PETROLEUM INDUSTRY ORAL HISTORY PROJECT
TRANSCRIPT

INTERVIEWEE: Don Redman

INTERVIEWER: Nadine Mackenzie

DATE: August 1983

NM: This is Nadine Mackenzie speaking. Today is Thursday the 11th of August, 1983. I am at the home of Mr. & Mrs. Don Redman, 51 Cherovan Dr. S. W. in Calgary. Mr. Redman, thank you for having accepted to participate in our project. Can you tell me, where and when were you born?

DR: I was born in Ottawa, although at the time my family lived in Calgary. I was born on May 7th, 1918, in Ottawa, while the House of Commons was in session and my family was living in Ottawa as a member from Calgary, in the Conservative government. Apparently we drove back and forth. My dad was a member of the Borden government for 3 years, from the period 1918 - 1921, and we travelled back and forth from Calgary to Ottawa during that time. My father was a lawyer in Calgary, had just been overseas in the 1st World War, had come back wounded and had run as a Member of Parliament under a banner called the Soldier's Choice, had been successful in his election. . .

NM: Here in Calgary.

DR: Yes, here in Calgary. I believe at that time it was probably Calgary East, a riding that doesn't exist now. So I call myself a Calgarian because I was raised in Calgary and have always lived in Calgary but I actually was born in Ottawa, so I have some connection with Ontario.

NM: Did you go to school in Calgary only?

DR: Yes, I went to school in Calgary. I took my public school, high school in Calgary, took my first year university at Mount Royal College in Calgary, taking pre-law, with an idea that I might go into law and probably go into my father's law office. But after one year of pre-law, I went into my true yearning, which was engineering and went to Edmonton and took 4 years engineering, graduated with a BSc in Mining Engineering.

NM: Did you do any summer jobs in engineering while you were at the university?

DR: My summer work was not actually in engineering but it was in work associated with engineering. I worked out in Turner Valley for 2 summers while I was going to school. The first summer I worked on what we called the bull gang, which is pipe fitting, labour, digging ditches, fitting pipe, all various odds and ends like that. The next year I was able to talk the company into hiring me as a roughneck and I worked the next summer on the drilling rigs in Turner Valley. It turned out later, that I would up going into the oil industry instead of the mining industry so both of these 2 years of summer work in the oil industry turned out to be a very great advantage to me, which I did not realize at the time.

#046 NM: Which year was it when you were working at Turner Valley?

DR: The first summer I worked there was 1939, when I worked as a roughneck. I lived down

in the south end of Turner Valley, in the town called Little New York. I lived in a boarding house down there called Erickson's Boarding House and I worked for Anglo Canadian, under the supervision of Gene Denton and Clarence Matthews, in the bull gang end of the work.

NM: How was Turner Valley in this time?

DR: Turner Valley was really booming at that time. They had discovered deep oil and all the work was going on in the south end, drilling oil wells instead of drilling distillate gas wells. The south end had a large number of people live down there. At the time I was there Anglo Canadian had just built a very large camp down on the Highwood River and in 1939 they moved their camp from the town down to the river. At the same time the town was growing fast enough that the Twin City Hotel opened down in the south end. The drilling rigs were working pretty well both the south end and the north end of the valley, so it was very busy at that time. There also was a lot of unemployment at that time regardless of the Turner Valley booming. A lot of people out of work. When we were lucky enough to get summer work we had to be very discreet because we realized we were displacing other people down there during the summer, when we were given these jobs.

NM: In Turner Valley there were Little New York, Little Chicago, Little Philadelphia, why these names?

DR: I don't know why they picked the American names. We had quite a few American people working up there. As a matter of fact, the man I worked for, Gene Denton had come up from the States. But I think they mainly picked the name of these 2, Little Chicago and Little New York was because they'd built a 2 story building in the south end, therefore they named it Little New York, to tie into the skyscrapers of New York. Little Chicago was all one story shacks and therefore they picked the next bigger city in the States at that time and just called it Chicago.

NM: What about the smell of gas in Turner Valley?

DR: The smell of gas was very, very strong in Turner Valley because it was untreated gas. This was the natural gas that was produced with the oil. The smell was all through the area. When people came down for the first time into Turner Valley they could hardly stand the smell. When you lived in it yourself it actually affected the membranes of your nose because there was hydrogen sulphide and within a few hours you got where you could not really smell it and you really didn't notice it. But I had a 1926 Chev touring car down there, that I'd paid $50 for to get around to work. It had the old style headlights that were silver plated and every time I came to Calgary I went to the silver plating plant, which was near the Palliser Hotel, got my headlights replated with silver and within 8 hours when I got back to Turner Valley they were just as black as the silver turns in your house when you eat an egg or something.

#092 NM: Were people getting sick with the smell of gas or not at all?

DR: It was not strong enough to make you sick. But everybody had gas in their buildings down there, they all had gas burning out behind the buildings in little garbage pits, little holes dug in the ground with a little flare in it where they burnt up most of their garbage.

There was certain leaks and various things in the old pipefittings around there but it was not strong enough to make a person sick but it just was a complete rotten egg smell just through the whole of the Turner Valley.

NM: What about the accidents or the explosions?

DR: There were some but I was never involved and know very little about any that might have occurred.

NM: So there were no major accidents?

DR: Not that I know of. I believe there were some bad accidents but I was never involved in any when I was down there.

NM: When you finished your studies at the university what did you do?

DR: When I got out of university? Well, when I went to university, it was a 4 year course, I planned on being a hard rock miner and planned on working probably down in the Sudbury area in Ontario. While I was attending university I had this interest in the oil business, I actually wrote my thesis on the oil business. We had one professor, Dr. Clark, in the mining department who was also a contact man for Trinidad Oils in Trinidad and he had been talking to me about staying in the oil business and going to work in Trinidad. I also had contact with a Mr. John Galloway, who was the head of Chevron up here, which was called California Standard at that time and he also had advised me that when I graduated from school I could go to work for California Standard in Alberta. So around my 4th year I decided that I would not go into hard rock mining and go into the oil business and accepted the offer of California Standard. So that I immediately went to work, as soon as I got out of school, with California Standard in Brooks, Alberta.

NM: And what was your job there?

DR: My job was the same thing as I started out in Turner Valley, they had no positions for engineers at that time, so I went back and worked on what we call the bull gang again. California Standard was actually starting some production operations out at Princess, just northeast of Brooks. I went out there and did the same thing again, pipefitting, construction, worked into production and finally, when some engineering opportunities became available, became an engineer for the company.

#138 NM: Can you tell me a bit more about California Standard Oil?

DR: California Standard I believe, were the original company to come into Canada, outside of Imperial Oil, with the idea that there could be large reserves of oil in Canada. I give credit to California Standard as being the original wildcatting company to come to Canada. My understanding is they came to Canada in 1937. Mr. Galloway, who was a geologist from California, came up here, built up a team of geologists and seismic people and was actually looking for oil sands similar to the oil sands of California where Standard Oil of California had been so successful. The area that they picked was mainly the area east of Calgary, where they felt there would be considerable thicknesses of oil sands and it was what we call the triangle between Brooks, Medicine Hat and Taber. California Standard operated out there for a good many years, found quite a few oil wells but never of a significant thickness as they had expected. They did though, in the Princess area, find Devonian oil several years before the large Devonian oil discoveries were found in

Leduc. Therefore really should have credit as being the first producer of Devonian oil and may have, because of that discovery, it may have had some significance on the other companies realizing there was Devonian oil in Alberta and making the discoveries in Devon and later, Redwater. After California Standard started exploration in the Princess area, Imperial Oil also moved an exploration department, from Turner Valley, out to the Brooks area, opening their offices in the town of Brooks and doing most of their exploration in a little town of Tilley, just south of Princess, where they also were able to find some small oil wells. But this was several years after California Standard had started their explorations in Alberta.

NM: When you were working in Brooks, were there a big staff there?

DR: No, when I started in Brooks I was the first engineer hired by California Standard. At that time they had one geologist there, his name was John Gray. We had an engineer up from the States, Reis Norton and a geologist from the States, Chuck Bradford. That comprised the complete staff at that time. I started to work for them in 1941. Over the next few years, mainly around 1944, they started enlarging their staff, building a camp at Princess and also building another camp at Taber, where they had moved their exploration efforts and had discovered oil in Taber. So that the staff at that time started to expand fairly rapidly and finally built up to well over 100 people.

#196 NM: What were the conditions of living in Brooks?

