things that were used around these lift spaces were very often used well beyond their pressure ratings. I can remember one instance where, as a gas lift engineer I was trying to get a well started that we had just put on the gas lift system and put the proper tubing and separators etc. in place. I was trying to start flowing this well, just simply by kicking it off.

AK: We'll turn the tape over.

Tape 1 Side 2

TM: . . . a high paraffin area, so I thought that the paraffin in the well and because of the fact that we were using gas lift we had these evaporation points from the well down into the, in some cases even down into the producing zone. Where we had cooling due to the expansion of the gas coming out of the tubing. This would cause some forming of the paraffin in the liners and sand face etc. as well as up in the flow pipe. So I decided that this well had paraffin in it and with the permission of the gasoline department, in the department where I had been and one of the plants that had been under my charge as a

gasoline department man, I pumped a lot of casing head gas right out of this raw, wild gas from the tanks at this small plant, into this well. I think I used something like 9,000 gallons of this wild casing head, 35 lb. vapour pressure stuff, liquid, into the well, to see if I could dissolve that paraffin. As a result I had the well full of oil and this gasoline. And this well was pretty hard to start. Mind you, the fitting etc. were inadequate for the kinds of pressure we were using. There was a 750lb. valve on the tubing. This had been installed before I got into the production, engineering side of the business. The system that we used was to put pressure on the casing, or on the tubing for awhile, and then reverse it and put it on the casing to try to get it to bounce and start. So this involved operating these well head valves. I walked up to the wells after it was working at about 1,200 lb. on a 750 lb. rated valve on the tubing. I went up to reverse this thing and I had hold of the wheel on the valve and was turning it and the gasket under the bottom of this valve blew out. It just simply filled the whole area with a lot of wild gas. But I finally got the well started, actually by pumping this wild fluid through it. When it kicked off, it turned. . .the lease just went off with a roar and there was too much flow for the small separator which we had mounted above the well sort of in the derrick. So we switched it then to a central, to a trap, which was a 9x30 foot separating tank, with about an 8" flow line. Then it went from there, into the lease tanks, a mixture of this oil and gas. The following day when the gauger came to measure and put the lease, oil on to the line, for pumping it away, as was customary he always took a sample. Dropped the hydrometer in it to log the gravity of the oil which he was taking. This stuff, being mixed with casing head was so light that his hydrometer just dropped to the bottom and broke the bottom out of it. The pumper who was there, a fellow of very limited education. what was going on around here and he said, he didn't really know but he'd seen some of them engineers fooling around over there and he knew that we had done something but he didn't know what.

#048 AK: This was a very hairy episode Tip. As you were explaining, just as you were about to wheel the valve, either open or closed, the gasket below the valve burst [tape turned off] the hell out of you, if that's the only way to put it. The well took off and the lines were still open to the tanks. But these tanks were filled in a matter of minutes. As you were explaining this thing I thought how important it was for you to have had experiences like this when you were faced with Atlantic #3, which we will get to some time in the future. Your experiences with high pressure equipment and equipment not being designed for the task certainly stood you in good stead, would that be a fair statement?

TM: That's right.

AK: Now during your time at Seminole, there was a Mr. Paul Lambright, who had been sent there by Mr. Saddler. In another taping session with Jonesy, Saddler's name was mentioned as having come up and visited Alberta. But at any rate, Mr. Lambright was a graduate of Annapolis and had taken a considerable amount of engineering, especially electrical engineering, so he was qualified to come to work in the Seminole field. As you were saying, Tip, he, along with you and most of the other Carter engineers, it was an unstated, or unwritten understanding that when you were hired that you would put in

some foreign assignment time, so Lambright went on to Sunatra and then, ultimately, many years later, he was in charge of the Canol project up at Norman Wells. We'll get into that later but I think it's wise to mention his name in here just in passing. But you followed his footsteps and you worked closely with him. In those early days you were saying that many of your compressors were powered by electric motors so Paul would have an input into some of that I'm sure. The Bessemer??? compressors and they were fired by lease gas. I think Tip, we would adjourn this session at this time, it's now 12:30, October 15th. We can resume at some time that we can arrange later so thank you for this opening session and it will be over and out.

#085 AK: This is Aubrey Kerr again, we are once again in Mr. Moroney's den at 3401 - 8A St. S. W. Today is Saturday, October 17th and we're resuming our taping session. Tip, you were telling me, before we go on to your other experiences, that as far as you know the Seminole field and the Wilcox producing sand was probably one of the first places where unitization was put into effect. Would you care to elaborate on this a bit.

TM: Yes. As far as I know, what Aubrey has said is correct. This community struthers??? as it was called then, the word unitization had not come into use. Carter Oil Co., with 2 or 3 other companies, put a property together for operation by the Carter Oil Co., under which they shared the production from several leases. It was called community struthers. It was in the central part of the Seminole field. This operation, I was the production engineer, under who's sort of care this thing came. We drilled one well and put it on gas lift, instead of drilling say, 3 or 4 additional wells. At the time I left Seminole it was still operating as a community or unitized property. The final results of it, I can't recount because I never was round in the later years of the operation.

AK: Tip, this was in 1929 and you were saying that the companies, even in those early stages were realizing that by not having to drill every location, that they could save a lot of money. This is where the economics come in. You were saying also, that the holes were drilled with rotary tools but were completed with cable tools. Would this have been a barefoot completion? In other words, did you run your casing to the top of the sand, or how did you complete the wells? Would you like to say a few words about the type of rigs and also the completion, just for the record?

TM: Yes, the rigs that were used were rotaries, steam, down to about. . .the Wilcox sand was sort of in the general order of about 4,200'. Casing was set above that at casing points selected by the well sitter, the geologist usually. Then the well was completed with cable tools and as a rule a liner was run. The derricks that were used in those days were a mixture of the wooden derricks, the old-fashioned kind that are put together with lumber and nails and the portable, or the more or less, erectable derricks, like [tape turned off]. They were either tubular sections, 8' sections, or there was one kind of a rig which was put together with 8x8 corners and turnbuckles. When these derricks were erected it was much like tuning a piano. The rig builder would go up and down tapping these turnbuckle rods with a hammer until he got the right musical note and he figured everything was all right. Now there were a great many accidents with these rigs in the early days. Almost throughout the history of oil well drilling there was a tremendous effort to get wells done

quickly. These fellows, a lot of the drilling was with fishtail bits, nearly all of it as a matter of fact was with fishtails or the old fashioned Simplex bits. Very often there would be some soft spots where the hole would be practically flat. So when they'd make a trip out, in the great hustle they sometimes would stick momentarily and the rig would squat. Then when it came loose it would jump and come all apart. There were a number of very serious accidents just caused by these, particularly these 8x8 corner derricks with the turnbuckles. Somewhere in the section, if the downpull had been sufficient to compress well enough then the jump would allow these joints to clear and they didn't all come back together fitting so the thing came down in a great heap.

#159 AK: This drilling by the rotary contractors was on a footage basis. Once the long string was set and cemented the rotary contractor would move his draw works out and the derrick would stay where it was and the cable tool contractor would bring his band wheel in and he would proceed to drill. This is not like a serviced rig completion. This came some time later. So you had the 2 phases and as you were saying, Tip, the hole was deepened below the casing and you were saying that a liner was run. Would this be a slotted liner?

TM: Beginning in those days, I believe, whether or not it was the beginning there was certainly a lot of experimenting with the slotted and drilled perforated liners. There were of course, many ideas that were tried out in those days with different kinds of liners that would resist corrosive plugging by iron sulphides, which in some wells was a considerable problem. When the rotaries were moved off and the derricks were left then the cable tool equipment that was put in consisted of a band wheel and a steam engine, a sampson post and a walking beam. The drilling was done just like in the very old fashioned cable tool days when they put this stuff altogether. Sometimes these standard fronts were left as a pumping unit, on wells that were not prolific enough to be put immediately on gas lift. They were used for swabbing and many of them, they were left there for several years or more, to handle the well instead of a modern pumping unit as we saw come along later with the ??? and all those. As I said earlier, the wells were usually completed with a liner because of the loose, poorly consolidated sands. Particularly where gas lift was used and the bottom hole pressures were considerably lowered and the velocity of course, from the surrounding formations were much higher, there was a tendency to carry in this sand and interfere with production and cut tubing and casing etc. So that most of the wells were completed with liners. These liners were run usually, on a tool which allowed them to lower them on tubing or on a line and then unlatch from them when they were at bottom. I believe though, in some cases, they were, as we used to say, run with a pocket knife. They'd just put the liner together the sufficient length and cut a piece of rope and let it drop. This was a pocket knife operation.

#215 AK: Just one interesting side light that you've just told me about Tip, and this is what you might call the equivalent of a medicine man coming to your head office and being sent out with some of these so-called, secret chemicals that would loosen up and dissolve the paraffin and get your wells on stream again. You found out that it was really nothing

but a mixture of carbide, which as you know, when water is poured on it, it generates a tremendous amount of heat and rock salt. But you were saying, that it never really did a proper job, would that be a fair statement?

TM: Yes Aub, as far as I was concerned and as far as I could tell from testing the wells before and after, we got no beneficial results from the operation. We tried it on 2 or 3 wells in order to find out whether it was any good or not and our determination at that time was that it did practically no good at all, if any.

AK: Now Tip, we're entering another phase of your career and that is the beginnings of foreign assignments. You were saying that there was an opportunity in Sumatra but because your wife was pregnant with your first child you felt that the timing on that wasn't good. The second proposal was generated, you might say, behind your back, after the visit of 2 Jersey affiliate managers from the Romania company to your field to see what gas lift was all about. Subsequently, they, without your knowledge, had asked that you be transferred to Romania. To make a long story short, your boss, Mr. Connory, in Tulsa, stated that Mr. Moroney is not ready yet. Now you were saying that the means of transportation over the 120-130 miles between Seminole and Tulsa was by car. By that time you had acquired a 1929 or 1930 Model A and subsequently got Mr. Lambright's Chevrolet which had the back trunk lid taken off and a small box put in there so as to carry tools. This is an interesting aside and would probably indicate your moving up through the Carter organization. The next, the most important visitor, in retrospect, you would say, would be Mr. Iddings, who was a geologist by background.

TM: That's right. Mr. Iddings was the field manager at that time, in Peru, and he was in the United States on vacation partly. He came to look over the Seminole field, particularly with respect to the gas lift operation which was really new in those days. All of the people from other areas were very much interested in finding out all they could about the way this gas lift was applicable, in producing particularly very prolific wells. Mr. Iddings, as Aubrey has said, his background was geology but he was the field manager at the time of this visit. I was quite impressed with him and he asked me if I would consider going to Peru as a production engineer. I told him that I would and then he developed it through the proper channels with Mr. Connory and the other people in the Carter Oil Co. and as a result of this, I did go to Peru in mid 1930.

#292 AK: Very interesting aspect of this Peru assignment was that you were in the employ of

a company known as International Petroleum, which had its head offices in Toronto, and which was a 70% owned subsidiary of Imperial Oil Ltd. Of course, Imperial Oil Ltd. was in turn an affiliate of the Jersey group. So you might say this was your first contact with Canada, but you didn't visit Toronto at that time.

TM: That's right Aub, I didn't go to Toronto on that trip. I sailed from New York on the 8th of August, 1930, on the Santa Maria, which was a Grace Line vessel. Went down the east coast of the United States and through the Panama canal and down the west coast to Polera, where I got off. My destination was Negritos, Peru, which was only about 11 kilometres from Polera, south along the coast. Polera was the port and the refinery. The

field headquarters, all the producing, the pipelining and gasoline plants, etc. were headquartered in Negritos. It was called the field headquarters. That was the residence point for the field manager and all of the producing and department employees. As soon as I began to get acquainted with some of the other passengers [tape turned off] I began to associate as I said, with some of the other passengers and I realized that Spanish was a very important and would be a very important part of my work and life in South America. With that beginning I took up a very great interest in the Spanish language. Having had some Spanish in high school and university, I had a grounding which I didn't realize at the time, would become so important to me as I got into the South American life. So I became very interested and from that moment I started really working on my Spanish.

AK: And one of your passengers was Mr. Harrop, who was a refinery engineer with the Jersey group, probably from Sarnia. He is retired and living in Victoria so he could be the source of some interesting South America stories. This is the end of side 2 of tape 1 so we will stop here and insert another tape, over and out.

Tape 2 Side 1

[a lot of static, hard to understand, also it appears this tape had been used before and for some reason the previous taping becomes more clear than Mr. Moroney's voice in spots and some spots where both can be heard but neither understood well enough]

AK: Side 2 of cassette 2 and we're back again, Mr. Moroney and Aubrey Kerr. Today is October 24th, 1981 in Tip Moroney's den. Could you outline some of the activities that you had, some of your responsibilities in Peru from the time you arrived there in 1930, through the years?

