

PETROLEUM INDUSTRY ORAL HISTORY PROJECT  
TRANSCRIPT

INTERVIEWEE: Charles Hetherington

INTERVIEWER: Nadine Mackenzie

DATE: June 1983

NM: This is Nadine Mackenzie speaking, today is Monday, the 13<sup>th</sup> of June, 1983. I am at the office of Mr. Charles Hetherington, President of Pan Arctic. The office is situated at 815 - 8<sup>th</sup> Avenue S. W. in Calgary. Mr. Hetherington, where were you born?

CH: I was born in Norman, Oklahoma, on December 12<sup>th</sup>, 1919. My other was from Illinois and my father was a Canadian from Niagara Falls, Ontario.

NM: What did he do?

CH: He was a banker. Norman, Oklahoma was a very small town, and he was the cashier of the First National Bank. I recall interesting times, we all know Bonnie and Clyde and the banks were right for people like them and my dad carried a rifle to work every morning, that always impressed me, an old 30-40 Craig, with Spanish-American war ammunition.

NM: Were you educated in Oklahoma?

CH: Yes. I went to school there. In those days, the grade schools, and I guess they still are, were named after the Presidents, like Washington and I went to Jefferson School. I went to Norman High School. About that time I took a great interest in radio, radio was a new thing in those days and at the age of 11 I got an amateur radio license. My call letters were W5EHX. A very fine time. I then went to the University of Oklahoma at Norman and got a Master Degree in Chemical Engineering.

NM: What made you choose Chemical Engineering?

CH: This was in the 1930's and things weren't too good and an engineer could get a job. If you went to art school or business or something like that you couldn't get a job but as an Engineer you could. That was the reason I chose engineering.

NM: You did not think of going into banking?

CH: No, I had no interest in that. So I went to engineering and I found it very interesting. After graduating from college I went on to take a Masters degree and I did a thesis on what's called the . . the name of it was the unsteady state flow of fluids through porous media, which is the way gas flows through sands through reservoirs. It turns out that in the process of doing these experiments, I developed some of the fundamental mechanisms that we use, even today, to analyse the performance of gas wells as the gas flows through the sands.

#033 NM: So you were ahead of your time already?

CH: This was a pioneering effort. I didn't know what I was doing really, I just did my experiments and the thing turned out to be quite well. At the University of Oklahoma, we were required to take Reserve Officers' Training Core, it was ROTC, and believe it or not, in 1939, the defence of the United States depended on guys like me, with horse

drawn, 75 millimetre artillery. We'd hook the six horses up to the guns and the six horses to the cacons and then go and do the parade and then part of the deal was that you had to learn to ride horses and jump and play polo. We would do the parade, come back, unlimber the guns, untack the horses and then play a game of polo with the same horses. This has been a very interesting thing to me as I'll talk about a little later because throughout my life, I've continued to play polo. When I graduated from college I was not 21, so I couldn't be an officer in the Army, couldn't get an officers certificate, so they gave me a certificate that said, when I'm 21, I could become a 2<sup>nd</sup> Lieutenant in the Army. After leaving Oklahoma I went to the Massachusetts Institute of Technology, where I had both a scholarship to pay my fees plus an assistantship of \$75 a month, which I lived on and I assisted the professors. This was really quite nice because the professors were people like Lewis, Gilliland, people that were writing the books on Chemical Engineering, so in addition to going to school, I got the chance to work with these men, as their assistant.

NM: A very good experience.

CH: It really was and a privilege. And at MIT, at this time I think the government anticipated that we were probably going to be in a war. This would be in 1941 and so all the graduate theses there were defence projects of one kind and another. I worked on one of these projects and when the war broke out I was told that my commission in the army was cancelled and that I was to stay right where I was, on this defence work at MIT. My work involved aircraft and I travelled considerably around the country, particularly to right field in Dayton, Ohio. I had a unique experience there, riding in a B-19. We've all heard of a B-17 but they made a B-19 and this thing was about 3 times as big as a B-17 and with the engines of those days, it would hardly fly, you could hardly get off the ground.

#062 NM: Too heavy?

CH: It was too heavy, for the type of engine they had. They never did make more than one of them as far as I know. Anyway that was quite an experience. I mention that. .going back to my time in Oklahoma, I have one brother and his name is William Clark Hetherington. He also is a polo player. As a matter of fact, he's better than I am. When I got to MIT, we lived in what was called the graduate house, it was on Massachusetts Avenue, in Cambridge actually, across the Charles River from Boston. And I roomed with three boys, Howard Seidler???, who now is an electronics expert in California, Robert von Burgh???, who's a professor at Cornell University, and a man named Roger Drexel???, who was President of one of the DuPont subsidiaries. I had a real good friend there, John Harper. I remember his father was in the army core of engineers and knew the Chrysler people well and when they commissioned these. . . you remember the Liberty Ships that were built in California during the war. . .I was invited one time to go out with my wife and christen, my wife christened one of these Liberty Ships, which was quite a thing at that time. The laboratory work at MIT moved on to the pilot plant stage at the Clark Brothers compressor plant at Olean, New York. There I met Jane Childs from nearby Cuba, New York and I married her in 1943. We had four children, Helen Jane we called Janey, William Leslie, Charles Pratt and Gail Anne. Janey has two children, Kelly and

Cassie and incidentally, these grandchildren now, are teenagers and both of them have followed my lead a little bit and both of them play polo. Billy married Joan Fowlon??? of Philadelphia, Pennsylvania and has two children, William and Timothy. My son Pratt married Colleen Clemis??? from Calgary and he is one of the people that I think you are going to interview, William Clemis. They have a daughter called Jennifer. Gail married Robert Horvath of Calgary and they have a child named Garrett. When the MIT project ended, I went to California to the technological arm of Standard of California. It was called the California Research Corporation. I worked at Richmond and at El Segundo, California. Richmond is in the San Francisco area and El Segundo is in the Los Angeles area. We were primarily working on defence projects to supply things like aviation gasoline to the army. We manufactured alcolyte???, it involved catalytic cracking, I worked on the manufacture of butadiene??? for the production of rubber. My first job there as a matter of fact, I was called in by a man named Krimser???, who I had heard about from MIT because we used to use the Krimser equation in fractionation. He said, go down to El Segundo and fix the butadiene plant, it doesn't work, you're from MIT, you're supposed to know how to do these things. I really didn't know what I was doing but I took the train down to Los Angeles, we stayed in the Mayflower Hotel, took a bus to El Segundo every day. I right away could see what was wrong with the plant. The only thing was it took some time to get some materials and to get the thing fixed. Anyway we began making specification butadiene quite soon. I knew the man who was head of what they called rubber reserve during the war, a man named Jeffers. He got hold of the people in California, he said, who was that fellow that got your plant working down there, send him to Toledo, the Sun Oil Company has been fooling around for a year with a plant that doesn't work, send him down here. The California people really didn't like the sun people very much and they were reluctant but they put me on a train to Toledo.

#110 NM: So how long did yo spend in California?

CH: I spent three years in California working in these various areas. When the war ended and these activities in California began to let up a bit, I had a very interesting opportunity to move to New York, with a company called Ford, Bacon and Davis and they were the foremost pipeline engineers in the world. In the early 20's they built the line that supplies Calgary. It's a 16" line that brings gas from the Bow Island field to Calgary and I guess that pipeline still is in existence.

NM: ??? the pipeline at the time?

CH: The pipelines were very primitive at that time. The joints were about 20' long and they were put together with some rubber seals and bolted together with couplings called dresser couplings.

NM: Were they built in the east?

CH: Yes they were. And the pipe was very poor quality but nevertheless it did work. This Ford, Bacon, Davis Company also built the pipeline, a 4 1/2" pipeline to supply Edmonton, if you can imagine. This was about 1922. By the time I came with Ford, Bacon, Davis of course, the welding process had ben developed and then no longer used these bolted couplings. With Ford, Bacon and Davis, I first started working on pipelines

for the Southern Natural Gas Company, out of Birmingham, Alabama. I, one time designed and saw to the construction of a gas plant, one of the first gas plants at a place called Winville, Mississippi and I worked at a sulphur removal plant at a place called Mackamey, Arkansas.

NM: Was this firm supplying pipelines to all over the North America?

CH: They didn't supply the pipelines, they did the engineering. Then they would supervise the construction. They didn't do the construction themselves on these big lines but they supervised the construction. That is, they saw to the planning, they'd buy the right-of-way, they'd help in the financing, they'd do the surveying, they'd see to the inspection. They'd have a man that inspected the welding, a man that inspected the coating and that kind of thing. My first real big job was as the principal engineer in the engineering and construction of the Michigan-Wisconsin Pipeline Company. This was the first 24" diameter, and they called that big inch in those days, and it ran at 920 pounds per square inch, which was very high pressure for those days. It ran from Hugoton, Kansas to Milwaukee and Detroit. The integral part of this pipeline was storage. The gas market in Detroit was mainly heating and in the summer time there wasn't much market for the gas. So the idea was to put it in abandoned gas fields, store it during the summer time and then use it again in the winter time. And I designed the first gas storage field in Michigan, in a little field called Austin. It was near Grand Rapids, near the town of Big Rapids, Michigan and when it came time to actually build the pipeline, I first worked in Ford, Bacon and Davis' office, in Kansas City on the project and then I was moved to Michigan, where I handled all of the construction supervision in Michigan. We built several dehydration plants, we built a pipeline to Detroit from the storage field, we put the storage field facilities in, we built branch lines to Ann Arbor, Greenville, Belding and all the other little Michigan communities. After that, since we were sort of foremost in the storage business, Ford, Bacon and Davis got a job with a company called Algonquin Gas Transmission Company, which was a pipeline to supply Boston. I was the principal engineer on this pipeline and carried it through the federal power commission, got the authorizations to build this pipeline. And then I used this same technique to design a storage field at Oakland, Pennsylvania, where the gas coming up from Texas was stored in Pennsylvania in the summertime and then we used it during the winter time in Boston. I had an interesting assignment with Ford, Bacon and Davis, which was to tie in with my subsequent life. Imperial Oil discovered the Leduc field in 1947 and Imperial's parent, Standard of New Jersey, wanted to put some more capital into Imperial so they could develop Alberta. Imperial owned shares in a company called International Petroleum Company, which had oil and gas production and refining facilities in Peru. We were asked, that is Ford, Bacon and Davis was asked to go to Peru and make a valuation of the facilities so they could put a price on the shares that would be transferred from Imperial to Standard of New Jersey. So I took 10 men and had a couple of real interesting months in South America.

#175 NM: Was it your first trip there?