DR: Our conditions of living were satisfactory for the time. I actually lived in Patricia. I started out living in the hotel and eating in a boarding house across the road that was known as Ma Bailey's Boarding House. It was quite an interesting boarding house. She served meals for 30-40 people at a time. We ate off the land. They had a young boy who was a tremendous hunter and fisherman and most of the time we ate pheasants, antelope and pike and whitefish that they caught in the lakes. It was strictly illegal of course, to serve wild game but everybody knew that they were eating wild game and nothing was done about it for quite some time, until the boarding house started serving up to 60-80 meals at a time and finally the government moved in and went after them for serving wild game when it got to be of such a magnitude. After living in the hotel for awhile I was able to get to know the people who lived in Patricia and was able to move into one of the. . .I lived in 2 of the houses in Patricia. And at a later date, as the staff started enlarging and the company built the camp at Princess, we all moved out into the camp at Princess.

NM: Did you stay mostly in Brooks or were you travelling around?

DR: To start with I stayed in. . we were working only in the Princess area. Then in 1943 the company moved one of their drilling rigs down to Taber and we started wildcatting in Taber and from then on I lived either in Taber or Brooks or Medicine Hat, wherever the activity was at the time. So I just moved around from. . . I had a bedroom in both camps and if I lived in Medicine Hat I just stayed in the hotel. So I wound up travelling all the time, sleeping in the car a lot and bunking in whichever closest camp I was at if it was handy.

NM: Did you often come back to Calgary?

DR: No, I didn't come up to Calgary at all. No, I stayed down in that area for 8 or 9 years

before I finally came back to Calgary.

NM: Who was working with you at the time?

DR: In the Princess area, we had 2 drilling companies in there, which were quite interesting. The first drilling company that California Standard brought up from the States was the Noble Drilling Company. They brought a rig capable of drilling to probably 8,000', up to Canada from the States, named their Canadian company the Dominion Drilling Company. The man that came up as tool push with that rig was Ralph Binning. Later one of the senior men with Drilling Contractors in Calgary. Ralph Binning brought up a mechanical supervisor with him called Oscar Bird and they drilled most of the deep wells in the Princess area and later the rig was moved down to the Cardston area where a deep well was drilled on top of the Milk River ridge, by Cal Standard, on behalf of E. L. Cord, the man that built the front wheel drive cars. Then the rig was taken back to the States. Later Ralph Binning came back up to Canada with Drilling Contractors. The other contractor in the Princess area was a company called Cantex Drilling. Cantex brought 2 rigs up from Texas on behalf of California Standard. These rigs were shipped up by train to Princess, unloaded in Princess and their man that came up to head up Cantex Drilling was a well known man by the name of Dick Harris. Dick Harris brought no other people up with him and hired all his people locally in the Brooks area, with the result that a lot of people in the oil industry in Alberta today, are from Brooks and mainly started working with Cantex Drilling. Dick Harris was an amazing person. One of the old style drillers who could improvise or build any equipment he needed, repair his rigs out in the field. I even saw him . . . he could ride a horse. And in the spring time in Princess, when the roads were notoriously muddy, I even saw him ride a horse from Brooks, the 30 miles out to Princess, check his rigs, and then that evening ride his horse back to Brooks for a 50-60 mile total ride, just to keep in touch with his rigs. In those days we had no radio communication with the rigs, no telephone. So that you had to get to the rig itself to find out what was going on. At that time I bought a Model A Ford car in Brooks, second hand from the barber in Brooks and I was able to use that car to get around through the mud to the rigs and able to supervise the rigs that way on behalf of California Standard. For service companies out there, we had Haliburton Oilwell Cementing. They were stationed in Patricia. Jan Balatchy and Jack Peak were the early operators of the Haliburton equipment. We had a Haliburton logging truck. We started testing with Haliburton tools. The tester at that time was Bill Dyson, who had been moved down to the area from Lloydminster.

NM: This is the end of the tape.

Tape 1 Side 2

DR: We had on our completion of our wells, we would bring Lane Wells out from Okotoks, for perforating. At that time Spi Langston, Ken Miller, Bob Cole were the operators with Lane Wells. We mentioned that Imperial was wildcatting in the Tilley area at the same time. They had bought a new rig of their own that they brought in to Tilley, which was a very interesting rig and was actually the first mobile rig brought in to western Canada.

They had bought a Franks portable drilling rig, capable of drilling to about 4,000', that was mounted on wheels. People came from far and wide to see this new type of rig. It was earning quite a notorious reputation down in the area because, even with all the wheels under it, it was a pretty heavy rig to move. I think in the end it had fallen through practically all of the eastern irrigation district bridges in the Tilley-Brooks area. We knew most of the Imperial personnel that were operating out of the Newell Hotel in Brooks and we used to kid them a little bit about being sent on foreign operations when they had to work in Brooks because they had all lived in Turner Valley for so long. It was quite a change for them to leave Turner Valley and work somewhere else. California Standard discovered the first oilwell in Taber in '43, when they moved one of the Cantex drilling rigs down to Taber. It was actually drilled 2 miles south of Taber, on the Kirkoff farm. Leonard Kirkoff, who is well known in the oil business, was living at home at that time and going to school. And probably because of the oil field discovered on his dad's land made his decision to go into the oil business also. For service companies down in the Taber area, Dowell Oilwell Cementing also had moved in equipment. The operator of Dowell at that time was Ed Tovell. Haliburton was down there, truckers were James and Reamer Trucking, who had come from Turner Valley down to Taber. Drilling rigs were Cantex, as we have mentioned, Newell and Chandler had moved rigs from Turner Valley down there. General Petroleums had started their drilling rigs down there, which as we mentioned earlier, was when Ralph Binning came back. Imperial Oil was also wildcatting in the Taber area. Their district superintendent was George Kirkpatrick but Aubrey Kerr was their geologist in the area, who is also of course, very well known in the business. Engineers for California Standard outside of myself, was Jim Drumheller, who had come back from Bayreen???. Jack Gregg worked for California Standard for some time in the Princess are and Ron Richardson who still works for California Standard was hired in the early 1940's and started in the Princess area. In the Taber area, as well as the California Standard engineers, one of the first consulting engineering firms was organized under the name of Oil Ventures. The principals of that company were Neil McQueen, Ken Doze, and Maurice Paulsen.

#074 NM: Mr. Redman, you were using cars in this time. Tell me about the gasoline, where did you get it from, especially in Turner Valley?

DR: The gasoline we used in Turner Valley was unique. We obtained our gasoline from the various producing wells in the area. I often wondered whether we were obtaining our gasoline legally or illegally. Because I can remember being told that I could obtain gasoline part way up a hill, at the producing battery on the east side of the road, between Little New York and Little Chicago. The operator of the well, he used to sell us gasoline right out of the well, right out of the separator. We would pay him for the gasoline but I often wondered if that money ever went back into the company or it went into his pocket. It was just a raw distillate we put in the cars at that time, so that they would vapour lock in the hot days and also, if you walked by the car or put the car in a garage, you just got the normal hydrogen sulphide smell from that untreated gasoline. Now that we're back in Turner Valley, a few other comments might be interesting for you. I had mentioned the

hard times and we would go to work each morning down at our warehouse, at the Anglo camp. The foreman would get up on a platform and look at this group of 50-60 men with their lunch buckets and pick our men for the various jobs he had on his list to be done that morning. He probably would pick maybe ½ of the men waiting there to go to work. At noon time these men would all be back again because the foreman would come in at noon and he may have found that he needed some more men in the afternoon and these men would be all there again just in case a job turned up and he might only, at that time, pick out 2 or 3 more men for some special job. And the rest would go home and wait til next morning where they would all appear down at that warehouse again. This would go on day after day. While these men were hopeful that somehow or other they would be able to get a job. On the drilling rigs the same situation happened. There would be, at every drilling rig, there would be 3 or 4 men standing at the end of the walk with their lunch buckets. They were there in case one of the crew didn't turn up for work or even worse than that, they would be there in case somebody got hurt and they could move in and take their place.

#115 NM: So it was very hard to get a job in this time.