TM: I went to Peru as a petroleum engineer and had that spot for several years. In 1934 ??? back into the country in order to ??? a member of particularly prolific ??? fields. The pressure on the gas caps and the very prolific . . . and the high permeability of the reservoirs which is Peruvian sandstone made it almost impossible to get through those gas caps and into the oil leg with cable tools. With the rotaries we brought in this was the purpose of bringing them in. That first well that was attempted, this was of course, under the drilling department and pretty well under the hand and eye of Pete Stauff???, who was the assistant senior manager at that time. In drilling that first well, they burst a Terrence??? valve, which was on top of the well and shutting it in. It had been there for a number of years and at the time it went on there it was considered adequate and probably not possible to quickly get any kind of a properly rated valve for it. It was 1,000 lb. rated valve. This valve was broken by a surge and 2 of our. . . Pete Stauff was killed, died very shortly on the way to the hospital and Al Farmer, who was in petroleum engineering at that time. I had been moved from the job of petroleum engineering to a district superintendent and Al was in charge of the engineering department, such as it was, production engineering. Both these fellows were killed and it was a very great shock to the whole community of course, because we were so isolated. Al Farmer was a man who had worked with me and for me in the Seminole days. He had moved out to Peru a year or so before I did. Following this accident on that well, which fortunately, did not catch

fire,

#040 it took us about several days to get it under control. Part of this thing with the loss of Pete Stauff and Al Farmer, I was taken aback and given the first assignment was to try to make up a report for head office for official use, just exactly what happened, analyze the cause of the accident. Which I was pretty confident that I did find out really, what caused the blow-up of that valve on that well. Then of course, that scared all of our people right up to the Toronto headquarters. They wondered whether or not we should abandon the idea of trying to get into those holes. I told the field manager, Mr. Norcott, that I could kill those wells safely and turn them over to the rotary people or the drilling department absolutely deadly quiet and they could go to work on them. I could do that with people that I had there, a very small gang and that's what we did. I made up what we called a ??? for the small separator which we could put out on top of that valve and slowly, just basically, ??? oil and gas in the hole with properly rated mud. Of course, our big problem was loss of circulation in that very, very permeable Peruvian sandstone. So I made a ??? that I could put on there and dumped shale, ??? shale into the well and slowly let it go to the bottom and fill up all the pores so that I had a solid slab of dense mud and there was no water in the hole. So I got that stuff down to the bottom, it was an effective plugger for the porosity and then I put enough shale in the bottom to cover all the exposed sand. I was able to ??? with water first to displace the oil and the gas and then follow that up with mud. The method worked and so we killed all of these wells. There were some 5 or 6 or so immediately in the 6 mile stretch. We used that method then and killed all the wells that had to drill through, old wells that had been previously drilled with cable tools and then when we went to deepen them we followed that same method of killing them. We had many problems of course, but no further accidents of any consequence in these deepening jobs. I might diverge for a moment here and refer to something that later became very important in International Petroleum Co.

#083 [sound gets really bad here, reused tape]

#155 I might just say a little bit about the method we used to produce these black faults which had big gas caps. They'd been discovered, some of them, quite a few years previously but it had never been possible to produce them because of the very large amount of gas which would have been lost or had to be produced with them. So when we ??? them with the rotaries then, and put them on to production, before we started producing, except for of course, the initial test, before we started producing these, particularly 2 early blocks, the mile 6 and the section 16 fields, we had the plant set up and everything for completely maintaining pressure on the reservoir with gas. Maintaining gas to the gas cap and taking the oil out from below it. We actually had a number of wells which were taking gas at the surface and they were producing the oil from the same well, from deeper down in the zone, and some of these wells were producing very close to the desired gas-oil ration, in spite of the fact that there were, at the same time, points of repressuring or pressure maintenance gas. These ??? were completely pressure maintained from the very initial stages of production. As far as I knew, both of those reservoirs were completely engineered and operated, certainly up to that time that I knew about in any case. We did

this completely within the company. Of course, the company owned all of the surrounding area, there were no mixed interests in all that and there was no government for regulation or regulatory body to tell us what we need or how to do.

#182 [sound gets really bad here, reused tape]

#187 Later when the war years came along and we had to increase production, as long as we could maintain the pressure we were able to take large volumes of oil out of these 2 reservoirs. I might also mention that because we were producing those, particularly those 2 reservoirs, the 16 section and mile 6, not very much above the desired gas-oil ratio as near as we could determine it in those days, as a result of this the gas which was produced with the oil had a very high, it was very rich in pentanes??? plus. Of course, in the high range of hydrocarbons as well but we were taking something like 8-12 gallons per thousand cubic feet out of the gases which were produced from of these 2 reservoirs. This was a very valuable asset, it ??? was shipped, after stabilization and refractionation it was shipped as blending agents to many refinery points in the world. There was kind of a transition place, the Jersey company became very interested in doing certain things down in the Peruvian area. The field being very, very old and we were still using much of the old, or all of the old equipment and the older parts. But they sent some people down there to ??? felt we were not doing well enough by the national employees with respect to housing. I mean, this is a desert area, so one man that wangled a trip down there and he was part of the Jersey office at that time, came back and talked himself into being the head of a committee of some 5 or 6 people, including some outsiders in the way of architects etc. to go down there and figure out a new housing program and scheme for consolidating

#226 most of the people from both production and refining ??? and doing away with the Negritos camp. This ultimately happened. A plan of similar kind had been suggested and prepared by Mr. Ibbings 10 years before and had been turned down by the directors in Toronto and I believe a lot of that was internal politics. But when this man came down there and proposed this big bunch of changes in the way we were housing the people etc. I believe he was angling to ultimately get the job of being a general manager located in Lima. And with his political manoeuvring etc., it became quite apparent that he was probably going to be successful in it. When this became apparent, to me at least, I had an occasion to tell him that I knew what he was after and that when he got it I was going to leave the outfit because I would not work for him. We had some words, he thought that I was kidding but I wasn't. I could see coming the ultimate loss of the property by the way it was being handled and I think, what I attributed, lack of real knowledge about the Latin American attitude towards dominance by North American companies. He just plainly was going the wrong way and I didn't want to have any part in the loss of the property. I think I probably had too much of myself wrapped up into it. So I notified the people that I would not come back and when I was taking my next due holiday out of the country I was asked to come into the New York office by Mr. Larry McCallum???. He was coordinator of production at that time with the Jersey company and he asked me to come into New York and wanted me to go to Venezuela and I accepted the job immediately. ??? in Venezuela was assistant division manager of the western division of the ??? Co. I went

there in the latter part of 1946, I believe it was October, and I was there until the end of 1948.

#283 AK: Now Tip, you were just corrected yourself on that, just for the record we'll put it on the tape here that your assignment in Venezuela terminated at the end of 1947 and you were then transferred to Imperial Oil Ltd. in Calgary as of the 1st of January, 1948.

TM: At the time I went to Venezuela, by that time my children, a daughter and 3 boys, were all in school in the United States. As a result of that, only my wife and myself actually had to transfer to Venezuela. Then later of course, when I was transferred from Venezuela to the western division of Imperial Oil here at Calgary, on the way through the States we picked up 3 of the children and they came in to Canada with us. One boy was in school at the University of Missouri at Columbia, Missouri. The early schooling of all 4 of the children was in a school in Negritos which the company, International Petroleum Co. had for their foreign English speaking children. They had a school in Negritos and one in Polera. It took them to about the equivalent of 8th grade. One teacher teaching all of the classes, which there weren't too many at any one time. I suppose in the order of 15 or 20, perhaps a few more than that, in either of those schools. So they had of course, a little different. . . the schools there used the Ontario educational system and Ontario books etc. for grade school kids. There probably were some short comings in that the school system we had down there, because of the wide spread of youngsters who were taught by the same teacher. At the same time all of these children were living in foreign countries, doing a lot of travel and I believe that as a result of that, by the time they came up to Canada or the United States for their further schooling they had seen a lot of the world and knew a lot about how the world operated. Kids who had been through the normal systems up here never found out about until they were mostly out of university. Being a believer in secondary recovery and the fact that it should be applied from the very early, initial stages of a field, I was never around there to have much influence with respect to this but I did see the installation of a pressure maintenance program on one of the onshore fields in northern Venezuela. This installation was at Comuabo???, which is on the north ??? of Venezuela, in the western division. After this program was underway, I did not really initiate it, it was already in the program . . .

End of tape.

Tape 2 Side 2

Blank

Tape 3 Side 1

AK: It is October 31st, 1981 and once again, we're in Mr. Moroney's den and we're about to start side 1 of cassette 3. Now Tip, you stated that you had left Venezuela with about 4 or 5 weeks notice and you made your way to Calgary. I suppose that would be by ship to New York. You were saying that you had visited your children on your way to Calgary, is

that right.

TM: Yes, as a matter of fact, we brought 3 of them with us. We picked them up in the United States. All 3 of them had been in school in Tulsa at that time and they came here with us. The older boy was at Columbia University, correction it was Missouri University at Columbia, Missouri, not Columbia University. When we left Venezuela, I had ordered through the Creole??? purchasing department, I had ordered a Buick to be delivered to me in New York. We picked that car up and drove to Washington DC and then to Oklahoma and spent some time in Oklahoma, a couple of weeks or so, and then drove on from there with my 3 children and my wife through Canada, arriving at the border at Coutts on the 3rd of January, 1948. The first impressions of Calgary were actually very good as a matter of fact. It was not a really cold day, it happened to be a fairly warm early January, I later found out that this country was very susceptible to chinook conditions. We went to the Palliser Hotel where we stayed some 6 weeks or so, I forget just what the length of time was, while I was looking for housing and getting settled in with Imperial Oil. It was on Siddenham Road in Mount Royal, we bought this house from Al Smith who was at that time, a member of parliament and lived in it until 1950. In 1950 I moved to a new house in south Mount Royal and we're still in it today.

AK: So I remember Walker Taylor quite well and we must be clear that Walker Taylor and Vern Taylor or Vernon Taylor as Bunny likes to call him, no relation whatsoever. Walker Taylor was the general manager when you arrived in Calgary. You replaced Vernon Taylor who went to Toronto for one of his first hitches down there. He subsequently returned. But at that time your recollection was that Don Mackenzie was assistant manager. The offices were in the old Albertan building.

TM: No.

#049 AK: No, they were in where the Bay parkade is?

TM: No, in the Royalite building.

AK: That's right, you were still in the old Imperial Oil, Royalite building which sat on the southeast corner of 6th Ave. and 2nd St. S.W. This is where the Bay parkade is now and I understand the Bay parkade is going to be demolished in the next year or so. Underneath this office, on the main floor but facing out onto 6th Ave. was a filling station. These were pretty crowded quarters so you moved over to the Albertan building, at the corner of 9th Ave. and 2nd St., when was that. You moved over to the Albertan building on the northwest corner of 9th Ave. and 2nd St. which is still standing but it's also due to be demolished. There were 2 senior Carter officials that were already in Calgary when you arrived and these were J. D. Gustafson, who was an engineer, and Ray Walters, who was a geophysicist. Because Leduc had been found with geophysics the emphasis was very heavy on geophysical exploration to see if they couldn't find more reefs. These 2 people were very busy, I recall Dave Gustafson on many occasions coming up to Leduc when I was there, but could you outline as well as you can remember, the arrival of the other people who were sent up from Carter, such as Bob Curran and the others?

TM: Not too long, but I can't remember just exactly how long after I arrived they brought Bob Curran in as manager, replacing Walker Taylor, who went to Toronto as general manager of production. Also, around about that time or shortly thereafter Rex Dawson came as a landman, to the land, which we were just setting up on a pretty big and very active scale. Later on, Bill Friley came in, in the same line of business and was working under Dawson for some time and then when Dawson left the company, partially due to illness, and was out of it for quite a long time and then he finally formed up his own, went on his own as a promoter and land operator here in Calgary. Bill Friley took over the head of that land department. Those 2, they were . . . I can't remember any others who came from that. There was another engineer, a girl [tape turned off] When I arrived first in Canada I arrived as a landed immigrant. I'd never, until more recently I never became a Canadian citizen in the very early times. Partly because I thought I'd be probably shipped off to some other foreign operation sooner or later. I never, in my early days here, I never had any sort of feeling that the fact that I was an American was in any way resented. Of course, a good many people didn't know it and a lot of people did. I had the sort of facility of putting on an Oklahoma or a Texas accent when it fitted in with whatever I was doing, just as I had the same facility with regard to my Spanish speaking experiences in South America. I guess it's just imitative, some people had it and I think I had a fair share of that. Anyway, I was able, because of my ability to talk with the Americans, understanding how they operated, a good many of them who were coming into the country, especially the drilling people, I was able to deal with them and they dealt with me with considerable confidence. As I recall, I never had much of a problem in that regard. I also knew or had been told in a very roundabout way by somebody that thought he knew at least, that because I was an American that I would never become manager. Which didn't bother me particularly because I wasn't ambitiously trying to be manager in any case. The thought never entered my mind. I might mention here that one of my heaviest loads, I suppose you might call it, or most active areas, was in getting drilling done, both wildcat and development. At one time we had 55 rigs running, 10 of which were our own and the others were contract rigs. So I had a lot of dealing to do, making all of the contracts and agreements and things with the contractors. We followed their performance very closely as to how many days and times and how much day work etc. was involved in their performance. As the drilling time improved of course, the money they were making was also increasing at a considerable rate. So from time to time we would adjust these rates, having notified and discussed it with the contractors. We kept our records such that we could tell what the average contractor was doing and based on the average performance time and the money that he was making, we would adjust these footage rates, notifying the contractors that as of their next well the footage would be, the rate would be reduced to some new number. Usually a reduction because the improvement in drilling time was due to some extent, to our contributions, largely to the contributions that the company, our own through our engineering and close surveillance etc. we were able to contribute quite a lot to the time that they needed to complete a well. This meant that we were continually going around and studying ourselves as to what kind of performance they were giving us. By reason of having reduced the rates in any area,