CH: It was my first trip and the people at the refinery gave you Spanish lessons so I was able

to learn a little Spanish. As I say this was rather interesting that I'd be involved with something that had to do with Canada because shortly after that I met Frank McMahon, the famous Canadian that was the father of Pacific Petroleums and West Coast Transmission Company.

NM: Can you tell me about Pacific Petroleum?

CH: Yes. Well, let me start with really what made Pacific Petroleums. Frank McMahon was a real entrepreneur. When I walked in his office the first time I saw a list of companies that he had and he seemed to deal more in companies than in oil. He had. . .

NM: What was he doing with these companies, buying them or. . .?

CH: He had the companies and selling shares in them. He had Pacific Petroleums, a company called Canadian, Atlantic Oil Company, Peace River Natural Gas Company and dozens of others, all listed on his door. And the only one that seemed to really amount to anything was Pacific Petroleums. They had five pumpers, five pumping wells in Turner Valley and that was all Pacific Petroleums had. He had his office on the balcony of Richardson Securities, he had a desk on the balcony.

NM: Why on the balcony?

CH: Because I guess the rent was cheap. He didn't have any money. The thing that really made Frank McMahon and Pacific Petroleums was a well called Atlantic-Leduc #3. The Leduc field was very productive and everybody wanted the leases and Frank had a friend named Buster Lacey, Bus Lacey they called him. He was a landman that just beat the streets, he just knew a lot of things. He found out that there was 160 acre parcel in Leduc that should be pretty good and Imperial Oil had the lease on this 160 acres. It was some free hold land. But Buster found out that when the father died he willed the land and its mineral rights to the son who would farm the land and Imperial had the lease with the mother. I don't know how he found that out but he did, so Frank got hold of the farmer. Buster owned a duplex down here in Calgary and they wanted to keep this farmer away from Imperial because Imperial knew this also by this time. So they really. . .the guy like to go to the picture show, the farmer did, so they brought him down to Calgary and put him up in Buster's apartment and took him to the picture show. Frank wanted to buy the lease but he didn't have much money, so he got \$500 in cash, in \$1 bills and he said, look, I'm going to give you \$200,000 for this lease, but you'll get it over a period of time, out of royalties. He said, look here, this is \$500, he puts the \$500 out on the table, just think how much \$200,000 is. The farmer says, fine, I'll do that but I don't want the money all at one time because I don't want to pay income taxes on it. Frank says, don't worry about that, it'll be 20 years that you'll get this money so you won't have to pay many income taxes. Well, he went ahead and the first two wells were nice producers. On the third one, Atlantic-Leduc #3, the well lost circulation and encountered an underground blow out. That is, the well didn't blow out at the drill site itself, it was an underground blow out. The first evidence of this was that the seismograph shot holes on the corners of the section began to blow gas. Then pretty soon the oil came to the surface and the well was sitting out completely high and dry, with oil all around it. They took bulldozers and flame arresters on the exhaust pipes and put about a 4' dike around this 40 acres. And they had 40 acres of oil.

#232 NM: So that was a good deal.

CH: It was, that's right. And the thing was producing about 20,000 barrels a day through the ground. In those days they didn't have a pipeline out of Alberta. They took the oil by tank car from Edmonton. So they built an 8" pipeline to Edmonton from Leduc and they shut down the rest of Canada and they produced all of Canada's oil out of Frank's well. Frank used to say, yeah we're producing through a 40 acre choke.

NM: So then he could use his office from the balcony.

CH: Well, not yet, because the thing was blowing out. But eventually it did. There were some interesting things. They got Red Adair up there and he wasn't all that hot. He just brought a bunch of equipment and had them build some platforms and everything, so he could walk out there and see this thing. But he wasn't any help. It was clear that you had to drill a directional well. They brought in a man named Tip Maroney, an old Imperial hand that took over the job. The Conservation Board took over the operation and they put Tip Maroney in charge of this and he started drilling two relief wells that would intersect the wild well at depth and they'd eventually . . .

NM: Tip Maroney is well known here. Can you tell me about him.

CH: Well yes, he worked for Imperial Oil and he was really Imperial's Red Adair. His main claim to fame was being able to put out wild wells, which he was very good at. I'll mention this a little later when we come to the help that Tip gave me in the Arctic. There were some interesting events there. The RCMP checked everybody for matches, they took away your matches and any smoking material before they would let you go in the area. And this one man had gone into an outhouse on the job and all of a sudden it blew up, the lid blew off and the sides blew out and he was singed a bit. The RCMP charged him with smoking. Oh, he said, I didn't smoke that was spontaneous combustion. Just one of the stories. Anyway, when the well was put out, it was successfully put out, they had to pump all kinds of things, they pumped ??? hulls, the cut up parachutes, pumped that down the well. They had a terrible time but the finally killed it and when they did, and the Conservation Board settled everything, they delivered a cheque for \$2 million for Frank McMahon. That was the first money that Frank had ever had and the first money that Pacific had ever made. With that money, Frank went out and by this time the Redwater had been discovered and Frank went out at these public sales and bought some very fine acreage in the Redwater field and that really gave Pacific Petroleums it's start. Frank had a dream of building a gas pipeline. . . there wasn't much gas in Alberta but he said. . he'd come from Fernie B.C. and he had lived in Vancouver. He had drilled for gas in the Fraser Delta there, figuring that it would be nice to find gas there but he couldn't really find any, so he thought he'd pipeline it from Alberta to Vancouver. So he formed a company called West Coast Transmission Company. In those days you had to have a private members bill through parliament to build a pipeline across a border. So he spent a lot of his time in Ottawa, he knew all the senators, we used to use old Senator D. E. B. Ferris to help us get this pipeline. Art Smith, this is not the present Art Smith who lives in Calgary now, but Art Smith's father was a Member of Parliament and helped us tremendously in getting this gas to market . . or getting the pipeline bill through the parliament. Frank realized that he needed engineering help to build a project of the type

that he was talking about and since our company, Ford, Bacon and Davis was the foremost pipeline engineer in the world, why, Frank didn't want anything second best, he never took anything second best. He went to New York and this is where I first met him. He came to Ford, Bacon and Davis and our offices were 39 Broadway, right down on Wall Street. He convinced Ford, Bacon and Davis that they should do the engineering job and carry him for the money, until and when. . .or I should say, if, the pipeline were every financed, Ford, Bacon and Davis would get paid. Which was a pretty good job because we always worked on a cash basis prior to that time. Frank had a lot of charm and he did convince Ford, Bacon and Davis to take this job. So I was sent to Alberta and I came with a man named C. C. Wittlesey???, who was later to be President of Ford, Bacon and Davis and a man named George Philips who was President of a company called Ford, Bacon and Davis construction Corporation, which built small pipelines. Their headquarters were in Munroe, Louisiana. We made our first trip by train. We went to Minneapolis by train and changed to the Soo Line and anybody in Alberta who's ever, in the early days, ridden the Soo Line, they'll know what I'm talking about.

#317 NM: What was the Soo Line?

CH: That's the name of the company. The Soo Line was the name of the railway that ran from Minneapolis to Canada. It came through Moose Jaw. I remember we got off at Moose Jaw, the temperature was 40 degrees below zero. It took 3 days to get here and I've never seen anything so cold in my whole life. I tried to buy a fur hat and all the Bay and Eatons, they'd sold out of all the fur hats because this had been such a . . .

NM: Which month was it?

CH: This was in January. It was very cold. I've seen cold winters in Calgary since then but I guess that being my first cold winter I thought it was terribly cold. It doesn't bother me anymore. We stayed in a big suite at the Palliser Hotel and I think it was 509. Anybody who's ever stayed at the Palliser will remember 509. Very fine service. I remember the British type service we got at the Palliser Hotel in those days. I had the pleasure, Frank was a very well known man here and he only moved among the higher ups and I got to meet some very interesting people that have a lot to do with present day Alberta or the formation of Alberta. I met Fred P. Mannix's grandfather was alive at that time and people know Red Dutton, the hockey player, Ralph Will who was an old driller and oil man and Premier Manning of course, we had the opportunity to meet him. Bill Connode??? was the first Chairman of the Conservation Board. The Alberta government wanted to form a Conservation Board so they went to Texas where they had a railway commission and looked after oil and gas and they brought Bill Connode up to do that.

NM: End of the tape.

Tape 1 Side 2

CH: I met Eldon Tanner, he was the Minister of Mines and he is the one that thought up this idea of selling part of the land and keeping a checkerboard for the Crown, which, after production was obtained, they later on would sell that. I got to know Ian McKinnon, who later on was the Chairman of the Alberta Conservation Board and then eventually the National Energy Board. Patty Nolan was a famous old lawyer, I got to know George Steer from Edmonton and Ray Millner, who were real influences. Ray was the President of the gas company in Calgary and Edmonton and he was paying 4 3/4 cents an MCF for gas in the Turner Valley field outside of Edmonton and he didn't want to export any gas because if they exported any gas the price would go up and he'd have to raise his prices. So he was our main adversary. I knew Gary Hardy, that's Don Hardy's father, who was a very interesting man and another man named Bruce Smith who is a lawyer from Edmonton, who later became a judge. Bruce Smith, and I'll mention him a little late when it comes to our hearing of West Coast, before the Board of Transport Commissioner because Bruce Smith was the counsel for our opponents in that case. I worked with D. P. Macdonald who was a lawyer and Pat Doshier who was an accountant and Bill Grayburn who was a land man for Pacific Petroleum. We had a very interesting young Chief Geologist for Pacific, his name was Arthur Nauss and he decided that he wanted to make some money rather than just be a geologist so he teamed up with Ted Link, that's a familiar name around Alberta and they formed a company called Ponder Oils. I remember they issued the stock at 25 cents a share and I was privileged to buy some. This was really in the hey day of the stock business in Alberta, the Ponder Oil sold like hot cakes and he later formed Humber Oils and that went very well. It turns out later on that Pacific Petroleums bought these companies in the \$4-\$5 range, so those that paid 25 cents made a little money on it. I still worked in New York and continued to work for Pacific Petroleums and West Coast in Alberta but. . .

#027 NM: Were you travelling a lot between New York and Calgary?

CH: Travelling a lot, yes. One way to get there was by. . you remember that old air plane the Strata Cruiser, it was a four engine air plane that had two layers. It had the seats up front, up on top, and then you could walk down a spiral staircase into a lounge down below and you could catch that out of Great Falls. So Frank had an old air plane and he'd fly us to Great Falls and we'd catch this old Strata Cruiser to New York. It turned out that we were having a terrible time getting the authorizations. We didn't really have any markets, Vancouver, our principal market, it's not a cold climate out there, they didn't use much gas. Frank used to say, the best market for gas in Vancouver is suicide, these people would put their head in the oven and. . . But we had to have the American market in the Pacific Northwest in order for this thing to work. Frank asked me, since I was working most of my time for Pacific anyway, asked me to join Pacific and West Coast and I moved to Calgary in 1952. I was the Vice-President and the Chief Engineer of West Coast Transmission and the only employee.