DR: So times were pretty hard. This is why I had made the comment there that we appreciated being able to get summer work down there when there were so many people out of work. At this time the Conservation Board was being formed in Turner Valley. It was a rather interesting operation the first year. The Conservation Board was formed for a proper reason, looking back, of true conservation and to make sure that there was some equity of the operations of the producing rates of the wells and the marketing of the oil. At the very start of the Conservation Board of course, the oil companies were nervous of the Conservation Board and were very uncooperative. Even the company I was working for, Anglo Canadian had advised us that we were to cooperate with the Conservation Board only as little as was required. We were not to volunteer anything more than the questions that were asked, which made it very, very hard for the original Conservation Board operators. The first operators down there were Herb Bagnall and Bert Corey. I can remember working at one of the Anglo tank batteries and one of them came up and wanted to know which of the tanks the wells were producing into. I told him he was welcome to go up and find out for himself, which was the type of cooperation they were getting. Another interesting event occurred at that time, which was partially the reason of the Conservation Board being formed. The allowables of the wells in the area were based on a formula called the Brown formula. The Brown formula was really, from my understanding, based on the producing rate of the well. Because the larger rate the well produced at, the larger allowable you would get, Anglo Canadian rigged up one of the south end wells, called Frontier #1 to produce at the maximum rate that the equipment would allow it to produce at. We rigged up all of the producing equipment right on the concrete well head. It comprised mainly of short, very large diameter flow lines, directly from the Christmas tree into the separator, a very large low pressure manually operated separator, a very large diameter flare line to reduce back pressures and this well was put on production under the Brown formula and I understand produced at the rate of over

8,000 barrels a day oil.

#169 NM: What was the Brown formula?

DR: I can't correctly answer what the Brown formula is but the Brown formula was the formula used by the Conservation Board, at that time, to prorate the various oilwells in order to give them an equitable allowable on the limited market that existed at the time. My understanding of the Brown formula was it was more or less just the producing rate of the well, over a 24 or maybe a 48 hour period. So therefore if you could have a higher producing rate for 48 hours than your neighbour, even though the wells were both comparatively the same type oil wells, under this formula you would get a higher monthly allowable than your neighbour would. Because of the method of testing of this Frontier #1 well, which gave such a high allowable under the Brown formula, I understand that shortly after that the Brown formula was eliminated as the means of pro-rating oilwells in Turner Valley. The Frontier #1 well, I remember at the time was headlined in the papers as the largest producing well in the British empire. I was assigned to work on this well from midnight to 8 in the morning while we were testing it. The oil was coming out so fast and in through the separator and out through the flare that the separator was rocking on its base. I was standing there operating the manual dump valves. The oil was coming in to the separator so fast that I was afraid to let go of the valve in case the separator filled up and something blew up. My lunch bucket was sitting behind me but I didn't dare turn around to grab my lunch out of the lunch bucket because I was just continually opening and closing the dump valve on the separator. So I spent 8 hours glued to that separator and hoping that the separator wouldn't tip over during that time till my relief came. But it really was a spectacular sight. The noise of the flare burning was tremendous, and as the headline stated later, it was one of the biggest well tests ever operated in Turner Valley. The equipment was all dismantled afterwards and prepared to move on to another well but when the Brown formula was eliminated the equipment, I noticed, was taken back to the camp and put in the corner and as far as I know, was never used again.

#210 NM: Do you have any further comments on roughnecking in Turner Valley?

DR: As I mentioned, my first year in Turner Valley was working on the bull gang. I had hoped to roughneck, mainly because I was trying to earn take home money for going to school. I had talked to the drilling contractor for Anglo Canadian, was called Drilling Contractors and was headed up by Ralph Will. I had talked to Ralph Will about roughnecking that first year. He looked at me, I guess I was tall and skinny and his answer was, boy that drill pipe will whip you all over the floor, you stay where you are on the bull gang. So the first year I worked on the bull gang. The next year I went and saw Ralph Will again and was successful in talking him into a roughnecking job for Drilling Contractors. I worked up in the north end, up in the Millarville area, on both Home #5 and Home #6. My drillers on those 2 rigs were Bill Coates and Owen Sands. They were steam rigs in those days. The one rig had what we called super heaters and it had large diameter, high pressure steam lines because of that. These lines were very, very heavy and I remember one day, when we were rigging up the rig I tried to pick up one end of the steam line and the man on the

other end was picking up his end. He got his end off the ground, I couldn't even get my end up off the ground. His name was Gus Gamache, he finally looked at me and said, boy get out of the way and he went to the middle of the line and picked the whole line up on his shoulder and walked off with it. The drill pipe was also the same. We used 90' stands of 6" drill pipe in those days. Which made the stands pretty heavy and you had to work pretty hard in what we called the dumb corner, racking pipe. We were tripping pipe one day and I was racking pipe. Ralph Will walked up on the floor, the water was running off the end of my nose and I was really having trouble with the weight of these stands. Ralph Will looked at me and remember what he'd said the year before and he just said, boy, what did I tell you. For the latter part of the roughnecking we wound up living in Calgary and driving in and out to the north end with Owen Sands, who had just got married and had elected to keep his wife in Calgary rather than move out to the valley with her. We drove a Model A car and the Millarville hills in those days were very poorly gravelled and a lot of the time after rainstorms, we used to all have to get out and push the cars up the Millarville highway hills, to get them to the top of the hills, then all jump in and ride down the other side and then get out and push up the next one. Other members of the crews that I worked with on the rigs were Percy Davis, who later went to Haliburton, Johnny Gamache, who later formed his own well servicing company and Pete McCrae. Going back to the Princess area, the discovery well drilled by California Standard, which was called CPR Princess #1, was drilled by a Drilling Contractor rig from Turner Valley. It was one of the first rigs moved out of Turner Valley on to a wildcatting project. It was quite an interesting operation because they had 2 blowouts on the well at Princess. Neither time did the well catch fire but one time the pipe was partially blown out of the hole and the rig was damaged badly enough that the bolted steel derrick had to be pulled down and a new derrick rebuilt. The interesting thing on these blowouts was it was due to the blowout on the rig that the first Devonian oil was found by California Standard in Princess. The well was being drilled as a deep test and was some depth below the Devonian when the well blew out. The well blew for a good many days while they were getting it under control with the result that a lot of water and mud were blown around the lease. Mr. Galloway, who was out there witnessing the blowout on the well noticed that there was a light gravity oil scum floating on the mud and the water that was laying in pools around the well. Using this knowledge, and realizing that that oil had to come from some zone in the well while it was blowing, at a later date, had the Princess #1 well redrilled to the Devonian zone and the well was cased and tested and turned out to be the discovery Devonian producer in the area.

NM: End of the tape. This is the end of the first interview with Don Redman. Thank you very much Mr. Redman, for this first interview.

Tape 2 Side 1

NM: This is Nadine Mackenzie speaking. This is the second interview with Mr. Don Redman. Mr. Redman, what did you do in 1949?

DR: Okay, in 1949 I was still a field engineer down in the Taber, Brooks, Medicine Hat area.

In those days we had very few services helping in the oil industry like we do these days. One lack of service in particular I can remember is the handling of drilling mud. We did not have mud engineers supplied by the companies that sold the mud and there also was a shortage of drilling mud available. So that you had to buy your own mud and with the operations we had going on down in the area we used to buy our mud by the train carload in those days and keep it in the warehouse and haul it out ourselves to the rig when we needed it. The use of the drilling mud was strictly on the knowledge of the engineers and the tool pushes. I remember one time I think we covered some wells blowing out in the Princess area. I can remember one time when there also was a blowout of a well in the Jumping Pound area, operated by Shell Oil. We were using Baroide to try to. . . a heavy weight material to try to kill these wells but they ran out of Baroide in Canada. We made an arrangement with Shell Oil that as the carloads of Baroide arrived in Canada we would take one carload and they would take the next. But the Baroide came up in such small quantities that we would take a carload of Baroide, fight our well, when we ran out of Baroide we would just shut the well in, in the condition it was in, and probably. . .or we did wait up to 10 days before we could obtain another carload of Baroide to continue working on this well that was attempting to blow out. It was a pretty hairy experience compared to the way you go after a well now. Both Shell and ourselves got our wells under control but it was not a very good situation where the 2 wells blew out at the same time. Around this time we started switching over to Magabar mud products and started bringing in Magabar mud by the train carload so that there would not be this shortage of mud when you only dealt with one company, the Baroide company. Because we were bringing in Magabar mud and Magabar was interested in becoming established in Canada, we picked 3 engineers from California Standard, myself, Rudy Dutka and Jack Mohn and we went to Magabar Mud School in Houston., which was. . .

#042 NM: What was this school?

DR: Magabar Mud School, which is where they teach you how to handle their mud and how to control wells, how to use their products, all the different ways of mixing their mud.