which we did in every area in which we operated, including wildcatting, we were able to keep the costs per foot on a down trend. This was because of improvement in time. Imperial engineering and supervision contributed considerably to the performance so we thought we were entitled to discuss this with the people and we never lost a rig due to having cut the price. [tape turned off] Aubrey has suggested I put in here something about my past experience with company owned rigs. When I was in Peru all of the rigs which we operated were company owned. Prior to that, in the Seminole days, the company had, as I recall, practically all the rotary rigs that were operating and some of the cable tool people that did the completion work were company employees and the rigs were owned by the company in the Seminole field when I was there prior to going to South America. And in Peru all of the rigs which were operated at the time I went there, they were running about 25 cable tool rigs. We gradually switched over, a couple of years later and got rotaries back in and reduced the number of cable tool rigs, most of which were used on completion and rework wells. So that when I came here, Venezuela also had nothing but company rigs at that time in the Creole Co. When I came here I had to learn to deal with contractors and it was an entirely different sort of a drilling experience as far as I was concerned. As I said, at one period we had 10 company rigs operating and every time we had a budget session there were a lot of people from New York and Toronto that were raising questions as to whether we should be operating any company rigs or not. So it was a battle every budget time to prove the point that we should have company rigs. My stand was that I wanted it as a means of training and keeping enough drilling knowledge in the company to know what we were talking about from a practical standpoint. Carter Oil Co. had gone entirely out of company operated rigs some years before and Humble was down to, I think, one experimental rig used largely for research. All of the comment we got was that this is no thing that we need to be in anymore, there are plenty of contractors around to do it. But we needed to supervise them and my attitude was that if we didn't have people around that had done it and been on the job that we could not efficiently supervise these contract operations. At that time of course, when a rig went on to day work we had to look after it and be responsible for what they did because it was up to the company to tell them what the next move was going to be and we needed somebody with experience to be in a position to do that. I finally was backed down, more or less one rig at a time till I finally stood on 5. I can remember in a budget meeting one time when we were discussing this thing and Mike Hyder asked me how I arrived at that, why I thought 5 was the right number and I said, all I can tell you Mike, is that I think it's right because I picked it. One person that I would like to mention here, one of the very first people with whom I got acquainted and one of my very right hand man you might say, Charlie Visser, who was a very, very capable drilling man, known all over this country and recognized as being the main well man in the country. Certainly he had my recognition as such. He and I were very, very close. In the controlling of the Atlantic blow-out, Charlie was the. . . I doubt very much if we'd ever have gotten it done without Charlie. Certainly it would have taken a lot longer to do it. Charlie was the drilling superintendent when I arrived. He had of course, a number of pushers under him, Mac Brown and George Jackson and Joe Jackson. These fellows were sometimes assistant pushers etc. but going back so many

years it's a little hard to keep them really, all sorted out. But the old-timers were George Jackson and Joe Jackson and Kirkpatrick and Tubby Peacock and Harry Morris, Mac Brown as I mentioned before. Imperial in those very early days had the largest drilling organization in the country. We were the largest in almost every way as an oil company. From time to time we'd lose a drilling man to industry in general and there would be some people would have money available to finance a rig and it looked like an awfully good business to be in to some of them. They'd hire and form up a company and get, very often, one of our men would leave the company and join them as an operating man to do the actual running of the rig that they would set up. A couple of these fellows who were very successful later in the business, one was Archie Miller. When they came to let me know that they were going to have a rig and be in charge of it and asked about contracts I would say, usually I would tell them that we would be glad to see them go into business and hoped they had all the success in the world but after they were set up and in business, we'd always be willing to talk to them about a contract. But we wouldn't give them the first well. In other words, it didn't look like a good idea to take a fellow and help him get started in the business as a competitor because the game was becoming somewhat competitive by this time. Another one was Harry Webster, Macintyre and Webster set up a rig and they were very successful. Harry later going to Petrofina as their drilling manager. [tape turned off] ??? was very known all over the Alberta area and who was a very fine drilling man was Woodrow Wilson. When the organization for Leduc was set up he went directly into that to look after the development drilling in the Leduc area. He had a number of our old assistant pushers and pushers that came out of Imperial's drilling department and the old Royalite drilling department, to help supervise the rigs that were operating in the Leduc area.

AK: Now one item that we haven't touched on are some of the more prominent contractors. With all the scrambling and conversion of steam rigs to mechanical rigs and that sort of thing, one of the people that stand out in my mind as a very capable and aggressive contractor was Ralph Will. Could you make some comments about all the rigs that were in . . . well, that were under Ralph's ownership and some comments about Ralph?

TM: When I first arrived in the country, Imperial, as I recall, had 5 contract rigs working on letter contracts. Each thing was made up and we had no standard form contract at that time. This came along a little bit later. Ralph Will was one of the people who had 1 or 2 rigs working for Imperial at that time. He was one of the early drilling contractors that came out of the Turner Valley area for example, and moved up to do drilling in other parts. There was Cantex under Dick Harris and Denton and Spencer had General Petroleums. They had several rigs, I think 3 or 4, one of which was working for Imperial at the time I came. [tape turned off] say that one of the things that I realized when I first came here, the casing programs and the blow out prevention systems were very, very primitive. The most that you could expect to find on a rig would be a Hossmer type head which was obsolete already at that time but they hadn't come into Canada with anything much improved over that. There were a few Schaefer's around. Imperial had some mechanically operated Schaefer control heads or blow out preventors. Double ram, that ??? but Imperial had practically all of that somewhat more modern blow out prevention

equipment in the country. The contractors, practically none of them had it and they didn't even recognize the need for it. As a result we had a good many blow out experiences in the early days, particularly on the contract rigs because this Hossmer head was really not adequate. That was one of my early missionary chores was to make these, insist on improving the well head connections, the blow down lines and get all that stuff ready to be able to control a kick if we got one. This took a lot of crying and bleeding but we finally convinced them that if they wanted to work for us we insisted on having a little bit better means of controlling a well if we unexpectedly hit a gas zone or a very live oil zone or lost circulation.

AK: You were mentioning that there were quite a few blow outs. This was all part of gradually tightening up, both the regulations, through the Conservation Board and also, your own initiative in having to go out and hand wrestle these blow outs just by hard work and hopefully, that it would neither catch fire nor would it cause any loss of life. This was all part of improving the drilling programs, would that be a fair statement Tip?

TM: Yes. . .

End of tape.

Tape 3 Side 2

TM: . . . overcame the kick with the plugging materials and weight. Usually the weight was not a major factor because these wells were mostly, more or less hydrostatic, normal pressures. Many of the lost circulation things were caused by having over-weighted mud so that this was a problem. And it was awfully hard to convince people that Baroid was not all that effective in controlling the well. As a matter of fact, was the cause of a good many blow outs because the first thing that anybody would do when they were expecting a kick would be weight the mud and that just aggravated the problem. One man, Ralph Will, who was one of the early contractors with whom I had any contact in Canada contributed a very great deal to the drilling business in Alberta. He was a very capable man and a very tough organizer and he ran a very, very tight show. The equipment was largely, that was operating for us certainly, was old steam rigs which had been converted to mechanical rigs. There was a lot of chain noises and sometimes these rigs weren't the safest as far as operating personnel was concerned. But Ralph always made money with his rigs. He was a very fine man to deal with. In those days we made most of our deals over the phone with the understanding that as soon as both of us had an opportunity we'd settle the matter of ??? and all that. Because there were no sort of standard form for this at that time. My recollection of Ralph was that you could always depend on him. Sometimes we had to slow him down a little bit because he would always try to run that pipe in there so fast that sometimes it made it a little difficult to get the well properly cemented. He was a go getter for getting the job done and he had a very good record. One thing that we might mention about Ralph, after he sold his company to his employees and was, you might say, retired from the contracting business, the Korean War came along and of course, tubular goods, which had never recovered from the First World War shortages

became very, very short in supply. This was particularly to do with pipelining and well casing. Ralph was given the job by the federal government, I don't remember what the title was but he had the allocation of tubulars to the oil fields. He did a very fine job of administering that and cut through an awful lot of red tape. But my understanding is that he had his problems with the bureaucracy in Ottawa but I know none of the details of this thing. I know that as far as this area was concerned that he made a very great contribution towards keeping the industry moving along and the development of Alberta oilfields, particularly at a good pace. He had also with him, an old Haliburton hand, Dick Gibbon, who helped Ralph in as far as the local area was concerned. [tape turned off] leave the drilling business, I'd like to go back a moment to talk about Charlie Visser, who was known all over Saskatchewan and Alberta and the Northwest Territories by almost everybody that was in the drilling business as the Dutchman, he was always called. He'd had a lot of experience and was a very, very capable man as I said before. A lot of people came to him for help and advice with respect to problems that they might have and old Charlie was very open-handed and free with advising them as best he could. Charlie had a very keen wit and always had a reply to things. Sometimes it would sound very like he just pulled his answers out of the blue. I can remember one time on a well when we were running casing in a well in the Leduc area, as a matter of fact, it was one of the directional holes. The driller by the name or Wilf Boyer, who was working for General Pete, asked when we were running this casing, it was on a break and Charlie was in the doghouse and this fellow asked Charlie, how fast do you think a man ought to run that pipe, Charlie. His answer to him was, just don't run it any faster than you can think son. Another little story that kind of would reflect Charlie's wit, we had a directional man named, they called him Hick Curran, he was with the Homeco here and he was running the directional surveys on one of the holes that we were drilling to kill the Atlantic blow out. He had a new issue of Time magazine which was discussing the Arctic gear which was under development by a joint Canadian, American Army unit, it wasn't a unit. . . anyway they were jointly trying to experiment and develop clothing for the Arctic for military. They had arrived at some conclusions and it developed, in this article at least, it mentioned that compared with the Eskimos using the Caribou skins for Arctic wear and in that thing it mentioned that the Eskimo had used one skin with the fur out and one skin with the fur in, next to the body of the person that was wearing it. Hick Curran was reading this thing, half aloud, and he said, I'll be damned if I understand those guys wearing those furs inside out and he made quite a fuss about thinking that was kind of a strange way to do. Finally Charlie Visser said to him, well they probably tried it both ways son. Of course, the Eskimos had only been doing it for some 3 or 4 thousand years. This kind of convinced Hick that probably they did know what they were doing after all.

AK: Now one of the things that came up in our discussions over Gordon Webster, formerly of Home Oil and now retired, was the realization by you particularly, that there could be some form of certification of drilling personnel which would and could lead into unionization. This certification would be something to ensure, in the eyes of the bureaucrats that a certain person was qualified to do certain things on a rig and all he had to do was show his piece of paper. Now you were saying Tip, that you urged the

contractors to form an association of drilling people and they asked you to be their first chairman and you said that it wasn't your place to be in charge of this organization, it was their organization. Accordingly, the Canadian Association of Drilling Contractors was set up. One of the first key people in that was Ralph Binning. So Tip, you were the driving force behind the formation of this organization as I was saying. Ralph Binning was one of the several contractors and you pointed out to them the severe danger of being taken over by the bureaucracy so this is how the CAODC developed. Ralph had the liaison with the AAODC in the States because he had worked for Noble Drilling before he came up to work for General Petroleum and Cody Spencer. Now okay, the other involvement you had with organizations was with the then, expanding, Canadian Petroleum Association. I think the first name was Western Canada Petroleum Association and it ultimately became CPA but you were the first chairman of the first engineering committee that was formed. Did this engineering committee have an impact on drilling as well as production and safety practices.

TM: Yes, it had, particularly with regard to well control and safety. There were other aspects of engineering that were in the development stage too, like evaluation of productivity, capabilities of wells etc. were just . . . they got some discussion of course. Later on, but still in those very early times, we were reviewing some of the new regulations that were being introduced by the Conservation Board, particularly. The engineering committee, I remember, I was very, very opposed to some of the regulations that they were about to impose with respect to information on wildcat wells in the fact that they could demand that any test could be run or cores and logs could be run, because they insisted on it in some particular part. I was very much opposed to that, but we finally lost the battle. Because the big committee, or CPA or Western Canadian Petroleum Association as it was in those days, didn't back the engineering committee's stand. I guess for good reason, that they were going to lose it anyway. So they finally capitulated.