NM: And you were only 33 years old.

CH: That's probably right. That's right. I found a beautiful house several miles outside of Calgary. It was on 66<sup>th</sup> Avenue, which is now Glenmore Trail. The town at that time ended at the Elboya traffic circle.

NM: Quite a change.

CH: That's right. Now, the road to Glenmore Trail was a dirt road in 1952 and I remember in the spring time when we'd have break up, I'd have to park my car on the elbow drive and walk about 1/2 a mile to my house, which seems a little incongruous now doesn't it.

NM: Where were the offices of West Coast Transmission Company in Calgary?

CH: Frank and Pacific Petroleum built the first modern office building in Calgary. It was called the Petroleum Building, it was over on 9<sup>th</sup> Avenue. It's since been torn down but they had modern elevators, two elevators. . .

NM: And it was the first modern one in Calgary?

CH: It was the first modern building in Calgary, made out of concrete. All of the other building you know, were brick and stone.

NM: Was it very high?

CH: I think it was 9 stories high, it was a fairly good sized building.

#054 NM: For the time it was.

CH: Yes, it was. And it was built by. . . I mentioned Red Dutton a while ago, he had a company called Standard Gravel and they built the office building. The work at that time, mostly consisted of promoting West Coast and appearing before these various regulatory bodies, trying to get the permits.

NM: So it must have been a lot of lobbying.

CH: That's right. The laws of Canada were such that you really couldn't built a pipeline. Alberta had a law called the Gas Resources Preservation Act and I dare say it was probably put in by Mr. Millner, who wanted to keep the gas in Alberta, so that the local people would enjoy a low price. Anyway, it really said, you can't take gas out of Alberta. And the federal government had a law called the Export of Electricity and Fluids Act, which permitted you to take electricity or gas or oil, out of Canada, on a one year license. Well, you can't build a \$100 million pipeline on a one year license, you had to have a 20 year license. So we had to get those laws changed. And this took a lot of lobbying and Frank was very good at that and he made a lot of friends.

NM: There were also a lot of fights in parliament.

CH: That's right. And I appeared repeatedly before the Conservation Board, giving evidence on what the gas laws would produce and how much gas we had and what the economics were to take it out. We wanted to experiment on how you got a permit to take gas out of Alberta. This was Frank's idea, he said, let's get a permit on a small scale to take gas from the Pouce Coupe field to Dawson Creek in British Columbia, that's across the border. And we got the first export permit out of Alberta, to do that. And we built. . . .Ford, Bacon and Davis, that's my old company, built a 4 1/2" pipeline from Pouce Coupe to Dawson Creek, British Columbia. We finally got the Alberta permit. We got the right

to export 1 trillion cubic feet out of the Peace River area of Alberta and it had some time limits on it. We continued to work. We could not get a permit to take the gas out of the country. We couldn't get a permit from the federal government, we couldn't get a permit to bring it into the United States. And so our time began to expire on the Alberta permit. When I was testifying before the Alberta Board, I said, well, when we do this, this benefit to Alberta, we'll put gas into Grande Prairie and the other little towns up there, Rycroft, Sexsmith, Spirit River and the other little northern Alberta towns. And the Alberta Board said, look, your time is about to expire on this permit, we're glad to extend the time but we want you to put gas into those towns. We said, we can't because we haven't got a gas pipeline up there. Oh they said, that's your problem.

#088 NM: That was a vicious circle.

CH: Yes, it was. So Frank said to me, we've got an geological anomaly up there in Rycroft, go drill that. And I did and we got a real good gas well, right near the town of Grande Prairie. And the Board said, no, you've got to have two gas wells, you've got to have two wells, either one of which can carry the load, in case one of them fails. So I drilled four dry holes around this discovery. Finally I said, move over 40 acres boys, let's drill a close up one here. And instead of getting as I get heavy oil. Ordinarily you couldn't complete a heavy oil well but we could not shut this oil off, I had to cement that well 5 or 6 times before we finally cemented the oil off and made it produce gas. We built this pipeline then, from this Rycroft gas field to Grande Prairie and I did that myself by this time. Incidentally I used the pipe from the Canol pipeline. During the war the Americans built a pipeline from Norman Wells to Fairbanks, Alaska and they just laid the pipeline on the ground.

NM: That was because of the potential invasion by the Japanese.

CH: Yes. And the pipeline was never. . . incidentally I had worked on that when I was with this California Research Corporation, I had worked on the design, I never saw the line but I had worked on the design of it and the design of this refinery in Fairbanks. None of that stuff was ever used, the pipeline was just laid on the ground there.

NM: It cost millions.

CH: It cost millions of dollars because they did it in about 8 months, they did a tremendous job. I sent a guy up with a truck, he put it on a barge and went down the Mackenzie River and took a welding outfit, cut the pipe up into pieces, put it on the truck and brought it back and we put the pipeline into Grande Prairie, using this old pipe. At that time I was made Managing Director of Pacific Petroleum and I was in charge of drilling the wells required to supply the pipeline. Pacific Petroleum supplied the bulk of the gas that supplied West Coast. We had a great supporter in the development of Fort St. John and that was the Sun Ray GX Oil Company out of Tulsa. The president was a man named Clarence H. Wright and Frank would give him an option on shares of Peace River Natural Gas Company. Sun Ray would put in the money to help us drill the wells and when we'd make a discovery the price of Peace River Natural Gas would go up and he'd sell the shares and we'd drill some more wells. It was rather interesting. The I spent an awful lot of time in Washington, D. C. The West Coast hearings lasted for over 100 days, with

intermissions and everything, it took several years. We were opposed by a company called Pacific Northwest Pipeline Corporation and they were backed by Phillips Petroleum Company. They proposed to bring gas from the Four Corners area of Colorado, New Mexico and Arizona and whatever that other state is there that makes the four corners. They proposed to bring the gas from that area to the Pacific Northwest. There wasn't room, we didn't think at that time, for both of us. I forget the date, I can look this up, but I can say it was 1954 or thereabouts, on a Friday, the Federal Power Commission came down and they not only turned down the application of West Coast Transmission Company, but they granted the permit to our opponents, the Pacific Northwest Pipeline Corporation. I had previously, I mentioned that I worked on this company called Algonquin Gas Transmission Company to go to Boston. That company was opposed by Tennessee Gas Transmission Company, who wanted to bring a pipeline from Buffalo to supply Boston. And they were very late in getting their application in and the Federal Power Commission at that time said, no, you're too late, the deal is over, Algonquin gets it, we built Algonquin. Tennessee filed suit against the Federal Power Commission and won and while litigation was going on, they tied Algonquin up for a whole year. We sat there with this pipeline, putting no gas through it while the. . . .

#139 NM: You had to wait.

CH: We had to wait. So what we did, we had learned about this, so what Frank and I did, we filed suit against the Federal Power Commission. Under those circumstances, Pacific Northwest couldn't finance, because they'd seen what happened if there was a suit pending and they wouldn't finance this thing as long as there was a chance that a lawsuit might reverse the Federal Power Commission's decision.

NM: So you were stuck.

CH: So we were stuck. We knew that we had the gas, we knew that they needed it, we knew that they didn't have enough gas. We just couldn't get together, we'd have meetings, we just couldn't get together. Our opponents, this Pacific Northwest Pipeline was headed by a man named Ray Fish, and his right hand man was a man named Bob Herring and they used to come to Canada occasionally with a man who had a processing plant in Canada, his name was Harry Bass. Well, they came through Customs one time and the Customs officer said, what's your name, this guy says Fish, the other one says, Herring and the other one says, Bass. They almost didn't let them into Canada.

NM: They think they are joking.

CH: Yes. We finally reached a settlement. The Pacific Northwest Pipeline project was very important to Phillips Petroleum Company because they were the people that were going to supply the gas. And they devised an ingenious method of, instead of just selling the gas to the pipeline, they sold the gas, not on an MCF basis, but they sold the reserve and Pacific Northwest then put the reserve in their rate base and earned on it. This was a new concept and it would help Phillips very much to settle it. The President of Phillips was a very flamboyant man named Boots Adams and Boots Adams was a good friend of Clarence Wright, who was the President of Sun Ray, both in Tulsa. He called us to a meeting one time, I remember it was December the 13<sup>th</sup>, I believe it was 1955. Anyway,

Frank McMahon was at the meeting, D. P. Macdonald, our lawyer, Clarence Wright of Sun Ray, Ray Fish of Pacific Northwest, Bob Herring, and Dick Williams, also of Pacific Northwest and myself, and Charlie Shannon, who was our counsel from Washington, D. C. and four other people. I remember because there were 13 people at the table. Here it is, December 13<sup>th</sup> and 13 people sit around the table. This was in the Mayo Hotel in Tulsa. Boots Adams sat at the head and as he opened the meeting he took two Army Colt 45's out of his pocket, put them on the table, he says, this is a shotgun wedding. Nobody is leaving here until we make a deal. We made the deal. And the deal was that West Coast would build a 30" pipeline from the Fort St. John area to Vancouver, and to the U.S. border and Pacific Northwest Pipeline would build a smaller line from the Four Corners of the U.S. to join with West Coast, at the U.S. border. Then we began to really get after this thing, having made a deal.

#182 NM: How long did it take to make this deal?

CH: After that it only took us about a year really with hearings. . .

NM: But the negotiations.

CH: Oh, the negotiations, they lasted about 6 months and the negotiations culminated in the shotgun wedding that I told you about in the Mayo Hotel. The hearings were reconvened, both in the U.S. before the Federal Power Commission, and the hearings in Canada were handled by what was called the Board of Transport Commissioners, we didn't have a National Energy Board in those days. We got our permit to build a pipeline, subject to proving financial responsibility. And I remember, in the last hearings, Bruce Smith, I mentioned this lawyer from Edmonton, was the lawyer for another company called Prairie Pipelines that was opposing us, and they didn't have any permits. He was trying to make the point that we were not financially responsible because we didn't have any contracts in the United States. And he asked me. . you know they say, you should never ask a question unless you know the answer and he asked one too many questions. He said, how come my company, that's Prairie Pipelines, was able to get contracts with Spokane, Seattle, Tacoma and all these companies, and your company doesn't have any contracts. I said, well, I guess the fact that they did that taught them never to do that again, and with that, the case was over. Anyway we got the permit to build a pipeline in Canada and export the gas.

NM: Were at the time people talking about environment?

CH: No.

NM: No, not at all.