NM: Was it a big school?

DR: It was like a little lab. They probably had 20 people they trained at a time. The teacher at the Magabar school was a teacher called Doc Green, who was a well known around the country and has taught an awful lot of people how to be a mud engineer.

#048 - 060 [something else on the tape]

DR: . . . was discovered which was very close to this time. The 2 large mud companies started hiring and training engineers up here and supplying the engineers with the mud when you bought the mud that you bought the mud from them. At this time, this as I mentioned, was around the time that Leduc was discovered and was therefore the time that California Standard expanded their activities in Alberta. Rather than just in the southeastern part, where as we mentioned they were looking for sand type reservoirs, to the whole of Alberta, where you could find sand or dolomite reservoirs, such as Leduc and Redwater. I had been moved from southeast Alberta into the Calgary office and started working the different areas, out of Calgary, from this time on. One of our first projects was in the

Peace River area. We obtained a large concession just east of Peace River, in which probably is now called the Red Earth, Utikuma Lake area. As there had been very little exploration work done in that area the first thing we did was to charter a Trans Canada airlines, now Air Canada, plane, and flew over this large concession to see what type of terrain it was and particularly to see if seismic work could be done in the area. If I remember rightly the plane was an old Lockheed Electra. We had a stewardess on it and quite a few geologists, seismic people and myself were on the trip. We flew fairly low to the ground and just flew a grid, back and forth, east and west, over the concession. The concession we had probably was 30 miles long by 10 miles wide. After everybody was watching out the window and the pilot was flying not too far above the treetops somebody got air sick, caused by just staring at the ground so closely. By the time we finished everybody in the plane was sick, there must have been 10 of us sick, including the stewardess who was trying to take care of us. It turned to be a pretty bad trip. We were watching, in through the heavy timber and trying to see if we could see water glisten up through the trees to know whether it was wet muskeg or whether there was any dry country. The flight was unsuccessful, everybody got sick and we told the plane to take us home. We decided that the way to survey this area was to get some horses and ride into it with horses and see what the country was like.

#098 NM: Instead of using planes.

DR: Instead of using the airplane. The lucky people chosen to ride the horses was myself and George Grant, neither of who knew anything about horses whatsoever. We arranged to get our horses from a farmer in Harmon Valley, about 20 miles east of Peace River, who was well known to a lot of the oil people later that worked up in the area, by the name of, his name was Joe Stuffco. He told us he would have no trouble getting horses for us and we also arranged to have an assistant forest ranger go in with us who felt it was a good chance for them to go in and look at the size of the timber and everything in the area. There had been probably nobody in there except maybe trappers. We went out to Harmon Valley, to Stuffco's farmhouse. . .

NM: How many horses did you have with you?

DR: We had 5 horses, 3 to ride and 2 to pack. We went out to Stuffco's farm, which was at the end of the road in those days, to get the horses and I asked him if he had the horses. He said, yes they were all ready. We had seen a couple of horses standing around and he said, yes, those were 2 of them. When we were talking to them he was driving a hay rack pulled by a team of horses and he said, there's another 2 and he unhitched his team and gave us there horses, which he claimed you could also ride. Then his little girl came home from school on a little white horse and he just took that horse away from here and said, there's your other horse. It was a little girl's horse for going to school. So these were the horses that we had to go out into the muskeg. We rode out into the muskeg for about 8 days, trying to head east, trying to map the muskeg, trying to map the area we were in. We had some old base maps given to us by the company which turned out not very good because they even showed some of the creeks that we crossed, flowing in the wrong direction. We had a compass that a couple of times we doubted whether it was right

because the creeks were flowing the wrong way. It turned out the compass was right and the maps were wrong. We had a radio that the forestry people gave up but the batteries went dead on the radio after a few days so that we lost all contact. This trip was in October so that we rode out for 7 or 8 days and then we felt we had 4 days to ride back. At that time the weather turned really cold to where all the water froze, all the creeks froze and we were out there living under a piece of canvas tarpaulin and having to break ice and keep a fire going all night to keep from freezing to death. We apparently stayed out longer than people had thought and with out radio gone, we saw a plane flying by a couple of days towards the end that apparently was looking for us but we didn't pay too much attention to it and they didn't spot us anyway. But apparently people were getting a little concerned because the weather had turned so cold and we hadn't arrived back. We got back to Harmon Valley after about 10 days. Looking at it now we figure we probably rode nearly into the Red Earth area, where we got into sand hills and the area became quite accessible. All the earlier area, from there to Harmon's Valley was real floating muskeg, which was the information the seismic people wanted to find out. When we got to Harmon Valley, it started to warm up a bit, all the roads turned into the famous Peace River clay gumbo and we had to have the people in the area tow us the 10 or 12 miles out to the Peace River gravel highway with a tractor. As we passed different people stuck in the mud we hooked them on the back, to where we were towing 2 or 3 cars. Finally our tractor got too small. .

#154 NM: One after the other or. . .?

DR: Yes, one after the other. Finally our little Fordson tractor got too small and we had to find a Caterpillar tractor to continue towing us because the mud was so deep and so sticky. There's a little interesting side story. As we were heading out to the highway we saw a car heading in and completely stuck in the mud and it looked like there were 2 people in it. When we got up to the car we stopped and it was Nick Taylor, who at that time worked for Canada City Services and was doing a little scouting in the area. He also had a lady with him who turned out to be his brand new wife. They were completely stuck in the mud, his wife only had on high heeled shoes so that there was no way she could step out of the car into this mud and survive at all and they were really glad to see us come along. We unhitched the tractor, got their car turned around with the tractor, towed our other cars by and hooked them on the back end and towed everybody out to the highway. Once we hit the highway we even had to have the tractor tow us a mile down the gravel highway to break the wheels loose on the cars and get the mud worked out from under the fenders so that the wheels would turn and the cars would run.

#173 NM: So the mud was pretty bad then.

DR: That north country is just famous for what we call gumbo and when it get wet it's just rolls up and all you can do is either tow yourself or sit and wait till it dries. At that time Peace River was a pretty busy area. The exploration was just moving into the area. There was one small hotel in Peace River and they were renting the rooms out on 12 hour service. You either slept from 8 at night to 8 in the morning or you could sleep at 8 in the

morning to 8 at night in the same room. We pulled in to the hotel about 7 or 8 at night, checked the hotel, the hotel was full, there was no place to sleep. We checked the phones to phone in that we had arrived in Peace River. There were so many long distance phone calls in that area with the little bit of service that the girl told us there would be a 4 hour wait before she would get to our phone call to phone the company in Edmonton and tell them that we were out of the area. So we elected to just jump in the car and just drive all night to Edmonton, rather than just sleep in the car. We drove all night to Edmonton, walked into the office at 8 in the morning when the office opened in Edmonton and couldn't understand why everybody was so upset to see us standing there. People started running around and grabbing the phones and what they were doing was calling off the air search that was in operation for us. From here, California Standard started exploring in Manitoba. We actually discovered the first oilwell in Manitoba in 1951 in a small field that was called the Daly oilfield. This oilfield again, was discovered after seismic surveys had been conducted through the area. The first wells were very small wells, producing just small volumes of oil and fairly large volumes of water, out of a dolomite. I don't actually remember the geological names of the zones at the time. It did cause quite a bit of interest in Manitoba. Because if these were major oilfields that we were on the verge of discovering down there it would mean a change of design and size of the Inter Provincial Pipeline that was just being built at this time to take Alberta oil down into the Ontario area. As a matter of fact, the construction crews were just going through Manitoba at the time we drilled a discovery well. There was quite a bit of scouting of our wells, both by other oil companies and by Inter Provincial, who were trying to find out if they might require a larger size pipeline from there on east. The contractor we had on that discovery well was Hawk Drilling Company, which was a company formed by Charlie Hawk, who formerly worked for Newell and Chandler in Turner Valley, until he formed his own company. His first tool push was an old Turner Valley driller and tool push by the name of Andy Flood and his office manager and accountant in Calgary was Alastair Ross, who later became well known in the oil business, particularly with Western Decalta company. The early wells drilled by Cal Standard in Manitoba, as I've mentioned, were very poor producers. We did considerable work assuming that we were damaging them with our drilling mud and tried some oil based drilling muds without much additional success. We decided that we probably were damaging the wells. So we thought that one way to properly complete these wells would be to go back to the cable tool rig completion system. Cable tools were a thing of the past in Canada at that time so it was necessary to go down into the old cable tool area of Cutbank, Shelby area, across the border in Montana. After visiting with most of the cable tool contractors down there I was able to interest Robert E. Lee, a well known drilling contractor and producer in the Shelby area to bring a cable tool rig up to Manitoba. At a later date this same Robert E. Lee brought drilling rigs into Canada and drilled for Montana Power in southern Alberta in the Foremost - Manyberries area. The first use of the cable tools was on the well completion. We decided that maybe we could make these wells produce by shooting them with nitroglycerin. This required a cable tool rig of course, to tamp the holes after the nitroglycerin was put in the hole.