AK: Maybe just one last anecdote that ties Gordon Webster in with Bid Lowry and you and Charlie is the story that Gordon tells me about the casing in the Home yard up at Leduc during the time of the Atlantic blow out was that Red Goodall informed them that he was going to take that casing out of the yard which it turned out to be extreme line. Gordon said he had no jurisdiction or authority to give it to Red. Red said, well, if you aren't going to give it to us we're going to pass a law that will enable us to take it. It's quite probably from what you say Tip, that Red tipped you off to the fact that there was this string of pipe in the yard and that when the time came for you to need it you went over to see Bid Lowry, who you said was quite amenable to swapping some collared pipe which you had in stock with this extreme line because you needed all the help you could get to run this type of casing in the hole that didn't have the protuberances of collared pipe. I think on that note and we've left about 2,000 people out of this taping, that we'll conclude this 4th session, which has been most interesting and most productive. This is 12:15 on October 31st and I hope that we can resume this session in the spring when you return from Tulsa and we can get in to your later days with Imperial up to your retirement in 1968 and then your other careers and other assignments you were given, such as over in the Great Barrier Reef of Australia and your experiences in the Philippines and trips

back to South America. So over and out.

Tape 4 Side 1

AK: This is Aubrey Kerr and I am back once again in the home of Mr. V. J. (Tip) Moroney and this is 3401 - 8A St. S.W. Today is June 30, 1982 and the last session that we had I believe, was November. Since that time Tip you wintered in Tulsa.

TM: That's right. Had a very good winter in Tulsa.

AK: Good. And you're back now and I hope that you'll be able to stay with us awhile. We kind of jumped around a little bit at the last session but I was thinking that if we could get to Atlantic 3. You had arrived in Calgary, I think it was January 3rd, 1948 and you went to the Palliser and you stayed there and got a house on Siddenham Road. Do you recall with all the extra responsibilities you had thrown at you, and I'm sure most of that was the Leduc field, your first recollection of there being something amiss at Atlantic 3.

TM: The word came to me, I don't remember whether it was daylight or dark at the time but the day that the thing got loose I was made aware of it by, I don't recall just what the circumstances of that were. It was of course, a very great shock to the Imperial people, as well as to everybody else that had anything in the Leduc area, and to the public in general because when it really got wild. . . A lot of people didn't know what was going on, they knew there was a blow out in the field. I wasn't called on directly to take any part in controlling the well until the, as I recall it at least, until Ian McKinnon approached Walker Taylor and asked if Imperial could get into the act. Now, considerable time had run in the meantime with the operator and particularly with his drilling contractor trying to get control of the well. They had involved Haliburton and they had also involved Myron Kinley, who was at that time, the leading blow out control, so-called, expert. He was an old shooter, a gelatin shooter that got his start in, I believe, the Oklahoma, Texas area to start with. Being a shooter, he got the idea that he could snuff these fires by knocking it just with an explosive, utilize all the oxygen available to support the flame and in that short period the flame would be extinguished. The problem was to do it and not have it reignite from the heat burning material around. It was not quite snuffed like a log or a piece of timber or things of that kind.

AK: Just as an aside here Tip, just for the record, so that nobody would be misled. At this early stage the well had not yet caught fire but Kinley was there with the idea that he would try to regROUT the surface casing which, as we both know, was set at far too shallow a depth. This was his purpose. This was getting close to the point when you were involved, is that right.

TM: That's right.

AK: Yes. But if we could go back just a little bit, in the days before Ian phoned Walker, you were certainly aware, through phone calls that you would have with Vern Hunter, of the situation. Maybe you could expand a little bit on that.

TM: We had the word in, through regular daily reports, particularly with the phone conversations with Vern, to keep up informed with something about what was going on. The contractor, and/or the operator, I presume, by agreement between them, they had

Haliburton in there. A Haliburton pump man who had some considerable reputation and had had a lot of experience, which up to that time, was not too, there weren't too many people who knew too much about mixing these plugging materials and pumping them. But Haliburton had a man called, he was known as Cyclone Smith as I recall, was what they called him. He was up there with all the pumps that they could muster and mixing a lot of material, including feathers and other bulk things, and pumping as much of this stuff that they could do but it was just circulating and blowing back out because they had not controlled the flow from the well. The well meantime had cratered and was blowing out through crevices and coming to the surface over a considerable area. They had already built a boardwalk of sorts from the section line into the lease, some 1,300' or so, as I recall. This was the only access to the well. It as I say, continued to blow. It did not catch fire, of course, it did not catch fire for a matter of several months. But Myron Kinley had been brought in and at the time we took the well over Myron had frozen with, what's. . .

AK: Dry ice.

TM: Yes, dry ice. He'd frozen the well head and managed to get a hydro bag type preventor on the 10" casing, which was the only surface pipe. That surface pipe had been set not deep enough and it was only in the glacial till as a matter of fact. As I recall, it was around 275' and that was by no means deep enough to control the pressures that would be exerted on those formations from say, 275' to the surface. But he had put this hydro preventor on and this was subsequent to all this pumping that had been going on. The well was actually, at the time he put this hydro on, it was blowing quite a lot of material, oil and gas etc. producing at a great rate.

AK: Was the derrick still up then?

TM: The derrick was still up.

AK: It hadn't teetered over at all, it was fairly. . .?

TM: It was fairly steady and solid at this time. It was quite steady and solid as a matter of fact, because the cratering had not worked its way right back to immediately surrounding the surface pipe itself, at the surface. Let's stop this for just a minute. [tape turned off]

AK: Now one of the things that happened and there was no doubt, at Imperial Oil's instigation, through you and probably through some of the production engineers, you'd instituted a series of bottom hole surveys prior to your taking over control. You went around in a systematic way and this was developed in conjunction with the Conservation Board. Would you like to explain one of the valuable results from this survey and also, the injection of water?

TM: The survey was undertaken in order to determine what effect the blow out was actually having on the field in general. So using the Atlantic as a centre, the survey crew, Imperial's got started on it and then we got the Conservation Board survey crew was involved in it, and they ran a systematic system of surveying all of the surrounding wells. I would say, certainly all of the wells that were then closed in from production that were accessible to us and were able to establish the fact that there was a pressure sink developing around Atlantic 3. So we watched that grow and finally, when well 48 of Imperial's was prepared to receive water, we had, in the meantime, built a big pump station utilizing drilling equipment on the North Saskatchewan River. From that station

we pumped grade 2 water lines, two 4" lines from the river to well 48. Through that, we pumped about 3/4 of a million barrels of water into 48 in the period of something like 20 days. Later, this information that we got through this pumping, although it didn't accomplish the objective that we had in mind at the time we did this, it gave us some very valuable information on the reservoir and its ability to be flooded and the volumes of fluids and gas lost during the blow out. This did not succeed because the water, instead of going across on more or less a flat plain or pattern, and choking off the flow of oil and gas at Atlantic 3, it simply plunged into the aquifer and replaced energy which was being lost through Atlantic 3, through the production of oil and gas. After the whole thing was over and done and all this material was put together and engineering done on it we were able to determine that the production of oil and gas had been in the order of 200 million feet of gas a day and the order of say, 12-20 thousand barrels of oil a day. This of course, gave us tremendous information on the reservoir, the like of which I believe, had certainly not been secured in any other reservoir that I knew about at that time, or had ever heard about since. We had, I can recall that about the time we completely got this thing under control and operations back to normal, received for Imperial a good number of comments, favourable comments and complimentary comments from oil and gas consultants from the United States remarking on what valuable information had been gathered which would be later, of very great use in establishing a water flood system for the D-3 zone in Leduc.

AK: Now resuming back, and this is still before May, when you were asked to take over, you paid a visit to the field and you looked the situation over and you asked a couple of your colleagues to come up from Exxon to size up the situation and went out to look at the well. This would certainly be of some concern to Imperial because there was Imperial's equity running down and producing out of this formation. So you still had not made any formal arrangement with Ian but you were saying that you did talk to Ian. Maybe you could outline what you said to Ian before you signed up? That's Ian McKinnon by the way, I should mention that. I think he was deputy minister of mines and there was a John Harvey in there too, do you remember John Harvey?

TM: Yes.

AK: Maybe he was, was he deputy minister or minister?

TM: McKinnon was not at that time deputy minister, he was simply head of the Conservation Board.

AK: Oh yes. Anyway, sorry, I interrupted there but go ahead, tell me what the nature of your first conversation with McKinnon?

TM: McKinnon and I had a number of conversations with respect to what approaches might be made and what kind of equipment we'd have to ultimately get, to the extent that we could guess at it or determine it. Out of those conversations it finally developed that McKinnon seemed to think that because Imperial had access to more up to date and a greater amount of relatively modern drilling equipment, and also a force of people that they could call on, both for drilling and the support things, that Imperial would be most capable of handling this situation. And Imperial, through higher channels was approached by the Alberta government, Ian McKinnon for one and the minister of mines and minerals.

AK: That was Nathan Eldon Tanner.

TM: Nathan Tanner. Imperial decided, because of the damage implications that might flow from any effort to control this well that Imperial was certainly reluctant to just take it over on that basis. But the arrangement was made at that level to have me loaned to the Conservation Board to take charge of the well. Imperial at the same time, authorizing me to use all of the materials and people and facilities that were Imperial's and under my charge at that time as production manager of this division. So this was made in advance, and the well, by the time we took it over, which was as I recall, the date at which we were to take charge of the well was set as May 15th. It may have been May 5th, I'm a little hazy on that point now but I believe it was May 15th and the well had started to blow out sometime in early March and was terrifically cold. When we took it over it was right in the middle of, you might say, the early part of the break-up, so there was a terrific amount of mud to try to get around in at the time.

AK: Up to the time that you took over, Sammy Hector had been supplying all the contractors with water for their drilling needs. As soon as you took over you sidetracked a big mud pump that was on its way up to Entrance for the drilling of the Muskeg Well. And brought it in and put it down at the river bottom and used it, as I understand, to pump the water up to the Atlantic lease. But this didn't start until you took over the operations, is that right, Tip?

TM: That's essentially right. We not only used that large separate drive pump which we had brought for our own drilling operations but also several others which we had located on the riverbank on the North Saskatchewan River, in order to supply water to try to kill the well from the offset at Imperial 48. From that system we supplied water then on for the whole operation of killing the well, running the 2 drilling rigs which were drilling for directional holes. We had 2 rigs running, one south and one north of the blow out and we supplied water for that drilling operation and for all of the pumping for killing purposes, mud mixing and all that from that system. When we took the operation over for the purpose of killing Atlantic 3 we immediately made sort of a ring spot around the blow out, to catch all the surface oil that was being drained away from there, and direct it into the water pit which was located on the corner of the Atlantic lease in the northwest corner of that lease, where Sammy had a water reservoir which had a capacity of about, as I recall, something like 18,000 or 20,000 barrels of water. We put a connection through the dike at that point and set pumps below that and outside of that lease, in order to take the oil which was being drained by this draining system, into that pit and pumping it away to where ever we could do with it. Pump it into trucks or into the pump station line which was Imperial's gathering system for Imperial pipeline. This oil was, at about this time, was about the only oil being produced from the Leduc D-3, all the other wells having been shut in order to accommodate the market for the oil. All the oil the market could take was being supplied from the Atlantic 3 blow out. And of course, all of that oil couldn't even get into the market and we had to pump some of it back into another well on the Atlantic lease, just in order to have control of it. A point which was raised by a number of people, why are you pumping it back in there because it's all going to just come back out again and I said, I can't drink it and it belongs to the lease, until it's sold

and if we have to recirculate it that's what we do because I had all the oil I could drink at the time.

AK: Yes, and the market hadn't built up then.

TM: The market hadn't built up. It had to go out, either through Nisku, by tank cars at that time which was really the only way it could get out because the line to Edmonton refinery had not yet been completed.

AK: I suppose some of those, would you recall if any of those tank cars got as far east as Sarnia? I think they shipped some down there for experimental purposes just to see.

TM: Yes, I believe quite a lot of it went east.

AK: By rail.

TM: By rail.

AK: And that was before they built those tankers on the. . .you remember, they built the line to the lake head and they built the tankers, then they completed the line around. But that was long after. . .

TM: That was long after this, yes.

AK: So the dike was constructed and you used the earth, just bulldozed the earth up and made a kind of a dam, a dike.

TM: We had a dike on the upper level, right on the lease to which we put a siphon and it did serve to trap oil which otherwise would have been burned, after the fire started. We had a small dike so that the oil would have to flow through it and the fire, it was always ahead on it so that we didn't get burning oil going below that dike. And we were able, by the use of a lot of people and lots of shovels around, we had quite a time keeping that burning oil from flooding over and going down into the reservoir. We didn't want to get that oil which was some 18 or 20 thousand barrels of oil in that reservoir on fire if we could avoid it and we were able to avoid it that way.

AK: But that came on September 6th, after a lot of this other work. Then, when you took over, you went right to the well itself, and as you said, the derrick was still erect. In the hole, as I understand it, was tubing. Did you try to pull that tubing out?

TM: No. We did not, after we took over, we didn't try to pull it out. We had a connection made from that tubing which had been perforated but it had been plugged off again so the oil was being taken over to the lease on the east side there which was. . .

AK: Leduc Consolidated.

TM: Leduc Consolidated lease, we set up a large separator over there and a 10" line had been laid from the well to that lease. And from the connection out of the casing at Atlantic 3, oil was flowing at the rate of some 8,000 barrels a day or so, which we were capturing through that system, through that adjacent lease.