CH: Nobody cared about the environment. As a matter of fact, we were much better off in those days than we are now. We didn't really hurt the environment, this is one of the examples. We didn't have very much money, we didn't like wasting money, and I went to the Board of Transport Commissioners in Ottawa and said, look, I'm going to give you a map showing each quarter section that the pipeline goes across and then we'll put the pipe in the ground and then when the pipes in the ground and we know where it is, we'll survey it. They said, well, that sounds reasonable to me. Now you've got to survey it and make all these environmental things that make it almost impossible to build a project like

this. The hearings continued in the United States. Frank had been very influential. The Premier there was W. A. C. Bennett, and Frank got him to put an act through the parliament of B.C. which gave unanimous approval to the West Coast Transmission pipeline. Bennett called us over there one day and said, I've got an election coming up and I want you to put the pipeline in. Frank said, we can't, we don't have the permits in the United States yet. Bennett said, that's your problem not mine, you get the pipeline in, tear the dirt up and let the people see that we've had some industrial activity here in B.C. or else I'm going to cancel your unanimous approval.

#225 NM: So that was a campaign trick.

CH: Yes. So Frank had to think his way out of that one. The Royal Bank always was a great supporter of Pacific. They loaned money to us all during the time that we were trying to get this permit. Frank arranged to borrow another \$19 million from the Royal Bank and he told me to go out and buy the pipe. This was close enough after the war that the demand for steel was so great that you couldn't get it in the United States. I found a mill in England that was just being built, it was called South Durham Pipe and Steel in Middlesboro, England???

NM: How did you hear about them?

CH: I just cast around to find out where can you get pipe around the world and I found about this new mill. So I went to England and I bought 150 miles of 30" pipe and we had it put on ships and brought to Vancouver. I said to Frank, okay, I'll take this pipe up to Fort St. John and we'll hook it up to the gas wells and we'll start up in Fort St. John. No, he said, you won't, you put it in the Fraser Valley, where people can see you tearing up the dirt. We've got to get Bennett reelected. So we did that and I know we gave the contract to Mannix and he tore up the Fraser Valley and put this pipe in and everybody saw there was industrial activity going on. I don't know whether it helped Bennett get reelected but he got reelected okay. It was kind of interesting. The men that we dealt with at the Royal Bank were Jack Main, the supervisor and Bill Hynman??? the Manager of the Main Branch here, and we took them out to show them the pipeline and they almost fainted. They said, we loaned you the money but I thought you were just going to put it in a pile, I didn't know you were going to put it in the ground. So here it was in the ground and their collateral was all buried. That's how you get a real partner. The problem then was to deal with our permanent financing. So far we just had this money from the Royal Bank. There were a couple of interesting things there. The insurance companies were largely U.S. companies that were going to put the money up, the Canadian companies just couldn't match the interest rates. We would place a small percentage of our bonds with the Canadian companies, but the Metropolitan and the Prudential Insurance Companies were the principal ones. The Metropolitan was the lead. We had to have. . we wanted 20 year bonds and they required a 22 year gas supply. One of my jobs was to get the professional geologists to say that we had a 22 year gas supply and that we had enough gas, about 3 trillion cubic feet, to do this. The best I could get was to get them to say we had a 17 year gas supply. So we worked out a deal, it was the first in the industry. We said, we've got a 17 year gas supply, they said, okay, we'll loan you the money and issue the bonds, but in

five years, you've got to have a 17 year gas supply. We did this on the basis of, we said, once you put a pipeline in there, people will start drilling for gas, once there's a market, they'll start drilling for gas and we'll have all the gas we want. They said, okay, fine, but after five years, you must still have a 17 year gas supply. That got us financed. The other thing I had to do was finance a plant. The gas in Fort St. John was sour, in that it had hydrogen sulphide in it and it also had a lot of gasoline in it and propane lighter ends and I had to have a plant to extract this stuff. It's now called the McMahon plant and it's built at Taylor, British Columbia. It was only \$35 million, which doesn't sound very much now, but in 1955 or '56, that was an awful lot of money. We tried to get our partners, who were the joint interest owners in the gas, to put up the money. This was the Hudson Bay Gas and Oil Company and various others, and they wouldn't do it. So I had to get the money from someplace and I just really didn't know how to get it, how to go about it. This was where Phillips entered the picture. Phillips had been our adversary but was now our partner because of the deal we had made with Pacific Northwest. I was sitting in my office in the Petroleum Building one time and in comes a little man from Houston, and he puts his feet up on my desk and he says, my name is George P. Butt, I'm the Executive Assistant to Boots Adams, the President of Phillips and I'm here to talk to you, Hetherington. He said, we've got 3 trillion feet of gas up in British Columbia that we'll put behind your pipeline, they didn't have that but that's what he said anyway. But he said, also, we never get into the gas business unless we're also in the liquid business, Phillips always made their fortune out of taking gasoline and propane and butane out of the gas and marketing these materials, now if you will let us into that business, we'll put our gas behind you. I thought well, boy, I said, there may be some way we can fit you in. Because by this time, I was lost. The day when we turned the pipeline on, I had 3,000 barrels a day of gasoline coming at me and didn't know what to do with it. I had gone out and with shares, bought a company called Excel Petroleums, which had a bout 50 service stations up in the Peace River country and then I found I didn't know anything about running service stations. You get the guy mad at you and he just puts his wrench up on the wall and you've got a fill-up station and nobody running it. So I went to Imperial Oil and . . . incidentally they were very, very good, they ended up buying all the gasoline that we couldn't sell ourselves. But the real thing was this meeting with George Butt. I didn't know exactly what kind of a deal we might make but he said, come on down to Bartlesville and you know Boots Adams, we'll have a meeting and we'll see what can be done. Well, arising out of that meeting, we made three agreements. We agreed that Phillips would pay for half of the plant, so I had half of it financed. That was the first agreement and they would own half of the plant. They would send a manager up that would build the plant, supervise the building of the plant and they would send a manager up to manage the sales of the gasoline because they knew how to market the stuff. And the third agreement was I had noticed the similarity between Phillips 66 and Pacific, so I said, why don't we use as our Canadian brand, Pacific 66. So I got a trademark agreement to use Pacific 66 and that was the trademark that Pacific marketed under up until the time that Petro Canada took them over.

NM: End of the tape. This is the end of the first interview with Charles Hetherington.

Tape 2 Side 1

NM: This is the second interview with Charles Hetherington, President of Pan Arctic.

CH: Yes, we were talking about the West Coast pipeline and the financing of the pipeline and the McMahon plant. We got this all tidied up and began the construction of the pipeline in earnest. The pipe came from South Durham Steel and Iron Company in Britain and this was about the Suez Crisis. I forget the date of that but it would be about what, '56 I guess, '55, '56. And you remember the Canadians sided with the U.S. in that matter and the British didn't like this, right down to the British workmen and so they sabotaged our pipe. We had an inspector, a big firm from Chicago, plus the Becló??? Corporation inspecting the pipe in England and yet, pipe would come over with holes in it and pieces not welded up. And we buried some of this pipe before we realized it.

NM: So there were some problems.

CH: Yes, so we had some problems and we had to put an extra inspector in Vancouver and if the pipe wasn't to specification we just put it aside in Vancouver and didn't pay for it. One hole had a yellow crayon written around it, it said, it used a swear word and said, you lousy Canadians. So we got the message, we realized this was the ordinary British workman that just resented Canada's position in siding with the U.S. on the Suez Crisis. We finally got the pipeline finished. There were some very difficult areas, one area goes through what is called the Coquihalla pass and it crosses the coast range. There was a railroad through this pass, which has since been abandoned but it was a very difficult section of pipe, that spread was handled by the Mannix Company and they finally got the pipeline through. We finished the pipeline on schedule and we finished it on budget, which is something not many projects do. Now, I admit we had to force the construction a little bit to meet the budget. For example, one, in the pipeline business prefers to use what they call, through-open valves, that is the valve, when it's open, is the same size as the pipe so that you can run scrapers or pigs, to keep the pipe clean. Those cost several times as what's called plug valves, which have a plus with a smaller diameter than the pipeline, through which a pig won't go, but we had to use the plug valve because we couldn't afford the . . .

#033 NM: And everything was finished on time?

CH: Everything finished on time and we started the gas flowing on time. At the same time that this was being done, I was acting as Managing Director of Pacific Petroleum and was in charge of the drilling of the gas wells required to provide the gas for the West Coast Transmission line. Pacific Petroleum was the principal producer supplying the West Coast pipeline. On a slightly different subject, and this is polo again, when I came to Calgary, I learned that there was a polo club here, in the south, where the old Chinook racetrack was, at about 14<sup>th</sup> Street and 70<sup>th</sup> Avenue S.W. My daughter had a horse, and I remembered how I used to play, 15-20 years earlier and I got on this horse and tried to play with the boys but all I succeeded in doing was falling off. J. B. Cross, a famous

rancher here in Alberta, lent me an old polo horse that was too old for him he thought, but it was just ideal and with that I was able to get back, get my strength back and get my ability back and from then on I bought my own horses and I continued to play to the present, 1983 and I hope to continue for some time into the future.

NM: So you really enjoy playing polo?

CH: Really enjoy it very much, it's an exhilarating sport, in that you forget about everything else because you need all your attention to stay on the horse and you exert yourself beyond your capabilities, because otherwise, you know, if you're hiking and you get tired you just stop, if you're playing golf or tennis or something, you stop. You can't . . .

NM: How do you train your horses for polo in Canada?

CH: We don't really train them here very well. Our season is too short, California, Florida, Oklahoma, places like that are where the horses are actually trained. As a matter of fact, speaking of California, I'm the President of the El Dorado Polo Club in Indio, California. I'm not sure why they made me the President. I said, I don't even live in the country so why do you inflict me with this. We have a very big polo activity going on there, we have seven tournament fields, 800 corrals, we just built a new clubhouse, worth about a half million dollars, so it's quite an operation. This year at the Stampede, we're going to have a polo tournament scheduled with 3 Calgary teams and teams from Jackson, Wyoming, Spokane, Washington and Grande Prairie, Alberta. I'm showing my age a little bit here when I tell you that my granddaughters are now playing polo. They groomed for me and in that process they learned how to ride and learned how to hit the ball and they're not bad little players. Getting back to the West Coast pipeline, I found that operating a gas pipeline is very dull. You just meter the gas into it and meter the gas out of it, you try and control your expenses to where the shareholders make a little money and there's really not much. . .

#065 NM: So after a time you are getting tired and bored.

CH: That's right. So in 1959 I decided to start my own company called Can Crude Oil and Gas Company. I had another company called Charles R. Hetherington Engineers.

NM: Are all these companies in Calgary?