#281 NM: What would nitroglycerin do?

DR: Nitroglycerin is a high explosive. What we did in the area on most of the wells was we were loading them with 4-5 hundred gallons of nitroglycerin, which is a fairly large charge. Then we would tamp them with gravel on top to hold the nitroglycerin explosion down when it went off, probably putting in 100-200 feet of gravel. We would then fire the nitroglycerin, kept the large impact, which we hoped would fracture the dolomite zone and allow the oil to produce better, then go back in with the cable tools, clean out the gravel, and clean out the hole and swab the hole, test this type of completion. Our shooter was a well known shooter who'd shot all the early wells in Turner Valley with nitroglycerin, by the name of Charlie Stalnacher from Sweetgrass.

NM: What was Sweetgrass?

DR: Sweetgrass is another of the little towns in the Montana oil producing area. These I believe, were some of the final holes shot in Canada with nitroglycerin. Again, we got a little better wells this way and we then used the cable tool rig to actually core the dolomite reservoir and probably operated the only baker cable tool core barrel in Canada. This was an interesting operation because with a cable tool core barrel you can core very short intervals at a time, 3", 6", and pull your core out and have a look at what type of reservoir you're going through. Also you do no damage because you're coring in with no fluid in the hole at all to damage the well bore like rotary drilling operations do. The cores we were using a 3" core barrel and the cores came out like wafers, or 3" biscuits. They'd probably be at the most, an inch thick and then they would break so that you'd bring out 2 or 3 of these inch thick samples from the hole. But if you only cored 6" at a time you were able to get a pretty representative sample of the type of reservoir you were in. The completions, we still shot these wells with glycerin and the completions still were not that successful. The wells still only made, maybe 10 barrels of oil a day and we still got a fair amount of water with them.

NM: End of the tape.

Tape 2 Side 2

DR: At this time we even started a survey of attempting a mining operation to produce this oil. The basic principle of the mining operation was that we were going to sink a shaft through the producing zone and dig tunnels out from the centre of this shaft and then drill vertical holes up into the producing zone, which would allow the oil to drain down these holes into the tunnels, from the tunnels into the shaft and then just put a large pump into the bottom of the shaft and pump the oil to the surface. We felt if we drilled enough tunnels out in all directions, like the spoke of a wheel that we could wind up with a fairly large production operation out of one shaft. A study was actually started on this and even today, this type of operation is being studied for methods of producing the tar sands in northern Alberta. We weren't sure how we would complete the wells, we even had talked to Charlie Stalnacher whether we could shoot those wells by putting the glycerin up into the holes and somehow tamping them from the bottom up. Or we were wondering about acidizing and various things. I believe the preliminary study, with a lot of positive

assumptions made in it, it turned out that the method might be economic. But the mining operation never was put into effect. One of the reasons was that the procedure known as fracking of wells was being started at this time in the United States. California Standard reviewed these fracks that were being performed in the States, by Haliburton, who had the original license. We arranged to bring Haliburton from Duncan up to Virden and we fracked the first well, which actually was the first frack used in Canada.

NM: What is frack?

DR: Frack mean fracturing. The principal of fracturing is that you pump a fluid down your well at a very high pressure, actually at a higher pressure than the rock pressure. So that the rock actually fractures and this fluid goes back into the hole and extends that fracture away from the well bore. With the idea that the bigger a fracture you make, the more drainage you have into the well bore, the further away you get from well damage, which is what we were really concerned about in this area, and therefore the better well you should get. The other phase of fracturing is that if you stop pumping the fluid out and reduce your pressure the weight of the rock will just close the fracture, it'll just close up tight and seal again. So that you also pump, in your fluid, material that will stay in the fracture and keep the fracture from closing when you turn the pump off. We were using sand on the first fracks but there's all kinds of things used, everything from walnut shells to any material that will not crush. The basic idea is just to form the fracture and then to hold the fracture open to allow the oil to flow back. Our first fracture was not that successful because it was again, we did not know the characteristics of the reservoir and we were running into cold weather which was hindering up. So that the next fracture we tried was we had to bring out some heat. In order to get steam to heat our fracturing fluid we were in Manitoba, able to find a Case steamer tractor that was operating that was actually sitting on a vacant lot in Virden. When we needed a steam boiler they just drove the old Case steamer tractor the 10 miles out to the well, hooked it up and we had a portable steaming unit to give us steam to heat the frack fluid. I don't think there's many of these old Case steamers left anymore but they were apparently very commonly used in the Manitoba area in their farming operations, before the oil industry moved in there. Around this time other oil companies moved into the Virden area and drilled additional wells in the area. Some of the wells were drilled downdip in the structure from where Cal Standard was drilling, found considerably better reservoirs, thicker and more permeable. Which indicated that the original Cal Standard wells were drilled on a seismic high. But when you drill your wells on the high you find out that your reservoir is tight, has no permeability and produces a lot of water with the oil. Once they realized that there were better reservoirs downdip I understand that there was very little additional drilling done up on the highs and all the use of nitroglycerin shooting, fracking, cable too rigs, was eliminated in the area. From this area I went back to Alberta and worked in the Edmonton area on some exploration wells that Cal Standard was drilling as follow-ups to the Leduc discovery. At this time California Standard drilled the discovery well for the Atchison oilfield, which is the first northern extension of the Leduc-Woodbend oilfield. This was Cal Standard's first major discovery in Canada. It turned out that in the end, they owned a considerable share of the Atchison oilfield and became a major producer of oil in Canada.

From then on, Chevron became very successful, both in oil and gas in Canada and is now one of the major exploration and producing companies in Canada. At this time, I was approached by a company by the name of Central Leduc Oils Ltd., to go to work for Central Leduc as an engineer. Actually as chief engineer but at that time I was also the only engineer.

#105 NM: That was in 1952.

DR: That was in 1952, yes. The principals of Central Leduc was Neil McQueen, a geologist, one of the original wildcatters in Canada. One of the early geologists hired by Imperial Oil. Neil McQueen, with Dr. Ted Link, were the Imperial geologists that discovered the Norman Wells oilfield and a field geological survey in the Northwest Territories. It was interesting, Neil McQueen was born in Petrolia, Ontario. His father was one of the original producers of oil in the Petrolia-Oil Springs area. I believe that when Imperial Oil, through their Standard Oil of New Jersey, decided to move into Canada they bought Neil McQueen's father's producing facilities and his father became one of the original Directors of Imperial Oil in Canada. I believe this would be the reason why, Neil McQueen then went to school and took geology and of course, went to work to start with as a field geologist for Imperial Oil. He had worked for Imperial Oil for some time then he had gone out into British Columbian, put together and put on production, the Bralorne Gold Mine, then came back to Alberta, worked for Pacific Petroleums then formed Oil Ventures, a consulting engineering firm which I mentioned was operating in the Taber area. And then on the discovery of the Leduc oilfield by Imperial Oil, he formed Central Leduc Oils with some property in Leduc. Drilled a dry hole and then a successful oilwell in Leduc, which was the start of the company. His partner in this operation was Mr. Muburne, also an old timer in the oil business in Alberta and brother of Dr. Muburne from Edmonton, whom the Muburne Pavilion of the University Hospital is named after. They also had a twin company called Del Rio Producers and the man that headed that up was Skinny Macdonald from Calgary who also was an old timer in Calgary. I believe was a grain buyer in South America for a considerable length of time and therefore the Del Rio name was chosen by him from I believe, from the Del Rio River in South America. Later these 2 companies were put together and the company name was changed to Central Del Rio, which is the name the company is pretty well known by. I accepted their offer to go over because I felt it was a challenge to now go to a small company with the tremendous training I'd had from a major oil company and . . .

#166 NM: Where were their headquarters?