AK: So there were 2 sources of oil at that time, there was this hook on to the casing head at the original well which you brought over to the Leduc Consolidated lease, which is the lease just to the east. And then there was the oil that was seeping up through the cracks and up through the ground and it was running down into the dike. So you had these 2 sources.

TM: That's right.

AK: How long did the oil produce out through the well head itself, do you remember?

TM: It produced oil through the well head itself until the moment that we killed the well.

- AK: I see, so there was always oil going through.
- TM: Always oil going through there.
- AK: I didn't realize that.
- TM: This was established when Myron Kinley put that Schaefer control valve on there, that bag type preventor we say.
- AK: That enabled the connection to be made then?
- TM: That enabled the connection to be made. We covered the ground of what actually caused that well to crater and get out of control, did we cover that before?
- AK: Not really. The story I have and I'll just recite it to you and then you'd be able to pick out if there are some flaws. My understanding was that, after repeated attempts to try to get to a depth at which they would be able to land their long string, their production casing, below the gas-oil interface. Every time they tried to get down in there they would lose circulation and they'd run plug after plug. Up to a certain point, I think it was in February sometime that they were still able to keep the well under control, in the sense that they'd get a plug set and the plug would hold. But the minute they went in to drill out the plug, away she'd go again. And it would go on a vacuum and just whoosh, so instead of running their long string at that point, even up in the gas cap, and then later running a liner my understanding was that Clarence Matthews said, we're going to drill her dry. They went in with a bit and they were going to try to run, you might say, a prairie fire ahead behind them or something, and get the hole down and then get the casing in right away. But that never happened. It was at that point that it started to get away on them and then they tried different means to try to control it.
- TM: That's right.
- AK: So this happened in the middle of the night I guess. I don't know, there was other people that I haven't spoken to yet, like Dave Gray, who was with General Petroleums, and Pete Atkinson with Dowell, I haven't got him taped yet but they have some versions too. Does that fit in with what you were told by Vern and by your records?
- TM: Yes. In the first place they had a Hossmer type head for a blow out preventor.
- AK: Could you explain what a Hossmer head is briefly?
- TM: A Hossmer head is simply a steel bowl which was fastened to the 10" pipe, your surface pipe and it's a receiving device for a hinged nut that would clamp on to the drill pipe. The idea being that you get that below a drill collar and drop the drill pipe down into this, it goes into this bowl which locks it in. It contains the pressure within the casing to which the bowl is fastened. In this case it was fastened to the 10" casing and the only outlet for pressure then, was below that point, down at about ground level, there was a 2" valve for escape on the 10" casing. Had this casing been left open, it's possible and quite probable that the well never would have cratered. Although, as long as they were still maintaining some water pumping in to the well to try to overcome the natural pressure of the reservoir. But once they got that device in place and it worked, the decision was made to just simply shut it in, that they thought they had control of it. Well, the pressure very shortly went up to around 1,300 lb. and at that point the formation was not competent enough to withstand that at only 275' ????. It just simply cratered and the pressure creviced, cracked and cratered and went outside of the drill pipe and the surface pipe and

everything else and came out all over an area of about, somewhere around 5-10 acres. It was unfortunate that this move had been made and that the thing had been shut in because there was no way that that formation would withstand more than about 100 or 200 lb. pressure at that shallow depth and particularly in that kind of formation.

AK: So just to recap a little bit, this 2" valve, if they'd opened that valve and allowed that pressure to bleed off, it's possible that they might have avoided this cratering, just to keep the pressure in the annulus???, between the drill pipe and the surface casing at a manageable level. Now, with the Hossmer in place, could they have rigged up and started pumping water down the drill pipe?

TM: Yes, as a matter of fact, they were already tied to that for that purpose.

AK: And they were going to do that?

TM: Yes. They'd been pumping mud and cement and everything else ??? down the drill pipe. Which had plugged off and had been . . . and later they perforated the drill pipe in order to get access again, they plugged off the drill pipe and they shot holes in it down near the bottom. This was done, actually before we took the well over.

AK: They must have had to take the Kelly off and get inside the drill pipe to drop their perforating gun.

TM: That's right. But they dropped their perforating gun in there. . .

AK: Or was it in the annalist, did this put it down between the drill pipe and the casing?

TM: No, they put it down the drill pipe. The drill pipe mind you, was plugged, when they went in and they were able to put a lubricator on there in order to get it out. Before they put the gun in they put a lubricator on the drill pipe.

AK: Yes, well that gun didn't go down very far in the hole.

TM: I don't recall, it went down to some point and they decided to shoot, as deep as they could get the perforating gun in there, they shot it.

AK: Then they were hoping they could pump cement down through these perforations and try to squeeze off the. . .

TM: Yes. To kill the well through those perforations.

AK: Yes. Of course, we never know whether the charges, they didn't have shaped??? charges then, they just had the ordinary bullets didn't they? They hadn't developed the shaped charges so they were just counting on those ??? hard, steel jackets to go through. . .

TM: ???

AK: Yes, and probably didn't even get into the surface pipe either.

TM: No. They were shot, I think they were shot, all of the perforations I believe, were below the surface. I just unfortunately can't remember how deep they went.

AK: That's okay. Then there was a series of cement jobs and one thing and another. When you took over in May, as you were saying, did you try once again, as a final stab to get some water down that hole?

TM: No, we didn't because by this time all this cratering was going on. I'll take that back, I seem to remember that we did continue to try to pump water in that well for some time. Until the thing coned and we started producing formation water and we couldn't overcome that, we couldn't get a high enough pumping rate down that thing to come anywhere near overcoming the tremendous flow from the well. It was just simply blowing

out through the crater.

AK: Okay. When you took over had you pretty well made up your mind that the only way to tackle this thing was to drill directional holes?

TM: Right.

AK: You had that pretty well . . . ?

TM: I had that pretty well in mind. And as of the day we took it over, or a couple of days before we took it over I made a plan which I gave to the Conservation Board, of what I expected to do and why I wanted to drill 2 directional holes instead of just 1. And what would possibly be the end result that we would be able to kill the well through one hole and finally, cement it up through another. And this is the way it finally worked out, that we had to use the second hole, that was the south directional hole, we had to use that hole as a means of actually plugging off the flow down within the formation itself, within the D-3.

AK: Right. And I believe the other reason, the very practical reason was that, in case you lost one of those directional holes at least you'd have something to fall back on. As a matter of fact, there were quite serious delays in, was it the west hole?

TM: Yes, there was a very serious delay on that west directional hole due to the fact that when we were running the casing, I believe because it was run in too fast and this was a deviated hole and the casing stuck at about 3,700' and we had to pull it out and redrill from that point to the original depth we had drilled before we stuck that casing. The well was down into the D-3 formation but we didn't get the casing down to that point and had to pull it out. We traded that string of collar pipe, which we had stuck, because the man on the job at the moment was running it too fast, I think. I mean, that seemed to be, it was kind of a cowboy operation.

AK: Yes, I think we mentioned that earlier.

TM: We mentioned that before. Anyway we traded that pipe for a string of extreme line casing with Home Oil Co. They had a string of pipe available which they were willing to trade with us.

AK: Yes, I think we put that story on, one of the last stories we put on. Then, had you, when you were thinking of the different ways of tackling this you had looked back on your previous career, the things that had gone on in the different places in the world that you'd worked. Had you had any previous experience in drilling relief holes?

TM: No, I had never drilled a relief hole. But I had been on a number of straight forward blow outs and were able to get valves on by methods of the day, by running them on with plenty of relief available until we actually got the head fastened.

AK: That was assuming you had good casing in the hole, but this is a case where there wasn't enough casing and the thing had cratered. . .

End of tape.

Tape 4 Side 2

AK: Then when you signed up these 2 rigs, they were both General Petroleums and they were probably in the field there. Did you write a day work contract?

- TM: This was a day work contract, right, for the 2 rigs. I think we've already covered the reason for locating them where we did and all of that. We discussed that on previous occasions so I don't think we need to repeat that again.
- AK: No. And they wanted to be far enough away that you could. . .were they diesel or were they fired with boilers?
- TM: Diesel or steam rigs. We had 2 steam plants for these rigs and they were both located farther away than the rigs by some considerable distance. And we used windsox a number of places around the lease and at these boiler stations so that we would always be aware, the boiler firemen would always be aware of the direction of the wind and he could shut his plant off. And we had these 2 things connected together so we could operate either rig or both rigs from one station. At least give the well that was in the hole drilling and had to be shut down, a chance to get the drill pipe out or at least . . .
- AK: Enough steam to get the . . .
- TM: To prevent getting into caving??? trouble and getting trapped with the drill pipe in the hole.
- AK: Right. And who did you use to do the surveying, was Eastman there then?
- TM: Eastman was in the field. But there was very little knowledge with respect to the characteristic drifts, or experience in this area at that time, about directional drilling. So we got Eastman and we got Homeco.
- AK: Now the Homeco fellow's name was Cairns as you recall it. Let's move on to the final stages of the drilling of these 2 wells. The west one ran into some hole problems because the casing perhaps, had been run a little too fast.
- TM: This was the south one.
- AK: Oh, this is the south one, the south had problems.
- TM: Yes. The west hole had been completed.
- AK: You'd set casing?
- TM: That's right. And we had. . .
- AK: Had you started to put water away?
- TM: Yes, we had already killed the well actually, through the west hole, a long time before we completed the south one.
- AK: Okay. And just to go back to get the sequence of events, it was only about 2 or 3 days after the well caught fire and the derrick fell in and there probably was a spark that caused the fire. Maybe, do you think that's what caused the fire, a piece of metal hitting something or what's the theory that you've got?
- TM: My theory is that the fire was ignited statically. And we subsequently established the fact that you could set up a static cloud, a well that was producing water would set up its own static cloud and you could get a potential to create a considerable spark gap. We later proved this in the field by a deliberate experiment on a well up north of Edmonton, I forget at the moment the name of the field. But we had some shut-in gas wells. This is a different story but I'm convinced that the well was ignited by static electricity on the 6th of September.
- AK: That happened to be your wedding anniversary date.
- TM: That's right.

AK: I believe it was also Labour Day, I think it was. So when the well caught fire, even at that time there was a lot of formation water being produced out of it.

TM: That's right. And also, we were pumping in to the. . . formation water was being produced out of it and we went ahead and were acidizing at that time, we were acidizing the west relief hole in order to get a ??? which would be sufficient to kill the well. It caught fire at 6:00 in the evening and it burned just for 60 hours, till we had the fire out through pumping into the west relief hole, which was what the purpose of which we actually had built it. We were able to keep the well from blowing out again, by pumping into that thing. We had no more flow from it, we had a lot of fire around which was burning coal on the surface etc. When we finally got the surface residual oil and the gas that was coming out through these crevices burned off all we had was burning coal which ultimately went out. But it was a long time from that moment until we actually had the well cemented off so that it would not blow out again. And we kept it that way by pumping, as I recall, something like about 500 barrels of water an hour into the west relief hole. We were able to maintain that high enough level of water in the blow out hole to keep it dead at least as far as the surface was concerned.

AK: Then what was going on at the south relief then?

TM: We were completing the hole and we finally drilled it from 3,700' down into the D-3 where we had been going to run our long string. We had to complete that and then run the long sting in there and cement it and then, through that string, we finally were able to cement up the well by using this bazooka that we finally had to develop to bridge the hole below the contact point, so that we could squeeze cement, ultimately, up into the blow-out hole and get it cemented up so that it would seal it off. Which is finally what we did.

AK: What was the purpose of this chicken wire and stuff was rolled up in bales and you stuffed it down that hole?

TM: That was simply a means of getting a bridge in that hole below the point, somewhere down in the D-3 formation and getting a bridge in there above the cavity or cavern which we, by that time, were convinced that we were dealing with a large cavern or such open channels that we could not otherwise shut it off. We had to establish a bridge, in that hole, somewhere down in the lower part of the D-3 zone.

AK: After you'd run that chicken wire in, then did you run cement in afterwards?

TM: Yes, we ran that chicken wire in there, and then we ran some plugging material, which was the sawdust and shavings, we ran that in on top of the bridge until we got some signs of return and then we'd drop a small, just a few bags of cement, a small cement pill in there and give that time to set. After doing this 2 or 3 times we did get a bridge which would give us returns to the surface. Prior to this time everything that went in . . .

AK: That's what you were wanting, returns?

TM: That's what we were wanting, to get returns.

AK: Yes, and this was below the casing shoe?

TM: Below the casing shoe and . . .

AK: You knew then, there were 2 things, you weren't going to get any leak back up the relief hole and you were pretty sure you got the darned cavern kind of plugged up pretty good.