CH: Yes, in Calgary. The engineering company operated for the oil company. I had a partner in this oil company, the Michigan-Wisconsin Pipeline Company of Detroit, Michigan. They wanted to get into Canada and get into the gas production business because they anticipated they'd get some gas from Canada eventually. We had a lot of fun, drilling wells, we were fairly successful, we discovered some gas and some oil. In those days, kind of like today, gas was sort of a drug on the market. They had a rule that you could put gas into a pipeline if you got 10 billion cubic feet for each mile of pipeline that you had to build. I was about 30 miles from a pipeline and I had about 100 billion cubic feet and it took 300 billion to make a connection. So I sold the gas to Dome Petroleum, I sold it to Jack Gallagher. They had a man in Dome named Charlie Dunkley???, you may have heard of him and Dunkley was the exact opposite of Gallagher. Gallagher was outgoing, positive and wanted to take over everything, Dunkley was negative he didn't like doing anything. So they made a pretty good balance for each other. Every time Dunkley would

come into Gallagher's office while I was negotiating with him, I'd say Jack, I've got to go, I've got another meeting and I'd leave because I knew I couldn't sell the deal if Dunkley was around. But anyway Dome bought the gas. Some years later I said, to Dunkley, I said, Charlie, how's that gas down there at Vulcan coming that I sold you. Well, he said, we converted a financial disaster into a marginal operation. He never did like it very much.

NM: How big were your two companies?

CH: They weren't really large. Including the interest that Michigan-Wisconsin had in it, we did about \$1 million a year worth of drilling, which is not a lot, but it's a nice operation for a small company. Then we also decided to sell our oil. I remember we sold the oil and I'd had two very good friends in the gas company in Detroit, Ralph MacAlveny???, who was the President and a man named Wilbur Deek Mack???, who was the Vice-President. They both like to hunt, I've done all kinds of hunting with them, pheasants in Alberta and geese in the Peace River country and partridge out of Tomkins, Saskatchewan and then we went big game hunting in the Mackenzie mountains in the Northwest Territories. It was a very fine outing. With this oil company activity decreasing because we sold most of the production, I continued on in this consulting business under Charles R. Hetherington Engineers. I got a great consulting job in Australia. Oil and gas had been discovered in Queensland and the government of Queensland wanted to have some kind of an evaluation of what they had, what it really meant and to learn how the North American governments regulated oil and gas activities. And they didn't want to go to the United States so they came to Canada. They first went to Mr. Manning and Mr. Manning asked George Gauvier, that's a familiar name to you, for his recommendations. George gave them several recommendations I guess, but in particular, he must have recommended me because I got the job to go over there.

#107 NM: So did you leave straight away to go to Australia?

CH: Yes, I didn't go permanently but I'd go for maybe two weeks to. . . my longest stay was about two months at a time. I made many trips, I saw every gas well, every oil well and all the geology of that country. And every coal mine, I'll bet I went into 50 coal mines, because they wanted to be sure that nobody got their toes stepped on. They wanted to assure the fellow that was mining the coal that the gas and oil wasn't going to hurt them. The people in Sydney heard about me and they asked me to come down there and arising out of the meeting, the gas company in Sydney and the gas company in Melbourne and some banks and an investment firm, formed what was called the Australian Natural Gas Development Association. The idea was to see that Australians had a big say in the development of their own gas business. This Association asked me to do some more work. One of these was a market survey of the need for gas in New South Wales and Victoria, which was very interesting. In the process of visiting industries and making this survey, I saw an awful lot of that part of the country. Then that Association asked me to design a pipeline from central Australia to Sydney and I did that.

NM: That was a big project.

CH: It was a big project, yes it was. While I was over there in Australia, I got a call from Bob

Brown, who was President of Home Oil Company at that time, Bobby's father and he started the Home Oil Company. Bob had great designs on being in the pipeline business and he worked it around where he was the major shareholder of Trans Canada Pipelines and he actually controlled Trans Canada Pipelines. They wanted to . . . as you'll recall Trans Canada Pipelines, when it was built, was built through Northern Ontario, through quite an area where it's very rugged and no market. That probably was the way to do it, but now that the pipeline was through Canada, the best way really to get additional gas to eastern Canada, and to the U.S. was to go down through the U.S. and cut across, come out through Michigan. This was called the Great Lakes Pipeline Company. Bobby Brown simply couldn't get the thing off the ground. He was dealing with my friend Ralph MacAlveney, the man that I'd told you I had dealt with in the gas business in Canada and we used to hunt a lot together. And MacAlveney figured that the Canadians really didn't want to go through the United States. Jimmy Kerr was the President of Trans Canada Pipelines and he and Don Clark were negotiating with the people in Detroit and they just couldn't get anything together. I had told Bobby that I knew MacAlveney and if he wanted me to help, maybe I could help him. Well, Bobby said, the time has come now to get you in here and see if we can't do something. So they arranged that I would meet Jimmy Kerr at the airport and Jimmy would have a little conference room where we would sit down and see if we could make a deal.

#147 NM: At the airport?

CH: At the airport. So I met Jimmy at the airport and I said, I think I can help you, I don't really know, but I do know MacAlveney, I know that he wants the gas, I think he's just disturbed because the negotiations have dragged out so long. I'll tell you what I'll do and I mentioned my fee and Jimmy's ears really picked up a little bit, he's a little startled at how much money I want. I said, I'll tell you, I'll make you a sporting proposition, if we don't make the deal, you don't have to pay the fee, just pay my expenses. He agreed to it. So we started the negotiations. I spent a good bit of time in Detroit and I tried to keep the Great Lakes people and the Trans Canada people in Detroit, even over the weekend, to kind of force them to finish this thing up. We finally came down to an essential agreement but we were not quite on agreement on the border price, it was off by about 1/4 of a cent per MCF. Imagine that, we're talking about dollars per MCF now for gas, but Bobby Brown said, okay Ralph, I'll flip you for it. He flipped the coin and the Canadians won and we got another 1/4 cent per MCF for the gas. The American lawyer handling the thing said, now gentlemen, I suggest you forget this little episode because you gentleman are going to be on the witness stand some day and when they ask you how you determined the price you don't want to say, I flipped a coin. By 1967 most of the consulting work that I was doing was for West Coast Transmission Company, which by this time had got to Vancouver. Frank McMahon asked me if I would come back with West Coast as Vice-President and Director, which I did and I moved to Vancouver in '67. One of the interesting things out there was a company called West Coast Petroleum Company. West Coast Transmission Company owned a lot of land in northeast British Columbia but they didn't have anybody looking after it properly, it was not really an

active company. So I went to New York. . it took about a year to do this, over a year, but I raised \$24 million, about 20 of it in the U.S. and \$4 million in Canada.

NM: Were you travelling non-stop from Vancouver to New York [or did you stop in the airport in Toronto??]?

CH: Yes, I stayed in there for quite a time. It took a lot of work getting the prospectuses together and that kind of thing but we sold 60% of West Coast Petroleum Company to the public. It was actually called West Coast Production Company at that time, and we changed the name because everybody was writing us if we would send them their films, they thought we were a production company making films, instead of producing oil or gas. Anyway, that company is an independent company now and has gone on to be quite successful. It still is largely owned now. . it's controlled by Petro Canada, since Petro Canada bought Pacific Petroleums, which in turn controls West Coast. In 1967 I married Rose Scerlot Cosco???, who had two sons, Robert and Donald Scerlot. Again, I found operating a pipeline was dull. Also Phillips Petroleum Company had gained control of Pacific Petroleums and West Coast and my friend Frank McMahon was on the way out. I saw an ad in the Oilweek, a big ad advertising for the President and Chief Executive Officer of a large exploration company and I inquired around enough to find out that this was Pan Arctic Oils.

#193 NM: So you discovered what it was.

CH: I found out what it was, yes.

NM: How did you go about this?

CH: Price Waterhouse was really the one putting out this ad and I was able to find out what the company was. And it sounded like a very interesting job. I'd always liked exploration. I'm not a geologist but a geologist can't fool me, I've been in it long enough that the geology's brushed off on me. And I know about production operations and seismograph interpretation and exploration in general. So I applied and I got the job.

NM: Who chose you?

CH: It was a committee. The recommendation. . and I don't know how many people Price Waterhouse recommended but they recommended a number of people to this committee. This committee was made up of John Macdonald, who was the Deputy Minister of Indian and Northern Affairs and John Taylor, who was the President of Canadian Pacific Oil and Gas, which is now Pan-Canadian and I'd worked with John Taylor in developing some Canadian Pacific Oil and Gas lands down around in the Vulcan area, so I knew him. The third member was Jack Gallagher, who knew me. But I think Jack liked the idea of getting somebody, to use his words, wasn't so promotional. Anyway, the other two men prevailed and I got the job.

NM: What type of company was Pan Arctic at the time?

CH: It was exploring for oil and gas in the Canadian Arctic. Let me tell you about the formation of Pan Arctic, I think you'll find this interesting. Dr. Cam Sproule, is a familiar name to you, was very interested in the Arctic. He was an excellent geologist, he was a man of vision. He had put together some survey parties that would go to the Arctic, they had all the camping equipment, he even bought an airline in order to get up to the Arctic.

He would go up there and on the ground, do geology. Also the Canadian Air Force, right after the war, had flown the area and photographed all of it. So the photographs up there were better there than any place else in Canada. You could do an awful lot of geology from the aerial photographs. Cam put the geology together and he would go, as I say, if Imperial wanted some geology done or Gulf or anybody else wanted geology done, he would go up there. The government had issued, in the early 1960's, exploration permits to many companies. Most of the companies that took these exploration permits were small to medium oil companies, mining companies, none of the majors took an interest.

#236 NM: Why is that?

CH: I think they thought it was too far out. I heard one man from Imperial Oil say, we've got a lot of oil in Venezuela, we want to get that out before we find more oil in Canada. You'll find historically though, that quite often, the major oil companies don't move until they feel it's ready to do so and then they buy their way in.

NM: So they wait for the smaller companies to ???