DR: They were a Calgary company and their headquarters were in Calgary. At the time I went over to them, they had their initial production in Leduc, some production starting in the Joarchim oilfield, out near Camrose and in order to obtain farm-ins in the Leduc area, had bought 2 drilling rigs and ran a drilling company called Central Leduc Drilling. One was a National 50 rig, one was a Cardwell trailer rig. This small drilling company also had a very successful operation. They also had a little bit of production down at Barons. Their drilling superintendent at the time was Sandy Addison, an old cable tool and rotary

drilling man from Turner Valley, who was well known throughout the industry. Their geologist was Bill Charles, and they had just hired a second geologist, Ad Chetton, who was one of the first Turkish students who had been sent to the United States to take geology under a Turkish government educational program to train their own people in geology and engineering. After he had taken his degree in geology in the States, learning English at the same time, he had gone back to Turkey, worked on geological surveys for the Turkish army. When he ad done his required term with them, came to Canada and was hired by Central Leduc. The first operation we got into with Central Leduc was the drilling of a rank wildcat in northeastern British Columbia, at the junction of the Toad River and the Liard River, about 120 miles northwest of Fort Nelson. Fort Nelson being located on the Alaska highway. This again was one of the early exploration operations in the area and the only way that we could gain access to what was known for years as the Toad River structure, which was written up in the Geological Survey of Canada reports many years earlier, was by river access. The location, to gain access to this location, boats were put in the river at Fort Nelson, went down the Fort Nelson River to the junction of the Liard River, a distance of about 110 miles, in a very shallow river with a multitude of sandbars that required boats of very shallow draft.

#228 NM: So what type of boat would you use then?

DR: They were what they call tunnel boats, that have the propellers up in tunnels, because you're bouncing over sandbars all the time and you're liable to damage your propellers. We used river pilots on the boats, who could read the rivers and try to keep you off most of these sandbars. Once we got to the Liard River, which is a very large, deep, swift river we needed boats with considerable power to go up the Liard River to get to the Toad River structure, which is at the outlet of the Toad River where it joins the Liard. Our boats just barely had power enough to get up to the Toad River and they went about 1 mile up beyond the Toad River, pulled into the bank, the geologists confirmed that we were on the Toad River structure, they unloaded a bulldozer off the barge that, in that area, is pushed by the boats instead of towed by the boats and cleared a well site so that we could unload drilling equipment. The equipment, because of the inaccessibility of the location, we drilled one of the first slimholes drilled in Canada, in order to be able to go deeper with smaller equipment, which was less weight to barge into the well site. We took in a bolted steel derrick, which we bought in Turner Valley. I believe it was a production derrick that was sitting over one of the wells down in Turner Valley that had stopped producing. And we took in the Hislop Derrick Builders from Turner Valley and I understand it was the last bolted derrick that they built before they went out of business as derrick builder. That derrick was left on the well site when the hole was finished because of the expense of bringing it out and under the B.C. regulations, any equipment left on a well site, after 3 years, becomes the property of the B.C. government. So it is now owned by the British Columbia government. On various surveys or various people going into the area, the airplanes lately, we had asked them to fly over the area and see if the derrick was still there and the derrick, at last report, was still standing on the well site. We took in a National T-20 rig and 3" drill pipe and were able to finally get the well down to a total

depth of a little over 6,000'. The operations started in the spring, as soon as the ice went out of the river and we could get boats to go down the river. The first couple of years we used Streeper Brothers, who were well known in the area because the Streeper Brothers came from Dawson Creek. They for years, ran the first boat-barge service to Aklavik because the ice goes out of the Nelson-Liard system sooner than it goes out of the McMurray-Great Slave Lake system. So that by shipping in supplies from Fort Nelson, you could get supplies down to Aklavik 30 days sooner than going the conventional McMurray-Great Slave Lake route by the Northern Transport Company. Their first equipment in usually was fuel, fresh vegetables and I believe they mentioned, quite a bit of liquor, was on their first barges. Being professional river barge people, they contracted to take the drilling rig in for us. At a later date we built a boat of our own, and a barge, because there were some conflicts on timing. With the idea that with a boat of our own and a barge of our own, we might be able to speed up the operations and maybe, get a little bit more priority on equipment that needed rushing into the rig. This well turned out to be a very interesting well. Instead of being drilled in one summer it took us 3 years to drill it, starting in the spring every year and keeping the crews in there until our best guess of a few days before freeze up, when we'd bring them out. The crews would go in, in early May and we would bring them out in October. In those days we could take the crews in, work them 7 days a week, 12 hours a day.

#327 NM: How big were the crews?

DR: Well, we worked 12 hour shifts so we only had 2 crews. But they were 5 man crews, plus a cook, plus a handyman, plus a geologist and an engineer, were in there. We had poor radio contact through the northern radio system. Because in those days you were not allowed a radio of your own. And our only emergency arrangements at that time, was hoping, if somebody got hurt, that we could get a float plane in there that would land on the river and be able to bring them out. The river was so fast in that area that the float plane, when he landed on the river, had to keep the propeller running, keep the motor running and try to juggle the plane so that it was even with the shore and. . .

NM: That sounds very dangerous.

DR: We would run the man down into the plane that way. It was a pretty hairy operation. Finally one of the planes knocked the top off his wing by hitting the bank doing this but he flew it out anyway.

NM: This is the end of the tape.

Tape 3 Side 1

DR: The engineer in this well was John Ubell, who now is an engineer at Pan Canadian. The well was a very interesting well. We started drilling the well, found out that we immediately entered dolomite formations very close to the surface, so that it was very hard digging right from the start. Then at about 8 or 9 hundred feet we hit an artesian water flow in the dolomite formation that we never were successful in shutting off. It appeared to be being fed from up the side of the mountain above the well and apparently,

had enough pressure and enough head on it that heavy mud, cementing, all the various procedures of killing water flows were unsuccessful. So that we wound up drilling the well for the next 3 years, with the artesian flow flowing at all times.

NM: What is the artesian flow?

DR: It is just, if we had just drilled a water well in the area it would have been a flowing well instead of a pumping well. It was just a flowing water well. Only this was a very large volume flow of fresh water, and we wound up just letting it flow out of the well and down into a pit and from the pit, into the river, all the time we were drilling. When we realized also that we were going to have 6,000' of hard drilling on this well we changed our drilling plans and drilled the whole well with diamond bits. These diamond bits were obtained from Boyles Brothers in Vancouver, I forget the number of bits we used to finish the well. But they were continuously building diamond bits for us in Vancouver, they would fly them to Fort Nelson, the boat and the barge would be standing by to take these bits up to the rig. It was a little over a 2 day trip to get them into the rig, then they would bring out the bits that we had used on their trip out, these would be flown back to Vancouver, reset with new diamonds and come in on the next trip. This was partially the reason we wound up getting a boat and barge of our own because sometimes when we would fly these bits into Fort Nelson, the Streeper Brothers boats would be either tied up, under repair, or maybe out on another contract trip and we would not be able to get the bits immediately into the rig. So that our own boat was used in cases like this to rush these bits in. At the end of the 1st year we found out that we had a long way to go. We simply set various cement plugs in the well, cemented the top of the well very thoroughly to contain the flowing water from the artesian zone and got the crew out in the nick of time before freeze up and just left the rig standing until the next spring. The next year we went in and drilled out the cement plugs, continued diamond drilling and some diamond coring of the hole. Again, we're not at total depth the second year, cemented up the well and finally finished the well the third year, in the summer and in time enough to bring out some of the expensive drilling equipment. Anything of little expense, or expendable we left in the rig, left on the well site. The well had no hydrocarbon shows from top to bottom and became a real study well for the area. Because the reservoirs penetrated were new reservoirs unknown in British Columbia. I believe there is still some doubt in what zone the well terminated and a lot of work was done on the fossils obtained from the diamond cores out of the well, by the University of Alberta in trying to establish just what that Toad River anticline was comprised of.

#062 NM: This company was also involved in the Weyburn discovery, can you tell me about it?