- TM: We got the connection to the cavern shut off and were able to, by running several of these small plugs, they were competent enough to give us enough returns, not only get returns but then when we cemented we were able to cement it up to 3,600 lb. squeeze pressure, which. . .
- AK: And it held.
- TM: And it held.
- AK: Then on the west relief, you continued to pump water for some time?
- TM: No. After we got that thing squeezed up to 3,600 lb. we shut everything off.
- AK: Oh, you stopped pumping water?
- TM: Stopped pumping water and we had no leakage at the surface at either place.
- AK: What did you do with the west relief, did you run plugs in it?
- TM: Finally, we left it for some little time to be sure that we were right and continued to think we were right in what we had done and then we plugged and abandoned the west relief.
- AK: So this would be getting on into October then?
- TM: This was, yes I think this was about, when we finally, something like, well, it was in October, I don't remember, 6th or 16th or something.
- AK: Was there any suggestion on your part or anybody else to go in to the old hole, the one where the crater was and try to do anything in there at that time?
- TM: There was some suggestion by some people but as far as I was concerned I vetoed that right off the bat. Because there was too much iron down in that hole, there was the surface pipe and the draw works and lord knows how many other pieces of iron were down in that crater. Leduc geologists identified material from as deep as 15, and you'll probably remember this Aub, we had, from you geological types word that some of that material was identifiable from as deep as 1,500', that had come from the surface. We estimated that we had blown and accumulated in that cone, what the engineers took out some engineering estimates on this, there was some 6,000 yards of solid material which had come from down in. And quite a fair percentage of that was coal.
- AK: From the coal seam, yes.
- TM: So we knew we had a very deep throat in this blow-out.
- AK: So there was absolutely no point in. . .of course, nobody ever made an attempt to go fishing around in there and try to retrieve any of that iron. That was gone.
- TM: No, that was gone.
- AK: And the derrick and everything, ??? blocks.
- TM: Well, no, the derrick had fallen over. The derrick had fallen over during the night before the fire started and it was lying out there on its side. Some of the substructure perhaps, went down in the hole, I'm just not. . . And just before that derrick fell over, the day before, it went over during the night. We had a whole bunch of rig builders and we were in and out of that thing all day. Actually trying to level that rig up which was by this time, swaying around and the ground was getting so. . . changing, the pattern of the blow-out was close to the hole, getting closer all the time and it was weaving around. I finally decided it was long past time that we should have anybody in that situation because it would fall over. So I called all the people out and said, no more monkeying around with that derrick. We knew it would fall over and it fell over during the night. That was the

next day, at 6:00 in the evening, that it caught fire.

AK: There was one thing that I remember vividly, shortly after, that they went in with shothole drills and they drilled little holes and then they put these little tiny pump jacks on them and they pumped quite a bit of oil out of those charged sediments.

TM: That's right. The reason for doing that was to keep from it getting into the shallow aquifers that were supplying water to farmers and things, well water. Also, from leaking down into the river, the drainage system. So we recovered, I don't recall the amount but a considerable amount of oil which was very, very high gravity. Because it was cold and the crude oil, which was already of some 42 gravity, was picking up the light ??? from the gas that was bubbling up through it. So we were getting gravities up in the 60's out of those shallow holes.

AK: Right. Then the next step was sorting out all the damages. You were telling me a little earlier that all invoices went across your desk and you had to approve them. You made a deal with Sammy Hector about the water but that was, as you said, Sammy, I'm not smart enough to deal with you so maybe this is the way we'll do it and I'll give you an invoice for the water that we supplied you and you can give me an invoice for the water you supplied us and it turned out that your invoice Tip, was quite a bit bigger, so that was the end of Sammy. Then moving on to the meeting in January '48, do you recall the events of that meeting over at the Conservation Board building. I think it was January 29th there was a meeting.

TM: The operators got together and there were some operators who thought that they should put in claims, including the parts of some Imperial people, that we should sue Atlantic for a share of this oil that had been saved and sold. In other words, make a damage suit against Atlantic owners. I was against that right from the start because I always felt that in a situation like that, it would be pretty hard in the first place to establish real claim against anybody that would be able to pay it. And secondly, that any company that was operating in any field could get into trouble at any time of this kind and I thought a precedent of going to the law courts would be a very bad one to in any way encourage. My personal position on the matter was, let's just settle it and forget about running to. . . and this became the usual practice in this area, at least as far as our operations were concerned, to try to help anybody that was in trouble and receive help when you were in trouble. This seemed to have been the philosophy of the day and I think it was a good situation and fortunately we had that for a long time in Alberta. Things today may have changed somewhat because we seem to be making more use of law courts.

AK: Yes, well, there was a lot of law written since 1948, there was a lot of new law written, just as a result of this, these test cases. But then, the settlement was whereby Atlantic would be shut in and the other wells would be allowed to produce until the allowable had been made up.

TM: Atlantic's production was very much restricted.

AK: That's right. They had 2 other wells, 1 and 2 just to the north there.

TM: Yes. But they were not to redrill 3 and the production from that lease would be considerably restricted until things came back into balance, which occurred, it took some several years for that to be accomplished.

- AK: There were 2 names that I just wanted to make a very brief comment on, was Paul Moseson???, who in 1948, supplied some shavings and some lumber. He hired Lloyd Stafford away from General Petroleums right about in August of '48, right at the height of the drilling and set up his own, Devon Drilling Co. Do you remember that vaguely, Devon Drilling?
- TM: Yes, I haven't very much recollection about Devon Drilling. I do remember that we did buy a considerable amount of sawdust and shavings from Paul Moseson's outfit. Not all that we used, but a good lot of it. But we bought nothing that I can recollect, of any other kind of plugging material or mud supplies of that sort from Moseson.
- AK: Chicken feathers came from Montreal I think.
- TM: I forget. Those chicken feathers were actually ordered before we took this thing over and it was very largely chicken and turkey feathers.
- AK: Then there was another fellow, Lorne Faulkner, do you remember him?
- TM: Yes, Lorne joined Moseson, I think in Devon. They had a producing company too, didn't they?
- AK: Well, Ponder Oil.
- TM: Ponder Oil, yes.
- AK: But Lorne was working with Vern Hunter, my recollection.
- TM: Yes, that's right. He was assistant to the field manager.
- AK: Yes, and I remember him saying, I got this opportunity, I don't know what to do with it. He took it anyway, he went with it. Then kind of moving on, after Atlantic 3, you settled back in and there was some stuff that we had on a previous interview about your involvement with the embryonic CAODC.
- TM: That had been prior to this Atlantic thing.
- AK: Oh, is that right?
- TM: Yes, that's right. When they first set up CAODC, they set up an engineering sub-committee and I was chairman of that in the initial stages.
- AK: Then as time went on there you had responsibilities for what area, after Atlantic 3, what were your jobs with Imperial?
- TM: Everything in what was called the western division, which was all of western Canada, west of Ontario, and north as far as we operated, which was finally up into the Arctic and from the U.S. border to the high Arctic and from Ontario to Alaska. This later became the western region instead of the western division but it was actually the same area.
- AK: Where did Don Mackenzie fit into this?
- TM: Don Mackenzie was assistant to Walker Taylor.
- AK: I think the hour is getting on Tip, it's 4:35 and I think we'll stop the tape here with the idea that we can continue and try to wrap up. I don't like hurrying this because I'd like to get the story of your adventures in Australia and the Phillippines and the windup and your other associations, your other companies. So we'll sign off at this point and thanks once again.
- AK: This is Aubrey Kerr back again and this is the session for Saturday, July 17th, 1982 in Mr. Moroney's den. There was one name that came up in the course of the water pipeline that was built, which we talked about in the last session Tip, Billy Oakes. Could you explain

what his role was?

- TM: Yes, Billy Oakes was in the ??? drilling department and he was the chief mechanic and looked after the conditioning and the maintenance and the records on all of the engines and pumps and power plants and things of that kind. He had a crew of mechanics that worked with him and he just simply saw that everything was properly put together. And on the rig moves etc. as for example, the installation of that pump station on the river, Billy simply saw that it was all in proper working condition. The actual installation was supervised by one of the tool pushers, as I recall it, that was Kenny Woolrich who actually supervised the installation of those pump stations. Billy simply saw that everything was in good mechanical condition and kept up with it.
- AK: Tip, you and I could talk about Atlantic 3 for the next couple of weeks but I think, rather than dwell on it anymore, I'd like you to make just a very brief discussion of the 2 men that you had at your beck and call and who were your strong right hand men. Could you just make a few comments about both of them?
- TM: Yes. Charlie Visser of course, whom I considered at that time, and still do, one of the very best drilling men that ever was in Canada. The second man was Jim Todd, who was chief mud man in the drilling department. He and Charlie were on duty practically all the time, the same as I was. We were always available and working at that business constantly. That's all I could say.
- AK: There's one thing that I should have thought about, is that when all this was going on, after May 15th, where did you billet yourself? Did you spend some of your time in Calgary or how did you gauge your movements?
- TM: Charlie and I had permanent quarters, you might say, in the King Edward Hotel in Edmonton and we also had a shack at the south directional well where we could sleep on the job or whenever we could get a nap we could go over there and have a rest. Charlie and I and Jim Todd, used that shack as a kind of second headquarters.
- AK: And you stayed there until pretty well, you got everything under control.
- TM: We stayed there all of the time that we were working on that well.
- AK: Right. Well, I think we'll move on now Tip, to your duties which you mentioned in the last session. As you worked with Imperial, did your duties get you up into the Arctic or had you started preliminary investigations up in the Arctic there, or in the Beaufort or Mackenzie Delta?
- TM: Yes. This came a little bit nearer the end of my office, because we didn't really get busy in the Arctic areas, that is out at the coast, until near the end of my service with Imperial Oil. But I did make a number of trips up there with geologists etc. looking the country over and trying to figure out ways of getting through the country. Water ways and overland routes etc., that could be used in winter conditions when everything was frozen. Or the water ways, when we had warmer weather. This was with particular reference to the Arctic coast. But as far as northern Alberta and up as far as Great Slave Lake, I made many trips down there. We had a number of rigs running along what later became the Mackenzie Highway. We did a considerable amount of drilling, I can't remember the number of wells but a fair number of wells were drilled all the way from Peace River up to the southern part of the Northwest Territories.

AK: Would that be as far north as Norman Wells?

TM: Yes. Norman Wells, we had some operations on and off in the Norman Wells area. We drilled some directional holes and repaired a number of those old wells, reestablished them as injection wells for ??? that had to go somewhere. The best thing we could do for them was to put them back in the ground and I think they will have been recirculated a number of times by the end of the field.

AK: Yes. I think right now, in the last couple of years they've been doing quite a bit of extra drilling out there to increase their producibility.

TM: Yes, I believe so. I'm quite sure they have. As a matter of fact, I did some work with another company since I've left Imperial Oil with respect to how some of this directional drilling could be done, with slant hole rigs for example. And I've had a number of conferences jointly with the people with whom I was consulting and Imperial Oil people since that time.

AK: One of the activities that you got involved in Tip was attending the worldwide coordinating meetings of the parent, formerly Jersey and now Exxon, could you. . . Just while we're getting our breath here Tip, I'll just paraphrase some of this. a couple of the notable that attended these meetings earlier on was Oscar Schorp, of Carter and the later Wallace Pratt, the dean of geologists who just died last Christmas. These meetings took place in different parts of the United States. You were mentioning that one took place in Banff and another one took place in Venezuela where Vernon Taylor, now retired in Toronto, substituted for you. At these meetings. . .

TM: No, I wouldn't put it that way, substituting for me. He went. They could only take so many so he was. . . he didn't substitute for me. I think maybe a few words about [tape turned off]

AK: Okay.

TM: At these coordination meetings budgets were not usually given much discussion. It was more an exchange of technological and prospective possibilities in different parts of the world, where people discussed the research in connection with what was going on in the Jersey family and what might happen in the next few years. Forecasting, for example, the cost and movement by tankers etc. We had representatives usually giving some kind of a resume of the operations of their particular branch of the business, like marine, pipelines, forecasting production. Demand in the United States and worldwide, by somebody who had access to the necessary data to prepare those kinds of estimates. The effects of production rates etc. on world prices that could be forecast. Just the general exchange of information from the different branches of the business and the different areas of operation, to keep people informed throughout the organization, as to the activities, intentions, etc. of the general Jersey family. These meetings were usually held at different spots in different sections of the country. It was generally within the United States. The first one I ever attended was in Miami, Florida. But we had them in Boca Raton, a number of meetings were held there, Houston, Calgary, Banff a meeting was held, that was way back in about 1949 I believe, 1948 the meeting was held in Banff. One was held in Maricaoibo, which was outside the United States. That one I did not attend.

AK: Just one other thing. As a result of your activities at Atlantic 3 you were identified,

mistakenly, by several people in the oil patch in Calgary as primarily a wild well fighter, something like Red Adair. This meant that you were called out on several occasions to help these companies, which you were quite willing to do on a gratis basis. Those sort of stories just point out to me the fact that you were willing to assist your fellow colleagues in the industry. Such people as Maury Paulson and George Furnival. Maybe we can go on then, to your retirement Tip. Did you retire at the statutory age of 65?

TM: Yes, I did. I became 65 on December 17th, 1968 and retired on December 31st of that year.

AK: You just snapped it off with Imperial and that was it. Or did you stay on in an advisory capacity?

TM: Yes, after my retirement I was kept on a sort of a retainer basis with Imperial Oil, consulting with respect principally to offshore operations of that . . . we were doing the drilling at that time and preparing to do more drilling off the Newfoundland coast.