CH: Yes. But Sproule simply could not get this thing together. He worked on trying to get government assistance, he figured that you'd need government assistance. He even got parliament to pass what's called the Northern Mineral Assistance Act. This was that you got some financial assistance, which if your project didn't work out you didn't have to pay the money back, but that didn't work. Dean Nesbitt tried to finance some money publicly, but the majors talked him out of it, they said, you'd be doing the public a disservice if you sold the shares in a company that's going to work in the Arctic, that's too far down the line. They didn't want the thing to go. So Cam kept working, and his idea was to do the geology on a plot of land and then go peddle this to somebody who would farm in and take the lease and do some work on it, using his geology. But that wouldn't work. Then he met Eric Connolly here in Calgary and Eric said, Cam you're going about it the wrong way. What we should do is take all of these exploration permits and put them into one well financed company and let that one company do the work. So that company was to become Pan Arctic Oils and the original plan was to raise \$20 million in the first phase and the second phase \$10 million and Pan Arctic would take this money and explore about 40 million acres of land. They put a man named Dr. Gordon Jones out and he beat the pavement and got these farm out agreements all put together. Those farm out agreements had a deadline in them of some time, I think it was November of '67, by which this financing had to be arranged. And the plan to raise the \$20 million was to have the government put up \$9 million and the industry to put up \$11 million, so that the government would own 45% and the industry would own 55%. The Minister of Indian and Northern Affairs at that time was Arthur Lang from British Columbia and his Deputy Minister was John A. Macdonald. These two men were very keen on the Arctic, very keen on Pan Arctic. This was in the time of the Pearson government and I remember Arthur Lang telling about being in these cabinet meetings and having John Macdonald with him and they were pressuring Pearson to put up the \$9 million and let's go on this thing. Pearson turned his chair around to where his back was facing them and he said, let's go. That's what made Pan Arctic get started. Then it was up to the industry to raise

the \$11 million. The industry simply didn't seem to be able to get together. The deadline for financing under the farm out agreements was approaching, so John Taylor, who was the President of, as I said, CPOG, which is not Pan Canadian and a man named Bob Armstrong, who was the Vice-President of Exploration for Cominco, said, let's finance this thing ourselves and when we do it, the other people will come in. Dome said, we'll help you to the extent of \$1 million. We'll take \$1 million worth of the first financing. Taylor and Armstrong said, we'll take the rest of it. They didn't really have the authority, they hadn't gone to their Boards or anything else, they said, we'll take the other \$10 million, on their own initiative. They sent the wires to all the farm owners that the financing was arranged and Pan Arctic was in fact now, an entity. With that everybody else wanted to get in. Noranda said, we'd like to take 5%, International Nickel said we want 5%, Dome said, we'd like a little more, we'd like to get up to 5%.

#305 NM: So everybody jumped on the band wagon?

CH: That's right. And that's where we got the. . .and there were some groups, there was Ben Keeno??? Mines and Carl Nickle formed a group and put some money into it. Originally everything was in equal numbers. You'll notice, when you look at our shareholdings now, they're all odd numbers, but everybody had a multiple of 5%. Even if you had a group, that group had a 5% interest.

NM: What was happening to Cam Sproule during this time?

CH: what happened there was Cam wanted to operate and the group realized that he was an excellent geologist but they didn't want a fellow with so much dreaming to be spending the money. So when the financing was agreed upon, Cam Sproule at the last minute, he and Eric Connolly agreed that they would back off, they'd get out of the management, they wouldn't try and operate but in return they would get repaid all the money they'd put into the exploration in the Arctic and in addition they'd get what's called a 10% net profit interest in Pan Arctic. Which means that when Pan Arctic gets into production and gets all the money back that it has spent, then Sproule and Connolly share in 10% of the profit. It's a tremendous thing. It's far into the future but still it could be a lot of money. Dome at that time had drilled a well at Winter Harbour on Melville Island. They took a Peter Bawden rig up off the boat and just put it on the shore and drilled this well. There was an anti-cline there that you could see

NM: End of the tape.

Tape 2 Side 2

CH: I just talked about the formation of Pan Arctic and I thought, for the interest of the record, you might be interested in the initial directors. These people all had something to do with putting Pan Arctic together, I'll take them in alphabetical order. R. J. Armstrong was the Vice-President of Cominco, F. E. Burnett was the Vice-President of Cominco, he eventually became President of Cominco, J. P. Gallagher, President of Dome, C. Marx Hinton was the President of Barber Oil Corporation of Okalahoma City, E. A. Jonas was Vice-President of the Thordal Company, which is a Norwegian shipping firm. He was interested in Pan Arctic because of business it might give him in shipping through ice laden waters. John A. Macdonald, I mentioned was the Deputy Minister of Indian and Northern Affairs, J. W. McBean was the Vice-President of Ankinco??? Mines, D. C. McGavin was the General Solicitor for the International Nickle Company of Canada, S. C. Nickle, that's Carl Nickle's father was an oil company executive, H. M. Pickard was the Vice-President of Canadian Pacific Investments, W. S. Bill Rowe was Executive Vice-President of Noranda Mines Ltd., D. K. Seaman was President of Bow Valley Industries, J. M. Taylor was Vice-President and General Manager of Canadian Pacific Oil and Gas, and J. T. Wannamaker, who was the General Manager of Kemp Investments, that's the distiller Seagrams and A. D. Hunt, he was the Deputy Minister of Indian and Northern Affairs. Those were what I call the founding Directors. They decided that since Dome had the experience of drilling a well, I mentioned that Dome took a Peter Bawden rig and drilled this well at Winter Harbour. They didn't get anything and they just left this rig there, they didn't even take the derrick down. Years later they were required by . . . environmental things didn't mean very much in those days, but they were required to go back and clean up this drill site. But they did have some experience in drilling, so Dome took some seismic equipment up to the Arctic in 1968. The geology is reasonably simple in the Arctic. I think I mentioned that there are periods when there is no snow on the ground, in July and August and there's no glacial residue and there's no vegetation to speak of. It's like a desert, it's a frozen desert is what it is. There's very little rainfall, the total rainfall at Drake Point is about 2 1/2 inches, that's snow, water and everything else. But you can see the bed rocks outcropping. Seismic is reasonably easy because there are no trees, you don't have to cut down anything, you can just go across the countryside, so long as the ground is frozen, it's easy to operate in. They were able to map some very good structures, including one at a place called Drake Point. This has since turned out to be the largest gas field in Canada, with 5 1/2 trillion cubic feet. I believe the largest gas field in Alberta is about 3 trillion. So it's a very large gas field. But when Dome drilled the first well at Drake Point, in 1969, it blew wild. In addition to the gas sands, there were some water sands open and the gas lifted the water and blew it up in the air and it froze of course, and it blew a great ice cone, 250' high. It looked like a volcano with steaming gas coming out the top. There was so much water in the gas that it wouldn't burn, but it did make this great big ice cone. When I came aboard in August of 1970, the well was still

out of control and I put my efforts in seeing what we could do there. Dome had been working on the thing for about a year and still didn't have it out. We had a Vice-President of Operations, by the name Jim Strain ???, that was extremely good. We didn't even bother with Red Adair because we didn't really have anything. . . Red's great if there's a piece of pipe sticking out of the ground that you can hook on to but we didn't really have anything like that. We had to drill a relief well and we were having trouble making contact with the wild well. When you drill a relief well you set up a rig, oh, 1,000' away from the wild well say, and you deviate a hole to get near to it. You don't get exactly into the wild well but you get close to it enough that you can break in with mud pressure. But the usual directional drilling methods that work in Alberta, which use a compass to tell you which direction you're going won't work in the Arctic because you're north of the magnetic pole. We had to use gyroscopes, which weren't all that good and we had trouble with this. But we finally put it out after months and months of work. On October 29<sup>th</sup>, 1970, a gas well in King Christian Island blew out. This well caught fire as the rig hands ran off the floor they hit the blow out preventor and the blow out preventor momentarily shut the well in.

#060 NM: Was anybody hurt?

CH: No. They were just lucky, the blow out preventor stopped the fire long enough for them to get off the rig and I would say it probably held the well for maybe 30 seconds. We only had 150' of pipe in the hole so that when the gas pressure built up it blew up beneath the pipe and it put a great rift in the earth, 700' long and we had a curtain of fire all over the place. The Directors told me, they said, just forget about waiting until January 1, 1971 to take over, you take it over right now and see if you can't put it out.

NM: The fire was going on.

CH: Yes, the fire was going on. The first thing I did, I hired some consultants from Houston who were very knowledgeable in handling high pressure gas and I got them to come up and say what's wrong with this operation that we're having all these blow outs and what do we need to do to prevent it. I found a lot of things wrong that we've since corrected and we have the proper equipment now on the rigs, everybody must be highly trained, we have a blow out prevention manual that everybody must read and learn before we permit them to go up there. We conduct drills, the foreman will go around and trip one of these alarms and then time how long it takes the crew to react and see if they react properly.

NM: This must have been quite a sight.

CH: Yes, it was. The gas was blowing, the fire was going about 300' in the air and you could see this flame from an aeroplane 3 or 4 hundred miles away. As a matter of fact the aeroplanes that fly over the pole would say, if you look out on the right hand side, you'll see the wild gas well on King Christian Island and it showed just as a bright, sort of acetylene type tipped fire. The government was quite concerned, Jean Chretien was the Minister of Indian and Northern Affairs at that time and he came down to Calgary and I sat for 4 hours out on the tarmac in his aeroplane while we talked this thing over and he said, terrible thing, just awful, just terrible. I said, well, it's not really all that bad, it's . . .

NM: Was he really worried?

CH: Yes, he was worrying because he didn't know a thing about the gas business and he didn't know that gas really is not going to hurt anything outside of maybe 100' around the well. I said, it's not really hurting anything, the gas is going in the air and it's burning and we'll put it out.

NM: Everything was melting around it?

CH: Oh yes, it melted all the steel and the derrick, the rig was gone. Nothing was left of the engines except the crank shaft, the big heavy stuff that wouldn't burn too easily. He wanted to know what I was going to do about it. I said, well did you ever hear of Frank McMahan and Atlantic Leduc #3. I said, when Atlantic Leduc #3 blew out and they began producing 20,000 barrels a day of oil out of this farmers field, it put Alberta on the map. Particularly when the Atlantic Leduc finally caught fire. They put the well out just shortly after it caught fire and the fire cleaned up all the oil and it made such a spectacular fire that it got every news program and every news paper in the world.

#097 NM: Because everybody was talking about it.

CH: Everybody was talking about it and everybody wanted to come to Alberta. You couldn't get a seat on a plane or a train or a bus, all the landmen from the country were coming to Alberta. So I said, let's do the same thing with the King Christian well. It's obviously a very prolific area and it'll show the people that the Arctic really does have a storehouse of energy.

NM: At the time you were talking to Jean Chretien, for how long was the fire going on?

CH: Oh it had been going on about two weeks by the time I first talked to him. I said, what I'm going to do unless you just order me not to, is I'm going to get the President's of 16 gas companies and I'm going to get a case of whiskey and some food and take our aeroplane, we had a Lockheed Electra at that time, and fly non-stop from Calgary to King Christian Island and show these people the fire. And take some newspaper people along and let's see what happens. He had an assistant called Jean Fournier and he said, just a minute, I'll go back and talk to Jean. So they come back after about 15 minutes and say, we think that's a good idea.

NM: So you did organize. . .?