DR: The Weyburn oilfield, in Saskatchewan, about 10 or 12 miles southeast of Weyburn was discovered by Central Del Rio in 1954. Just shortly after the finishing of the Toad River operation in British Columbia. This also was a very interesting operation for a company the size of Central Del Rio. Central Del Rio had obtained a very large drilling reservation from the Saskatchewan government, that extended from Weyburn down to the United States border. This reservation was obtained by Neil McQueen, from information he had

obtained as a geologist a good many years earlier when he worked for Imperial Oil in the general vicinity. The early Imperial wells had found some oil staining in their wells and on the basis of this information and some recent discoveries in North Dakota, this land was picked up. Being such a large reservation and the company being fairly small, so that they could not handle the required exploration expenditures, the land was farmed out to Mobil Oil, who drilled one well down in the Ratcliff area, adjacent to the United States border. That turned out to be an oil discovery in the then called, Ratcliff zone. The well was fairly deep and the oil was not of much volume. So that additional seismic work was required across the rest of the land, to see if there were any other drillable prospects. Also at this time Mobil Oil discovered the Pembina oilfield, which turned out to be a very major oilfield and required all of the expenditures and manpower of the Mobil Oil organization. Central Del Rio however, wished exploration continue in the Weyburn area and we were successful in making an arrangement with Mobil Oil where we split all of the acreage in half, in the reservation, on a quarter section basis. Mobil Oil controlled 100% their quarters and Central Del Rio controlled 100% their quarters. This allowed Central Del Rio to take over operations on their share of the land and commence drilling in Weyburn while Mobil Oil was so highly committed in the Pembina area. It turned out that 3 or 4 years later, Mobil Oil was able to obtain budgets for drilling in the Weyburn area, after Central Del Rio had discovered the Weyburn oilfield and came in and drilled their wells at that time. Central Del Rio again, drilled a well in the Weyburn oilfield that turned out to be a small producer in a tight reservoir that made both oil and water, very similar to the discover well drilled by California Standard in the Manitoba area. Again, we drilled several of these wells, drilled them this time with rotary rigs, acidized and fracked the well, spend considerable time on trying to complete the wells with minimum water production and were unsuccessful. But kept noticing that the wells appeared to be making more oil than you would expect from a tight, thin reservoir like we were getting in the wells. About the 2nd year of operations, when other companies had come into the area, the Saskatchewan Co-op drilled a well several miles to the south of the Central Leduc discovery wells. The well again, turned out to be downdip in a thick prolific reservoir and produced high volumes of water free oil, again, very similar to the California Standard, Virden operations. This field turned out to be a very large oilfield and eventually extended nearly 12 miles south of the discovery wells and extended nearly 20 miles to the east, to where it nearly touched or did join the Midale oilfield, which had been discovered several years earlier and was operated by Shell Oil. The field turned out to be so large that it became a very good candidate for secondary recovery by water flood. The field was unitized and the Weyburn water flood was put in and at that time, probably was the largest water flood in North America. Central Del Rio were very pleased that they were the successful oil company to be chosen as the operator of the unit and of the water flood, competing against both Mobil Oil and Shell Oil for this operatorship.

#156 NM: And what did you do with this oil?

DR: The Weyburn oil turned out to be very similar to the Midale oil. It was medium gravity, high sulphur oil that, at that time, at the time of discovery, could not be marketed in

Canada, except in small volumes because there were very few refineries that could handle oil with sulphur in it. Husky Oil could handle it a little bit down east in their refinery on the Great Lakes. We sold a little bit of the oil to the Co-op refinery in Regina, which they had to dilute with sweet oil in order to eliminate the sulphur, until finally they could not handle any more of it at all. The only other refinery that could handle it was the old Canadian Oils refinery down in Ontario, which was later bought out by Shell Oil. We finally, with the combination of the Midale oil and the Weyburn oil, the volumes built up great enough that we were able to get a pipeline into the area connecting with the Inter Provincial Pipeline in Cromer, Manitoba and then could ship this oil by pipeline, down into the Minneapolis-St. Paul area, to an American refinery that could handle this type of oil. At a later date, when it was realized that the volume of the Weyburn-Midale type oil was becoming quite substantial, several other refineries in the Ontario area put in sulphur treating facilities and we were able to sell all the oil we could produce. Which was the principal reason then, of installing the water flood and increasing the producing rate from the field. The field I believe, finally reached a rate of 13,000 barrels of oil a day, after the water flood went into effect. Central Del Rio was very involved with this operations of course, for a good many years afterwards. Wound up with a very large staff down in the Weyburn area.

#196 NM: Were there any other discoveries?

DR: Found a few other discoveries in the area but nothing of the significance of this oilfield, which became one of the major oil fields in Canada. One interesting point is that, with our larger staff in Weyburn, we had a need for a fairly large office and were able to obtain the old sandstone railway station of the CPR Sioux Line, in Weyburn, which was no longer used after the passenger trains stopped running on the Sioux Line track. We were able to convert this station into a very suitable, very good office. But it was a little disconcerting every time a freight train went by at high speed, because the office building shook and if they happened to be on a long distance call to the Calgary office, the roar of the freight train going by was so great that all discussions were suspended for the time it took for the train to get by. And some of those freight trains were pretty long trains. Central Del Rio finally was merged with the oil company owned by Canadian Pacific Railway, which was called Canadian Pacific Oil and Gas Company. And the name of the company was changed to Pan Canadian, which now is one of the larger exploration and producing companies, both in oil and natural gas. After approximately a year with Pan Canadian, which was spent mostly with the merging of the field operating personnel of Canadian Pacific Oil and Gas and Central Del Rio Oils, I left the company to again, look for a small company. And was successful in going to work for Sol Petro Ltd. in 1971.

NM: This is the end of the second interview with Don Redman.

Tape 3 Side 2

Blank

Tape 4 Side 1

NM: This is Nadine Mackenzie speaking. This is the third interview with Mr. Don Redman. Mr. Redman in 1971 you went to work for Sol Petro Ltd. Can you tell me about it.

DR: I had mentioned that I had left Pan Canadian at the end of 1970. My main objective of leaving Pan Canadian was that after the merger with Central Del Rio, they had become a very large company, about 425 people on their staff. My production department alone had 175 people on staff, which was larger than the size of Central Del Rio in total before the merger. I had found out that I enjoyed the industry in small companies rather than large companies and had already made one move from Chevron when they became large. In my planning it looked like I had time for one more move, to get into a small aggressive company, see it expand into a large company and by that time I should be close to retiring age.

NM: So you were looking for a new challenge.

DR: It was a new challenge. I had heard several times that your best challenge in life is to have 3 jobs in your 45 years of working time, of approximately 15 years age.

NM: Then it's good to change.

DR: And each time you move into a new type situation, with a new challenge and you should be able to handle 3 of these in your life. It turned out that my career more or less worked this way, not quite 15 years each but more or less, 3 challenges and 3 small companies that developed into very large and successful companies. When I left Pan Canadian I had no idea of where this next company would be. And I spent about 3 months knocking on doors, visiting with people, studying various small companies in Calgary, their assets and their objectives and was very pleased that after 3 months I was successful in being able to go to work for Sol Petro of Canada, which was their name at that time. My timing was very good as far as contacting Sol Petro because Sol Petro, which was founded in 1966 as a private company, had just spent 5 years drilling exploration wells across Alberta, but mainly in the area east of Edmonton, which is a gas prone area. These wells were drilled in order to earn land, we call these wells commitment wells. Most of them had been successful in obtaining medium depth sweet gas and it was now time to put these gas wells on production, which involved building gas plants, which are really in this area, compressor stations, arranging partners, ownerships in the plants, completing the wells, tying them into the compressor stations and arranging for markets.

#048 NM: Who was behind Sol Petro?

DR: Sol Petro was a private company. Actually formed by Gun Van Willegan??? and his associates, mainly people he had contacted in his life that lived both in Canada, the United States and Europe. Mr. Van Willegan was an expert in gas production. His company was organized mainly to explore for gas rather than oil because at that time the oil market was not very good and the gas market was just coming into its own.

NM: You say that the name at the time was Sol Petro of Canada and now it is Sol Petro Ltd.

DR: In the history of Sol Petro, Sol Petro started off as a private company, developed considerable gas reserves and natural gas production, which gave them a substantial cash flow. In 1975, Sol Petro sold all of this gas production that I mentioned had just been put on production, to Hudson's Bay Oil and Gas Company for a little over $100 million. At the same time the company was reorganized into a public company, with shares available to the public and at that time the name was changed to Sol Petro Ltd. Sol Petro then wound up as a public company, again, with no production, a fair amount of money available for exploration and actually, started over for the second time. Their first major acquisition of course, had to be land to have a place to drill. Sol Petro was successful in purchasing a 50% interest in all of Mesa Petroleums lands in Canada, outside of their actual producing properties. This gave Sol Petro a very large land base to start over on. At the same time Sol Petro was able to obtain a large interest in the lands in the deep basin of northwestern Alberta, which also was gas exploration property but considerably different type lands than the Mesa lands and the lands that Sol Petro had been operating on up to this time. This area turned out to be a multi-zone gas area, with zones at considerable depth, which entailed deep drilling, even in 1976, when they first obtained an interest in this area the wells at that time were costing over a million dollars to drill. Sol Petro up to the time I left, continued developing the shallow gas areas that previously were Mesa properties and put on a considerable amount of shallow gas production, particularly in the Athabasca area north of Edmonton. The exploration and development of the deep basin area, in Grande Prairie area, which became known as the Elmworth gas fields and the Wapiti gas fields, progressed at the same time, with very, very successful results resulting in multi-zone gas wells instead of single zone gas wells as was expected when Sol Petro went into the area. Also the extent of the gas in the area turned out to cover townships of lands and the area has now become probably the biggest gas field in North America. Sol Petro has one of the major working interests in this area.