AK: That was in the Grand Banks area, south of St. John's.

TM: That's right.

AK: You were partnering with Amoco, I think Amoco was the operator.

TM: Yes, Amoco was the operator.

AK: They started drilling in 1966, my understanding. Shooting for these salt domes. I think there were quite a large number of wells drilled. Were there any incidents out there that foreshadowed Hibernia?

TM: I could not connect anything that happened there really, as foreshadowing Hibernia, except perhaps, in developing some of the technology and the necessary support things that would be required. Certainly to find out that ordinary shipshape vessels of the time were not going to be very efficient as operating in those waters. Because of rough water and very quick changing conditions for which one had to be prepared.

AK: These were drill ships were they not, or were they semi-submersibles?

TM: The operations that we were doing and in which Amoco were the operating company. I should say, Amoco was the operating company for our 50% and their 50% interest. This was a shipshape and an old Gulf of Mexico vessel. It's operation was not very efficient because couldn't operate in the kind of seas that we very frequently had. Although it did drill several wells. It was a very difficult operation and it had some very narrow, very near accidents because of that vessel's inadequacy.

AK: You mean, on board problems?

TM: Yes, on board problems.

AK: What, like mixing mud or coming out of the hole, or just what?

TM: In storms. For example, on one occasion, a lead loaded drill collar got loose and rolled around the deck and came nearly wiping out some of the equipment.

AK: Right. So they didn't have it. . .

TM: And anchor, we had anchoring problems, a great number of them. Broken anchor chains, it was a continuing thing. We were nearly always out trying to pick up, find the anchors on the bottom and the chains and put them back together etc.

AK: You'd need divers then?

TM: They did use divers and grapples.

AK: Was the equipment developed to the point where you could refind your hole if you had to

come off the hole? Did they have those sonar devices so you could relocate?

TM: Yes. As I recall it, we didn't have any great problems of finding the well heads to get back on after having left them.

AK: That campaign was singularly unsuccessful because I think after they finally realized that those salt diapiruses??? were not the same at all as they were in the Gulf of Mexico then they backed off and the campaign was abandoned.

TM: That's right.

AK: So it took quite a few years to get around and start to work their way around over to Hibernia. And develop the basic geological thinking that pointed in that direction. After that period of time with that, did you continue to work for other people out there in the east coast? This is the end of this tape, we'll go to the next tape.

Tape 5 Side 1

AK: Just on the point of asking you about your being retained by other operating companies out on the east coast, and you were mentioning Bow Valley.

TM: I worked with some other companies, not in connection with the actual operation on the east coast, but in connection with offshore operations in general and with design of equipment for offshore operations in the Arctic area and in the North Sea, or off Newfoundland, wherever work might develop. Bow Valley was at that time, interested in getting involved in the offshore operations. I did work with them in connection with the design of some of the equipment that would perhaps go with a semi-submersible, for the North Sea. After retirement too, I did some work with Imperial in their work with Amoco in connection with another vessel for the offshore east coast.

AK: Were you involved with Bow Valley and Home Oil when they had purchased that rig and did some drilling, and then they ultimately sold that? Home Oil sold the rig but I think Home Oil buying that rig was a kind of a prerequisite to show good faith to the U.K. authorities that they could buy into the lands. Did you get involved directly with the North Sea and any of that. . . ?

TM: Not in that period. My only involvement with North Sea when I was still with Imperial. I was over there observing the operations that were going on with Shell off the British coast and off the Norwegian coast with the Jersey company and Amoco.

AK: Would that be before your retirement?

TM: That was before my retirement.

AK: Yes, I'm just trying to recall when the first oil well was discovered. You see, back in the 60's the drilling was all down in that south part of the North Sea, where there was all gas prone. Then they moved up and then they finally found out that these ??? blocks, these faulted blocks in the Jurassic and Triassic were the things that really were reservoiring the oil. Did you have any consulting work in the Beaufort?

TM: Yes, with Bow Valley and some with Imperial, in connection with how to get around and get along with the northern people.

AK: Did you have anything to do with the concept of dredging and building islands?

TM: Yes, a little. Both before and after retirement I had some involvement with that. With

Imperial before, and with the Bow Valley people afterward.

AK: Yes, because they purchased some parcels around that Adgo well that Imperial drilled, there was a well called Adgo, offshore of the west part of the Mackenzie Delta. And I think Sun Oil was in there and Newmac, there was a kind of mixture of owners in there. Did you have anything to do with the west coast, knowing that Shell was the only one that drilled out there, did you have any. . . were you observing that at all?

TM: No. Not after retirement. Before retirement I did some observational sort of things with Imperial and for Imperial as part of my assignments at that time. On the Shelf of California and offshore of Oregon. Just as an observer and to see what was going on and what was involved in anchorages etc.

AK: Moving on to the other assignments that stand out, which assignment came next, was it the Great Barrier Reef, was that the next assignment in your retirement?

TM: At the time I accepted that I also had been pretty well tied up with the Bow Valley people on the coast, and then also, I was called from time to time for consulting in connection with drilling matters, particularly with controlling a couple of bad wells that they had up there.

AK: Did you go up to the King Christian well?

TM: Yes, I went up there several times. The first instance, to go up and see what had happened and help in connection with deciding how to overcome it and select the place for a directional hole and the manner of completing that hole so that it could be used to kill the blow-out well. Then while all these preparations were being done, which took a long time because a new rig had to be brought in and all the equipment that was required to go with it, and a pipeline and pump station had to be designed and laid out. This was being done while I was in Australia and then I came home around Christmas time and went back up there and contributed to the killing operation as a consultant and we were successful in killing that well just about the way we decided that it could and would be done and cementing the thing up tight so that it didn't leak.

AK: You would then have had close working with Al Wright? Al was up there.

TM: Yes, with Al Wright. And with Dome people who were the operating. . .

AK: Was Ed Tovall involved in that at all?

TM: Ed Tovall was not involved in the killing of the King Christian well as I recall it. He was involved in some other things and I had several trips in there with Ed Tovall on other drilling problems which Dome was having at that time.

AK: My recollection is that Jim Strain was . . .

TM: Jim Strain was with Pan Arctic at that time.

AK: Yes, he was a drilling engineer and there was quite an investigation of the King Christian. It was written up you know, it was put together in several volumes and Dick??? King, you remember, he had retired from the Conservation Board and he was hired to conduct a one man investigation but unfortunately, chapter 6, which really told the circumstances of why that well got away in the first instance, was never publicized. It was kept under wraps and despite the fact that in the House of Commons, they demanded its release, it was never released. I guess you were aware of that.

TM: No, I wasn't aware of that but I was up there on my own, trying to find out just exactly

what happened and I found that it was rather, many of the facts seemed to me to be obscured and the exact action that was being taken at the time that the thing got out of control, I was never able to make up my own mind just exactly who did what.

AK: Well, apparently, the story I had was that there was a plane that landed and they were coming out of the hole to run logs before they'd run their surface pipe. There was no surface pipe in that hole, it was just a little piece of stovepipe I think, conductor pipe. They thought that the hole was full but all the time the god darned hole was making mud, there was a gas bubble forming. They went over to unload the plane and of course, bingo. But that may or may not be the story, but at any rate, there again, you were called in for your expertise. So you were kind of keeping 2 balls in the air then. You'd already got yourself involved in the Great Barrier Reef.

TM: The Queensland government had granted exploration permits to a number of companies in the area of the Great Barrier Reef. All operations of that kind were very greatly opposed by a lot of Australian entities, particularly by the environmentalist group. The federal government was having a considerable amount of trouble with labour and other groups because they were opposed to having any activities of oil development going on in that area. This was just following the problems that were being experienced on the California coast due to oil spills from tanker movements etc., principally. As well as some offshore drilling operations.

AK: Yes, that was the Sant Barbara thing. That was quite in the public eye.

TM: That's right, Santa Barbara had stirred up the whole world you might say, and also the spill off of the British coast, which had, I forget the name. . .

AK: Oh yes, Tory??? Canyon. That was a bad one.

TM: That was another one that triggered a terrific amount of opposition. And studies had revealed that there was a lot of oil that had been kicking around in various parts of the world, coming ashore. Particularly where these things came ashore on resort beaches etc. it caused a lot of opposition to having any kind of operations in the sea, or anywhere else which were likely to contaminate. Of course, there's some contamination possibilities in almost all mining and many other kinds of operations. But the focus at that time seemed to be on damage which was being done to wild life and to beaches, pleasure resorts etc. For that reason the Great Barrier Reef, in the minds of Australians and most of the other part of the world, being one of the 7 Wonders of the World at the time, they were afraid that these oil developments would develop in terrific damage to those coral reefs. For this reason this commission was put together. It consisted of a chairman, who was Sir Gordon Wallace, a retired justice of the Supreme Court of New South Wales, and Dr. J. E. Smith, a marine biologist, who at that time was in charge of the marine biological lab at Plymouth, England and T. J. Moroney who was an engineer and production and drilling in Canada. I was asked to join the commission and agreed to so do, as well as continue, from time to time with my other consulting operations. This commission was formed, I believe we were commissioned, in 2 Royal Commissions, which were identically worded, one by the State of Queensland and one by the Commonwealth Government of Australia, to do the exact same things. We had the same terms of reference in both commissions. This was probably because of a jurisdictional undecided. .

AK: Now this was in May of 1970.

TM: That's right.

AK: And then you sat at different times, you educed evidence and heard witnesses and that sort of thing?

TM: Yes. When this commission was formed and I was asked to be a member of it, I asked how long it might last and I was told that they expected it to last several weeks, perhaps 5 or 6. I said, well, if it lasts more than 8 weeks I will have to break out of it, at least temporarily and come back and attend things that I have in my business in Canada. They were very happy to say that seemed to be very fine. On that basis I joined the commission and we didn't get through with it finally, and get the report out, until October I believe it was, in 1974. During which time I went to Australia some 14 times and we had sessions running for the purpose of taking public hearings, taking evidence. We sat taking evidence 2 hundred and 60 some days and accumulated some 18,000 pages of records and held some 600 I believe it was, exhibits, during that time. All of this public hearing took place in Brisbane, in the state of Queensland and the writing of the report was principally done in Sydney. Finally, a lot of it was done at home, and the rewriting and all of that, and the exchanges between the 3 commissioners, after they were working out of their own homes a great deal of the time in addition to the time spent in Australia.

AK: And what was the final. . .could you capsulize the final outcome of the report, what were the conclusions you might say, or the main findings?

TM: In the end, the commission, it was a non-unanimous finding. The marine biologist and myself were in substantial agreement that drilling should be permitted. We had some very strict constraints with respect to the kind of equipment and the way the operation should be conducted. But the chairman, he dissented and his opinion was, he was in favour of permitting no drilling whatsoever in the area. Before the report was actually written the government of Australia, had decided, no matter what the commission decided, that there would be no drilling permitted anyway. Subsequently another government came in and decided to accept the majority opinion rather than the minority opinion. I'm not in really good touch with what has gone on since, I believe. . .

AK: And the area of concern to the commission was 120,000 square miles, of which 4,500 square miles were reefal. . . I mean, disposed to the growth of coral reefs. And nearly all of that was submerged, would that be a fair statement?

TM: That's right.

AK: Okay. And during this 1970 - '74, you did come back to Canada on assignments, some of which involved litigation with drilling operations and just who might be at fault. Now, I suppose the next thing then, is when you were given the Phillippines assignment.

TM: The Phillippines assignment came from having allowed my name as being available for this CESO operation, which was Canadian Executive Services Overseas. So I went to Australia at the request of CESO to try to give some advice to a large mining concern in the Phillippines, who had an oil rig and they were trying to get into the oil development onshore in northern Lusan???. So I spent several months over there, a couple of months over there on that job. They were trying to get a well down to the depth of 12,000 plus or

15,000', some such matter and they had tried one well and only got down to about 8,000' and ran into one of these flowing diaperes???, which finally resulted in them having to abandon the hole. They moved over to a new location some 300' away and were going to attempt another hole and I was advising with them with respect to the modification of the drilling equipment, which was completely inadequate for the operation that they wanted to undertake. They needed a lot of improvement in the drilling equipment and in the control equipment in order to accomplish what they wanted to do. I don't believe the second well was ever done, I'm not sure whether they ever drilled it or not.

AK: Was this the Broken Hill Proprietary Co.?

TM: No. This was, I can't recall right now, the name of that company.

AK: This diapere thing intrigues me greatly Tip. You were saying that the shale was actually in an active state of flowage and it actually flowed up inside, up the hole and right up inside the intermediate string. Do you think this was of a volcanic nature or was it salt flowage or what do you think about that?

TM: I don't think it was necessarily volcanic, although it's a pretty hot area. It's in general, not too distant from a lot of the steam wells that were producing in that general area and were being developed. But it did actually flow the shale at a rate which they could not get ahead of it by drilling. They finally had to abandon that hole. That happened before I got there and I'm just going by what I got out of the records of the drilling report.

AK: Was this a private permit or concession, or was this a government?

TM: This was a private permit, yes.

AK: Taken from the government of the Phillipines I suppose.

TM: That's right.