CH: I did organize that and we took the trip. When we finally put the well out and I'll tell you about that in a minute. When we finally did put the well out, four of these companies came back and said, look we want to invest some money in this area and we made an agreement to borrow \$75 million from these four American companies to be paid back out of production. And the only thing we gave up was those American companies, for loaning us that money, they would get interest but in addition they would get the first right to contract the gas that they discovered with the money they put up here.

NM: What was the first reaction of all the people that you took over there?

CH: The reaction was, number one, it was such a spectacular fire. It was flowing, in my estimate, 400 million cubic feet a day and it made noise, you couldn't talk. It was a tremendous thing, they said, this is a terrific. . .there obviously is some real gas here in the Arctic. And the other reaction was, and I found this out later, they said, he'll never put it

out. The well was shallow, 2,000' and at that shallow depth it's very difficult to put out a well with that prolific a flow.

#122 NM: How did you succeed at putting out the fire?

CH: Well, what we did. Jim Strain was in charge of this operation. Again, we didn't bother with Red Adair because we didn't have anything to hook on to, we knew we had to drill a relief well and that was the only way. Fortunately this well was near the ocean, so we had a good supply of water. We planned this killing operations to drill a relief well. We first made a survey of where the fire was because I said, there was a curtain of fire wherever this gas had broken through the earth and it looked like. . you talk about Hades, it really did look like you were in Hades, with these curtains of fire going up about 20', all over a distance of about 700'. So we surveyed where there was no fire, we found a place where there was no fire. So we set up a drilling rig, which was the one that we had used to kill the Drake well, just two weeks earlier. Fortunately we had killed that well because we wouldn't have had the equipment available otherwise. But we flew it over and then we flew in 500 tons of all kinds of pumping equipment. We built 2, 9 5/8" pipelines to the ocean. We did it using casing and we just screwed it together by hand, at 40 below zero and we had . . .

NM: How many persons were you using?

CH: We had about 100 people working on this job in a little, about 40 man camp, we were jammed in this thing. And we put in a pump station out on the ocean to pump water up to the rig and then we put a pump station in a tent at the rig, high pressure pump station, to pump the water down the well. The relief well drilling just went fine. We contacted the wild well right away. Then we began pumping in the sea water. It's a little interesting about the sea water because the pipeline was laying on the ground about 3 miles long and we laid two pipes so we could circulate the water to keep it from freezing. And there was no data at all, I looked through every library, there was no data on how you could pump water, could you pump water through a steel pipe laying on a surface of 50 below zero. The answer is you can. We proved that. We'd sit there and circulate until we got ready. Since there were two pipelines we could circulate the water around and the pump put in enough heat into the water to keep it from freezing. Anyway when we got ready to pump it, we diverted both pipelines down the well and we pumped sea water at the rate of 170,000 barrels a day, down the relief well and it simply came up with the gas and went up and was vaporized by the flame, didn't even appear to cool the flame down. It takes 100 million cubic feet a day of gas, burning at 100% efficiency to vaporize that 170,000 barrels a day of water that we were putting in. And to me it didn't seem to cool the fire down much at all, so that's the basis that I estimate it was flowing 400 million cubic feet a day. The sea water went up with the flame, was vaporized, it hit that 40-50 degree below zero air and we laid a blanket of salt water snow all over King Christian Island. It's interesting, salt water snow doesn't look like flaky snow, it looks more like popcorn. I was about at my wit's end, we had designed this kill procedure, everything had worked, we were pumping the ocean down the well and it didn't go out.

#164 NM: What was happening?

CH: What was happening was that the formation was gradually taking up a little bit of that water but I didn't know that. I had never done one of these things before myself. To help us on this kill operation, I had called in again, my old friend Tip Maroney, who by this time had retired from Imperial Oil and he was very glad to come out and help on a wild well because he just thrived on that kind of an operation. Tip said, well, Charles, look, it's 3:00 in the morning, why don't we go to bed, we've been up for two days now without any sleep, I've gone to bed and I wake up and these things are out. Just tell your men that when it goes out, keep pumping and then come wake me up. I said, is this guy nuts, this fire is not going to go out, we're going to have to do something else and I don't know what to do. Also Tip said, and this gave me some more courage, he said, be sure you get some flood lights out there because when that fire goes out it's going to be dark as the inside of a cow out there. So that gave me courage that he really. . .

NM: He knew that it was going to go out.

CH: He knew that it was going to die eventually. So we did go to bed and sure enough, at 6:00 in the morning, Alan Gates, the drilling foreman ran in and said, she's out, she's out, and Tip said just keep pumping, go fix me some breakfast, there's no hurry, just keep pumping. We had breakfast and went out there and the fire was gone, all these rifts in the ground where the well had blown out, the fires had gone out and we then switched over to heavy mud and filled the well with mud and when we got it to where it was settled down and knew it was killed, we filled it up with cement. That was the end of this King Christian well, D-18. We did another interesting thing with the relief well. The relief well was deviated at an angle of about 35 degrees and after we cemented the wild well off, we just deepened the relief well to evaluate the sand. And that well is now completed. It has small casing in it, small tubing, but it will produce a reasonable amount of gas. And it did permit us to core the producing zone, log it and make the necessary evaluation of the reservoir. So the relief well was not a complete waste. Since that time, we had continued to find gas. As a matter of fact, for a period, it looked as if the Arctic were gas prone. We had to date discovered 18 trillion feet, that adds about 25% to the known reserves of the conventional areas of Canada. I'll tell you about the oil in a minute which has come in more recent years. But we have a need for a market. The gas is 2,000 miles from anywhere, so I started working on a gas pipeline project, having sort of come up through the gas pipeline business. I talked to Vern Harty???, who was then the President of Trans Canada Pipelines and to Jack Rae, who was the President of Tennessee Gas Transmission Company, which is one of the companies that had loaned us the money to, the \$75 million to make this discovery and we put together a company called the Polar Gas Project. The participants in that were Trans Canada, whose President is now George Woods and they're the manager of the project. Then we had Tennessee Gas Transmission Company, Jack Rae is the President and Pacific Light and Gas Supply Company, Harry Lapap is their President and Canadian Pacific, with Ron Riley, the Vice-President of CP as their representative. The make up the Polar Gas has changed a little bit now. We hired a President, John Holding, who was President of RCA and he's done a fine job in steering Polar Gas through the years. Our Chief engineer is a man named Ollie Kastinen???,

who's done a great job on the engineering. Pacific Lighting and Canadian Pacific dropped out and the proponents of Polar Gas now, are Trans Canada Pipelines, Pan Arctic, Tenneco, the Ontario Energy Corporation, where Malcolm Rowan is the President of that and Petro Canada, where Bill Hopper is the Chairman. So we had this project that plans to take the gas out of the Arctic. Originally we had a route, we looked at a route both east and west of Hudson's Bay. The route on the east side is near impossible, crossing the neck of Hudson's Bay. And now Polar Gas' plan, it's a two phased plan, where they would extend a relatively small diameter line, from the Mackenzie Delta, into the Nova system near Zama in Alberta. As you know Imperial Oil has approval to build a small oil line from Norman Wells to Alberta and they will be extending that oil line to the Arctic Coast to take a relatively small amount of oil out of the Beaufort Sea, Mackenzie Delta area into Alberta. Once that oil line is in place, it's only logical to have a pipeline corridor where we would put the first phase of the Polar Gas Pipeline. Then after the Polar Gas Pipeline extends into the Delta and the Beaufort Sea, we could extend a branch for that general area to the Arctic Islands. Cross over to Victoria Island and then across to Melville Island. There are really only two water crossings and we've developed the technology on how to make these water crossings. We have another possibility for marketing smaller quantities of gas at an earlier date and it's called the Arctic Pilot project, to liquify gas on Melville Island and take it out of southern Melville with ice breaking tankers of a class 7, which means that the tanker would be capable of travelling year round through seven feet of ice.

#252 NM: Where did you get all your heavy equipment?

CH: The heavy equipment for drilling, a lot of it has to come from the United States, but on the drilling rigs we put them together and assemble them in Canada, in Edmonton is where we build them. Perhaps the Caterpillar engine has to come from the United States but it will come from a Canadian distributor. And the same with the draw works and the other components, all the steel and the derrick and those things are put together here in Canada. To finish the Arctic Pilot project, it made an application to the National Energy Board and that application is temporarily adjourned because declining world oil prices and declining need for gas has made the market a little questionable. So the Arctic Pilot project is investigating markets in France and Germany and then we are also waiting for the U.S. market to improve. But I'm sure that the decline in oil price and the slump in gas markets is temporary and that we're looking. . . even if we got the go ahead today, it would take us five years to get these ice breaking tankers and the liquification plant built. So we're looking five years down the road at which time I think that things will change. And I don't just do that wishfully thinking because when you look at the relatively small life expectancy of gas reserves in the United States and oil, there's going to be a market. We only supply 5% of the United States gas supply, so the market doesn't have to improve very much in the United States to call in a lot of Canadian gas. One of the major problems I have wrestled with, so far successfully has been the continued financing of Pan Arctic's exploration activities. Cam Sproule, when he flew the original share holders over the Melville Island, he said, four of the first five wells you drill down there will be

oil wells. That didn't turn out that way. Cam was right in what he did but he was right for the wrong reason. We first started finding gas in all our wells, one after the other turned out to be gas. Thank goodness for the 1973 Suez Crisis, Arab embargo I mean, because that changed the complexion. Prior to that time gas had been selling at 22 cents a thousand cubic feet at the U. S. border and of course, gas from the Arctic wasn't economic at that price. But recently the price has been as high as \$4.94 U.S., that's down a little bit now and it will probably come down a little bit more before it starts going up but that makes a great big difference. And also, in addition to the Arab embargo, we began to find some oil. The first oil as a matter of fact, was found at the Drake well in 1969, but it wasn't commercial.

#305 NM: Not enough?

CH: Not enough, no. The reservoir was not good and there was not enough oil to make it commercial. I continued to notice these little showings of oil.

NM: You knew there was oil there?

CH: Yes, I just had the feeling with all these shows there's got to be oil. As a matter of fact, I have prepared this little box, a nice walnut box with little cubicles in it, that I can put sample bottles of oil, little medicine bottles of oil and the box contains 24 little compartments and pretty soon I had 24 bottles of oil from 24 different shows, all non-commercial. So I built a second box and I now have it full and I'm going to have to build a third box I guess. I just knew that with that many shows of oil we had to have something that looked good. On April 27, 1981, a daily drilling report came across my desk entitled Cisco Awingak, and I could tell from the report on this drill stem test and I wrote on that daily report, this may be the most important event in Pan Arctic's history. And I think it's turning out to be that. The Cisco field lies about 10 miles offshore of Lougheed Island, in around 1,000' of water and we'd encountered oil in the Awingak sand at about 5,000' depth. We continued on to the King Christian sand, it was also oil bearing, but it had a gas cap. Since then we've drilled two more step out wells, so that we now have three wells in the Cisco field, over a distance of 9 miles and it indicates at least a billion barrels of oil. So I think we're well on our way. That same year, in 1981 we discovered. . . .