#110 NM: What was your post at Sol Petro?

DR: I started off in Sol Petro as manager of operations. Later became an officer of the company as vice-president production, also became a director of the company. I remained as vice-president production until I elected retirement but have remained as a director of the company and am still active with Sol Petro Ltd. as a director.

NM: Was there a big staff at the time you were working for them?

DR: Sol Petro was much the same as the other 2 companies I had gone to work for. Their staff was probably in the neighbourhood of 15 people. After I left them, just after I left them, Sol Petro was the successful bidder for the purchase of Candel Oil Ltd. in Canada. After the merger of Candel and Sol Petro their staff reached a maximum of about 400 people. When I left them their staff was approximately 125 people.

NM: When did you retire?

DR: I retired in June of 1980.

NM: Mr. Redman you had also additional responsibilities from '66 to '70, you were director of Producers Pipelines and Westper Pipelines, what was it?

DR: Yes, Producers Pipelines and Westper Pipelines was a producer owned oil pipeline

company that was formed by the producers in southeast Saskatchewan to gather crude oil and take it to Cromer, where it entered the Inter Provincial Pipeline system that extended from Edmonton to eastern Canada then the United States. Central Del Rio, as one of the largest producers in the Weyburn oilfield qualified as one of the owners of Producers Westper Pipeline. On behalf of the company I was a direcotr of this pipeline company and also, acted on the tariff committee, where the tariff was set from time to time on the rates to be charged for the moving of crude oil through the pipeline. I remained on this committee until Producers Westper Pipeline was bought out by Dome Petroleum.

NM: And from ‘65 to ’68 you were director of Independent Petroleum Association of Canada, what is the Independent Petroleum Association of Canada?

DR: The Independent Petroleum Association of Canada was formed during the time I was with Central Del Rio Oils and Central Del Rio Oils was one of the companies that participated in the forming of this association. There was an association in Canada at the time called the Canadian Petroleum Association. That was made up of both the large integrated oil companies such as Imperial Oil, Gulf Oil and the independent producers or the small producers. Because of differences of opinions in certain phases of the oil industry, the small non integrated oil companies, which really means that they are explorers and producers of oil land gas but not refiners and marketers of oil and gas, felt that it was time that they formed an association of their own called the Independent Petroleum Association.

#167 NM: Here in Calgary?

DR: With headquarter in Calgary but covering all operations in western Canada. With the idea that on certain matters they would have a more united front and have more common causes without conflict on certain oil matters. A lot of their activity at that time was dealing with the governments of Alberta, Saskatchewan, and British Columbia on regulations, changes of regulations and at that time, mainly marketing of crude oil. I was a director on that organization for several years and also was on, because of Central Del Rio’s activity in southeast Saskatchewan I was on the Friesen Crown Commission in Saskatchewan, dealing with negotiations between oil companies and surface rights owners, who were farmers in the area, on the activities on their lands, when we moved drilling rigs in to drill wells and later produced crude oil off of their property.

NM: From ‘69 to ‘70 you were director, Saskatchewan division, Canadian Petroleum Association.

DR: Yes, even though Central Del Rio was one of the formers of the Independent Petroleum Association, because of Central Del Rio’s large activities in Saskatchewan, mainly as we’ve mentioned, in the Weyburn oilfield, I also became a director of the Canadian Petroleum Association, Saskatchewan Division. In order to be up to date and give whatever assistance we could in Saskatchewan matters.

NM: Who were the most influential persons in your career?

DR: I would say there were 3 influential people in my career, 3 or 4. The first person was John Galloway, the president of California Standard company who I felt was the original exploration, explorer type man in Canada. When exploration moved out of the Turner

Valley area, into the other areas of Alberta, he was a dedicated geologist who believed that there should be sand production in Alberta that might be of equivalent calibre to California production. I think due to his efforts in the early exploration in Princess and Taber areas, the success, although not what he expected, probably was great enough to bring other companies into the country to further explore for oil and gas. Another man that I was greatly influenced by was Neil McQueen and Art Newburn, the founders of Central Leduc, and Del Rio Producers, who were the again, explorer type, exploration type people that followed in the same pattern as John Galloway. Exploring all over Alberta and Saskatchewan for mainly in those days, oil and resulting in the discovery of the Weyburn oilfield which turned out to be one of the larger oilfields at that time, on the North American continent. Again, Neil McQueen was a geologist, very exploration oriented who had, as we mentioned worked all over western Canada and the Northwest Territories. The other man who I have been very influenced by and very impressed by is Gus Van Willegan. This time an engineer who founded and has developed Sol Petro into the company that it is today. His aim rather than discovering oil, was to discover and market natural gas and he was one of the most dynamic men that I have come across in the exploration, production and marketing of natural gas. As can be seen from the history of Sol Petro Ltd. Mr. Van Willegan is still deeply involved and one of the major shareholders in Sol Petro Ltd. to this day.

#258 NM: What were the most exciting experiences in the oil patch for you?

DR: I think the most exciting experiences in the oil patch are when your company makes a major discovery of oil or gas, which of course, is the objective of the company and leads to the development of the company into a major producer of oil and gas. I was involved in 3 major discoveries, California Standard discovered the Atchison oilfield, approximately 10 miles west of Edmonton, which was California Standard's first major discovery after nearly 20 years of exploration in Alberta. I believe as we have mentioned, was the start of discoveries by California Standard all over Alberta and Manitoba. Another exciting time was when we realized that Central Del Rio had discovered a major oilfield in southeast Saskatchewan, namely the Weyburn oilfield after several years of exploration and development of the field. The early wells in the Weyburn field, being on the northern extremity of the main oilfield in what we call the pinch out area were teaser type oil wells that seemed to perform better than they should for the amount of pay in the well, which indicated that there could be considerable oil in the area. But it took nearly 2 years before actually, a well was drilled down in the centre of the main oilfield by a competitor. At that time Central Del Rio realized that they owned land all through the major part of the oilfield. This is pretty exciting when you all of a sudden realize that you are a large owner of a very large oilfield. Sol Petro had a similar experience, when they found out that the Wapiti gas field, in the Grande Prairie area, turned out to be a multi-zone gas area, extending over thousands and thousands of sections of land. Again, the same situation applied. Sol Petro found out that they had a very large working interest in probably the largest gas field on the North American continent. All of these discoveries of major fields like this, which is the whole objective of drilling wildcat wells is a pretty exciting

experience when you finally realize that you've made a major discovery.
End of tape.

Tape 4 Side 2

NM: What do you consider the highlight of your career?
DR: Nadine, I wouldn't say a specific highlight but when I look back and realize that I've been involved with 3 companies, all more or less starting with a skeleton staff, all making major discoveries and becoming major producers and that I have been involved with them all and I've done it 3 times, I think really, this is the highlight of my career. And also that I'm supposedly retired from the oil business but still more or less, still directly involved with Sol Petro and still interested in the day to day activities of all the oil industry. I think this is the highlight rather than one specific event.
NM: Looking back at your career, is there anything you would do differently nowadays?
DR: Nadine I don't think so. The only thing I look back on is whether I should have taken law like my father hoped I would. But I'm pleased and I know that he was pleased, that I went into engineering in the oil business. My timing couldn't have been better to enter the oil business, just when it was expanding from the Turner Valley area into all areas of western Canada. I think I had a really successful and interesting career as an engineer. I had 7 or 8 years of living in the field with field experience and then the remainder in the offices, working from the offices out into the field. I was associated all the time with geologists but really feel, when you look back on it that my choice of engineering was what I had hoped it would be.
NM: Thank you very much for these 3 interviews Mr. Redman, they were very interesting.
DR: Thank you.