AK: Did it have much relationship with what's going on right now in the offshore of the Phillipines?

TM: As far as I could tell, it had not.

AK: Did you get involved later with offshore Phillipines activities?

TM: No, only in a very kind of remote fashion. I was involved a little bit in talking to people about what I thought they might be able to do but that's a very minor part. I didn't actually get involved with the work itself.

AK: Okay. Then turning back to Canada, one of the companies that you were corporately involved with is Oil Patch Industries, is that the name?

TM: Yes. OPI Industries as it's called now. It was called Oil Patch Industries, basically and originally, a tool rental company, particularly in the drilling business. But they also expanded into other things like some tankage etc. and pump equipment. When that company went public I was asked to go on the board of directors, which I did, on the original formation of the public company and only just recently, am retiring from that company as of now.

AK: I see. When did you go on the board, what year was it?

TM: Can't remember.

AK: Was it a U.S. parent?

TM: No, this was a Canadian company which later established an American sub, which was called OPI Inc. and it has been quite successful, particularly in the pump manufacturing

business in the United States.

AK: Manufacturing the pump jacks, the . . . ?

TM: No, no, pumps.

AK: Oh, down hole pumps?

TM: No, no, these were manufacturing of surface pumps for fracturing, drilling and other high pressure work particularly. They have now, quite a series of models, running from say, a few hundred horsepower up to about 1,700 horsepower pumps.

AK: And these would be purchased by outfits like Haliburton or Dowel, to put on their frac trucks.

TM: Well, Haliburton and Dowel have some of the pumps, particularly Dowel has and the other fracking companies have them. They have a number of applications and a considerable potential. The pumps are good design and we're a highly competitive pump.

AK: Where were they fabricated?

TM: The fabrication had been in Odessa, Texas, and that's the principal office which is actually in the process of being moved now, to a new headquarters in Dallas.

AK: Was there any fabrication in Canada?

TM: Yes, there was fabrication and machine work.. The Canadian operation was quite important until this recent slump which has just taken place now.

AK: Is OPI surviving in this. . . ?

TM: OPI is surviving and in my opinion, will survive. But it has suffered a lot, like almost all of the service companies in the oil industry, it's having a big slump in its operations at the present time.

AK: So you were just saying that you have resigned from the board?

TM: Because of my health and inability to be sure of attending a fair share of the directors meetings, I decided that it was not . . . although, I'm still retained by them, I'm not a director anymore.

AK: I see. Okay. I think we'll just turn the tape over here.

Tape 5 Side 2

AK: We all know that Jack spent quite a bit of time in South America and you were saying Tip, that you knew him down there, he had worked in Ecuador and along the Amazon Valley. Then the next thing you knew was, just shortly after Atlantic 3, that Jack had been transferred out to Calgary from New York. You had he had a good relationship throughout that period of time, prior to him going over with Dome Mines, and the forming of Dome Petroleum. Then when Jack developed the Beaufort Sea acreage, to the point where he had identified these large structures, and I remember seeing the seismic, I think I was one of the first people to see the seismic in '69 when these big structures with 3-4 thousand feet of closure on them. Then the germ was probably growing in Jack's mind about how to get out there and how to drill it. Now, you were retained by Jack as one of his advisors, is that correct, could you make some comments on that?

TM: Jack asked me if I would be available for consulting and be on their roster of consultants

with respect to the mechanical problems, the feasibility of drilling and whether I'd be available to help solve drilling and other, perhaps, problems with respect to operating on and off the north coast. I had already done some work for Dome up there in connection with some drilling problems that they had experienced in their onshore drilling. That is, I think, about all I can say. And I did agree, and was for several years, on their consulting, more or less retained consulting basis and actually had an office with them, to be available for meetings etc. on short notice. This was in connection with, my connection with them was with the mechanical operation and not with the political, except to the extent that perhaps my being around and available to talk to their representatives from other segments of the community, like public relations etc. I was available for listening and going to the meetings and that sort of thing. But from the political standpoint I had nothing to do with that.

AK: When you were asked to assist him, did you advise him on the design of the ships at all or how they should be deployed, just what was your. . . ?

TM: Not with the design of the ships, except I did get in on discussions with respect to the ice breakers but I was not in on the design of them. I did do some consulting with them and was in frequent consultation in their meetings where discussions of such things as their large diameter reemers and augers etc., which were prepared at drill site to get well heads below water line and that sort of thing. All more or less, mechanical and also, with respect to the handling equipment and the methods of handling the surface pipe and landing their bottom hole control or ??? flow control equipment and that sort of thing. I did have considerable consulting with them with respect to that kind of material.

AK: The initial hole that has been drilled up there, is measured in feet isn't it, in diameter?

TM: Oh yes, we had some terrifically . . .

AK: Huge bits that were. . . weren't they designed for use with coal mining and that sort of thing?

TM: The basic designs were in connection with drilling from bottom up in some cases. But the ones that . . . dredging equipment was operated from the drill floor and some of these were tremendous size, up to about 12' in diameter.

AK: Strictly, still from a mechanical standpoint Tip, do you feel that there are many more improvements that can be made in what is actually going on right now? They're actually moved out there right now with their ships again for the. . .

TM: Yes, I'm sure, without knowing without exactly what they're going to be, that the technology is . . . a lot has been learned by Dome particularly, and they've contributed tremendously to this type of operation and I think lots and lots more will be learned. I'm sure of that without being able to be any more specific with respect to just exactly what. But experience will bring a lot of big improvements I'm sure, in the methods that will be used. Weather will always be a problem in the Arctic. There will be seasons when practically nothing will be accomplished.

AK: That was like last year, that was a bad year last year.

TM: And in spite of all the equipment, the material that's involved, it's never going to be a cheap operation as far as I'm concerned, I'm sure of that. A lot has been done in the matter of developing these islands which are terrifically expensive, but once you have

them the operation season is extended, I'm sure, beyond anything that we can foresee right now with respect to using floating equipment as far as the length of the drilling season is concerned.

AK: I think we noted that this past winter when Tarciat???, they just kept drilling right through the winter. Do you see the trade-off as swinging more over to the island? I mean, given the depths of water, do you see that as swinging over and the abandoning of the ship method of drilling or do you think there will still be . . . ?

TM: I think. . .

AK: They'll still have to do some drilling with ships.

TM: I think as far down the road as anybody can see now, you'll never be able to build an island from the bottom up, a bottom founded island. You may be able to build some sort of a floating type island that can be stabilized somehow or other. But when you're getting out into 2,000' of water, it's got to be done by ship. It seems to me that a lot of structures will be found offshore in water depths of a couple of thousand feet or even perhaps more.

AK: Then switching over to the high Arctic, we're both aware very much, that Pan Arctic have done very well with their ice islands. Building up the ice. You had some input to that.

TM: Yes, a minor amount in the very early stages of it. Because I believed that the ice island would work and my expressions were in support of it. Whereas, another idea, the conceptual idea that had been promoted by large engineering concerns, and I was asked to put a study group together to examine the feasibility of that thing. We did not agree that it was a practical approach to drilling in offshore winter situation in the Arctic. The idea of this thing was, it could be used over the ice and my experience and knowledge, such as it was, with respect to the offshore ice conditions due to big ice movements which set up terrific ice barriers that would have to be smoothed out in order to move this thing over the ice. And the of course, also, the ability of the thing to continue to operate had too many, we thought, undeveloped technological problems to be overcome. We recommended against their trying to make that approach to winter drilling in the sea in the Arctic area.

AK: This has nothing at all to do with the Glomar??? thing?

TM: No.

AK: Glomar had filed on a lot of offshore acreage, and I think they were going to use some kind of a vehicle that they were going to get around with. That was Dr. Gordon Jones.

TM: Yes, this was, I was involved with that.

AK: Oh, you see, he came up originally with Glomar you know? And then he went to work for Sproule.

TM: That's right.

AK: Now he's consulting to the Arctic Producers Association you know. Perhaps that's enough. Now maybe, could we switch to the personal side of your life, would you like to make some comments, your first wife having come up with you here and you having had children. Would you like to give some details about that?

TM: Well, yes, to a limited extent perhaps. My first wife to whom I was married in 1927 died in 1964, while we were on a vacation trip down into Oregon and with the intentions, perhaps of going father south, down into the Arizona area. But while we were stopping to

visit friends in The Dalles, Oregon, she unfortunately had a heart attack and died. We had 4 children, the elder being a daughter and 3 sons and a total of 20 grandchildren. At least I have, one was born after the death of my first wife. That's about all I can say. I've remarried and had a very happy life, enjoyed living in Canada. Now I expect I'll have to spend more of my time in a warmer and perhaps lower altitude, such time as I have left to enjoy life or at least, be alive.

AK: Tip, did you become a Canadian citizen?

TM: I did become a Canadian citizen in 1981, the month of August.

AK: So when you go back to the States you will go back more on a retired visitors basis, yes. And your children then, they would all. . . well, no, wait a minute, some of your children were born. . .

TM: I have 2 children born in Peru and they had the privilege of becoming Peruvian citizens had they cared to but they all were raised here in Calgary, or not raised here but lived for a considerable time here in Calgary. My daughter now lives in California and one son also lives in California and I have 2 sons that still live in Calgary.

AK: What would their citizenship be then?

TM: They're Canadian citizens, I presume. I know one of them is, he's gone through the whole motions.

AK: And your daughter in California would be a U.S. citizen?

TM: She's a U.S. citizen and my son is also a U.S. citizen.

AK: Any of your children, your 3 sons pursued the oil patch game?

TM: Mikes, yes, to a certain extent. He's been involved mostly in engineering, road building, etc. for access and site preparation. He has had various assignments and involvements in different aspects of the petroleum industry. One is, in the drilling business, he has been, as part of the drilling firm here in Calgary. Incidentally he's just out of it, just as of a few days ago.

AK: Well, this has been a wonderful experience for me, it's been a learning experience and I was wondering, just as some parting comments, on your philosophy of how you see the oil patch. . . I've talked to some people in the last couple of months and we seem to have concluded and I'd like your comments on it. I'm not trying to put words in your mouth but it seems like the days of '47 through to about '60's was something that will never be repeated in Canada.

TM: I completely agree with that Aub. I don't think we'll ever see the same kind of operations that we saw in those days. In one way, the operation has become too business like to satisfy the old timer such as myself. It takes too long to get anything done, too much talking and there's such a lack of confidence and everybody always seems to be ready to run to the courthouse on the slightest provocation. The old fashioned cooperation and do business over the phone and shake a hand, is gone from it. I do not think it will ever return. Even the big companies used to be able to call each other or make a deal over the phone and it would be ultimately backed by the necessary paper. But this can't happen anymore, there are too many other things involved. The economics and the pre-casting and predicting of economic results has become such a factor that it certainly interferes with the development of the oil fields or any other aspect of it, such as pipeline,

refining or anything else. I don't think the old happy days of the industry will ever really return.

AK: Yes. They were hectic, they were 25 hrs. a day, you know, the whole thing was different. This is the view that I seem to be getting, but probably it's kind of tinged with nostalgia but I think it was a privilege to have been around in those days. You know, it was a privilege to have worked with a lot of people and I don't know whether, you know, things moved so fast that I don't think we really knew what was going on some of the time but now looking back on it. . .

TM: A lot of the things we didn't know what was going on but we knew a whole lot more about what was going on than is known today.

AK: That's right, because we were right there. The other thing I think too, that happened is, we were involved in a lot of things that now, it's become so specialized and so compartmentalized that we have our duties all cut up in little pieces, little departments.

TM: You can't deny that there's a lot of nostalgia that creeps into any kind of discussion of this sort, but there's no question about it in my mind, that many, many people in the oil industry of the days we've been talking about worked and kept at it because they enjoyed it. We didn't worry too much about what we were going to get out of it in the way of money.

AK: Like the fellow says, what's my pension and when's the next day off and that sort of thing. But with this tightening up, perhaps, would you venture to say that some of this tightening up may not be all that bad?

TM: I think tightening up is what we have needed for a good many years now and it's been forced on us and I think it's going to be, in the end, a healthier atmosphere than it has been for the last 15 or 20 years.

AK: It seemed like last year, I noticed that downtown it was just like some kind of madness. The people were just frantic and they were spending their money. Now there's certainly a lot of people going to suffer but maybe it was coming to them. I don't know is that too. .?

TM: That's right. I think that people just simply could not realize that the bubble someday would have to break, that we couldn't go on forever living on credit. At some time you will have to pay your bill, one way or another. By paying your bill by borrowing more money is just not. . .well, I can't see that it's the way to do it and that it should ever have gone as far as it did.

AK: I think we've certainly had a long session here, it's now almost 20 minutes to 1 and you've been very patient and very helpful. So I think we can say so long, and sign off, is that okay?

TM: Aub, I might say, for my part, I've enjoyed your assistance in bringing some of these old memories back. I'm sorry that I haven't been able to be a little more articulate. We wasted a lot of tape with ??? things etc. but I certainly have enjoyed it and I thank you for inviting me to take part in it.

AK: Okay, well, thank you Tip, over and out. Today is July 17th, as I said, it's 20 to 1 and this is the end of my interviews with Mr. V. J. Moroney.