NM: This is the end of the tape.

## Tape 3 Side 1

NM: This is the third interview with Charles Hetherington, President of Pan Arctic.

CH: Yes, also in 1981, we discovered two other oil fields around Lougheed Island, one that's called Skate and the other is called McLean. These fields remain to be delineated so we don't really know what we have there. But they, along with these oil discoveries, along with the Arab embargo, helped us continue to be able to finance. We financed by selling shares to our share holders. Our Board is really a share holder Board, it's an unusual kind of a company. We have the share holders do the exploration. Pan Arctic physically conducts the work for them but it's the shareholder who spends the money, so that the tax credits flow back to the share holders. So if you're a company, say, like Noranda, paying full income taxes or Pan Canadian paying full income taxes, you get to deduct this cost of exploration, what they call, Canada Exploration and Development Expense, you get to deduct that against your other income. In the old days when we had depletion, you got that 33 1/3% depletion also, so it really made it quite attractive to finance. The government owning 45% was always a strong supporter of Pan Arctic's financing. In those days it seemed to be sacrosanct that the government should not go above 45%, so every time that one of the industrial share holders was reluctant to put up his money, the government said, we'll take it if you don't, which would have put them above 45% and they didn't like that, so the people put up their money. I remember one year I was having trouble and I said, gentlemen, if you could just see the light at the end of the tunnel and old Bill Rowe, who's from Noranda, he was a crusty old gentleman, he said, hell, if I could see the tunnel I'd stay with you. One year again, I was having trouble and we were drilling a well at Bent Horn on Cameron Island, and we'd had a good show in the first discovery well but it was only a show. It was too thin pay and near water and we were drilling a second well. This second well, when we drilled into the limestone, and it's about 10,000' deep, it wasn't productive. The limestone was tight and I backed up the hole a couple thousand feet and whip stocked the well. I said, I don't have the authority to drill another well but I've got the authority to ship stock this one and we moved it over several hundred feet and the day before the Director's meeting, it came in a terrific oil producer. And the Directors came to the. . . as I said our Directors are the shareholders, the representatives of the shareholders, and they came to the meeting prepared to cut the budget and when I told them about this oil discovery they adjourned the meeting to the next day to where they could go back and change their minds. I remember one incident where we had so much enthusiasm that we really drilled too many wells during the first part of the year, to where I was short \$12 million to finish the year's program and I didn't want to shut down. So I went to the government and I said, look, there must be some way you could help us out, to the tune of \$12 million. I know Marshall Crow, he was then the Chairman of the National Energy Board, he helped me by getting together a bunch of the top civil servants in Ottawa and had a dinner for me and I just explained this thing and to

them, I remember Jack Austin was there and Paul Tellier and a number of people like that. Judd Buchanan was then the Minister of Indian and Northern Affairs and he gave a luncheon for me, there was Marc Lalonde, Jean Chretien, Don Macdonald, who was the Minister of Defence, Marshall Crow and Tommy Shoyama, I think he was the Deputy Minister of Finance at that time and a man named Rasminsky, who was in the Finance Department and I said, look, do you remember when the Department of Supply and Services, during the Arab crisis, bought the diesel oil, they went out and paid about 90 cents a gallon for diesel oil, which is worth about 30 cents, I said, can't you get Supply and Services Department to loan us the money. He said, don't even mention Supply and Services, they don't want to talk about that. I said, well how about Petro Canada, well, they said, we don't want them lending you money now because the legislation is not yet in place and we don't want to take action in advance. I don't think that would bother them if they really wanted to. Anyway arising out of all this, the government did agree to guarantee a loan from the commercial banks, so we borrowed the \$12 million from the banks, the government guaranteed it and the deal was that if we didn't pay it back in five years the government would take shares, they would pay the loan off and take shares, which they have done. Now, when they did that of course, that brought the government above 45% and now, nobody seems to care, the government now is over 53% and everybody's quite happy. We're a subsidiary of Petro Canada. During this period of operations here we have developed a tremendous amount of Arctic technology. In the early days we didn't think you could work at night. The sun goes down, it doesn't come above the horizon by the second week in November and it doesn't come above the horizon till three months later in early February.

#064 NM: So it would be a very short time to work.

CH: Yes. We were concerned that you couldn't work in the dark. Well, that isn't true. We now go out before it gets dark and put out a small camp and some fuel. Then when we get ready to move the rig, say we're moving it in November or December, we go over with a Twin Otter and drop a flare. We usually go with two Twin Otters and the first Twin Otter drops some flares and the second Twin Otter lands in the light of these flares. We have a small bulldozer there, they knock the snow off of the Hercules strip and pretty soon we've got the electric generators going, the lights on, and we then bring the Hercules in to bring in the components of the drilling rig. We move manpower from Edmonton to the Arctic with a Boeing 727 that we charter from Pacific Western Airlines and both the 727 and the Hercules land right at the drilling rig. We'll have a Herc strip, a 6,000' strip right at the drilling rig.

NM: Talking about planes, a few years ago you had an accident?

CH: Yes, we did, a very terrible accident. We had a Lockheed Electra and the plane was approaching Drake Point at night, and the weather was not very good and the plane crashed about a mile short of the island and killed 32 people. There were two survivors, the two pilots. When the plane hit the nose cone broke off, the pilot's compartment broke off and two of the three pilots were able to get out of the cone onto the ice before . .

NM: The passengers could not?

CH: The passengers could not, the aeroplane sank. It was a very unfortunate thing and caused us a lot of grief. We put up a cenotaph on the land near the sight and for this cenotaph we used an Eskimo figure called an Inukshuk???. That in Eskimo means manlike and it's rocks piled up to look kind of like a man, with his arm standing out and nobody knows really why the Eskimos built this thing but they think they used them to help herd the caribou when they were trying to catch them. When they didn't have too many men they'd put up some of these Inukshuks to help herd it. Anyway we have a plaque to the memory of the people who died in that. . .

#092 NM: How did the accident happen, did you . . .

CH: It was pilot error. There was a great hearing before the Ministry of Transport and . . .

NM: Everybody was talking about it.

CH: Yes, it was a kangaroo court, it was a terrible thing that I had to go through. Under our insurance policy I was not allowed to say anything. The case was going to be handled by the lawyer for the insurance company and his job of course, was to settle the claims. And they didn't want me saying anything about it for fear I would mess up the claim settlement and they wondered why, when I'm usually so vocal, I didn't say anything about this aeroplane crash and they assumed I was trying to hide something. Which we weren't. Fortunately the government, the cause of all the rhubarb about it, called a judicial hearing before Mr. Justice Stephenson and he heard all of the evidence and gave Pan Arctic a clean bill of health. It was just one of those things where. . .

NM: One of those sad accidents.

CH: One of those sad accidents where we did everything we could but the thing still happened. So since that time we've stuck with PWA. I really would rather have the heavy aircraft, operated by a company that's in that business. I was talking about the aeroplanes being so vital to us. We do own and operate Twin Otters and we use those to go from one location to the other in the Arctic. And in the early days, all we had to navigate with was a gyro-compass and they weren't very good in that they pre-sist???. It was okay if you had to go 100 miles, you wouldn't be very far off but if you had to go say, 400 miles, you might find yourself 50-60 miles off at the end. We had to rely on beacons. We now have a system called Global Navigation, which you plug the longitude and latitude of where you are and where you want to go and this thing tells you how to get there. So that by just reading the instruments you can go right to where you're. . .

NM: It sounds very easy.

CH: Yes, right. We also put what they call distance measuring equipment on our beacon and this will tell you how far you are from a particular beacon.

NM: Do you go yourself very often?

CH: Oh yes. I go quite a bit. I'll, in a few minutes, tell you about some of the trips I've made up there and why I go up. In the early days I went up because the operation wasn't working right and I had to fix it, but now that things are working all right my trips up there are usually just to take VIP's up there, government officials and kind of generally acquaint people with our Arctic operations. We have an interesting, what we call, Annual Sea Lift. It cost a lot of money to take things up by aeroplane. The 727 handles the men

and the fresh groceries. The men work 14 days, 12 hours a day and then they come out for 7 days.

#126 NM: Where do recruit?

CH: In Edmonton. We have two recruiting areas. We have an Eskimo employment system. I guess I could talk about it now. We wanted and the government wanted us to, employ northerners, but there is no human habitation in the area in which we work. So we looked around to find, where can we find enough Eskimos to make it worthwhile sending an aeroplane to get them. We finally found, in Pond Inlet, on Arctic Bay, on Baffin Island, enough people that we could have a roster of about 100 people to draw from and that's about what it requires to make it worthwhile to send an aeroplane over to pick them up. So we hired these Eskimos on the same basis that we hire other Canadians, same wage scale, same opportunities to learn, same opportunities to progress and we deliver them from their home to the job site. And this thing has been eminently successful. The southern Canadians are all hired and transported out of Edmonton. One of the things that we found early in the game was rather than fight the ice, we should make use of it. I had mentioned earlier, a couple of months during the summer time the ground melts and it's just a bog, it's almost impassable, just forget trying to move any heavy equipment during July and August. But by September the ground begins to freeze up and we said, if the land is fairly smooth, why don't we just move the drilling rigs over the land. Or even over the ice. We tried this and we found that five feet of ice will easily hold a 45 ton oil field truck, loaded to its full weight. You can land a Hercules aircraft on five feet of ice or you can land a Boeing 727 on five feet of ice. So I started talking with our Drilling Foreman, who was then Alan Gates and Jim Strain who was our Vice-President of Operations and I said, why can't we drill a well from the ice. Gates said, I think you can. He said, he one time drilled a well on the ice of Lesser Slave Lake, but the trouble was that the lake is shallow and the ice isn't very strong and the wind blows it around and you have to keep moving the drilling rig to keep it over the drill site. He said, if you can just. . .if the ice doesn't move too much horizontally, and we knew the water in the Arctic was deep, he said, we can drill a well I think. So in 1971 we started measuring horizontal ice movements in the Arctic. Now at first our measurements were rather primitive, we'd put a stake out about a mile or so out in the ocean, on the ice and then we'd look at it with two different locations and you could tell whether the thing was moving or not. It didn't seem to move very much but this wasn't very good because you can't see very far and it's cold and it's dark. So we went through several different means of measuring horizontal movements, but we now have one that's just a dandy. We use some electronic equipment that's manufactured by Shell Oil and it monitors the passing of U.S. polar satellites and each time the satellite goes past this apparatus, it gets a fix on itself as to where it is and every time the satellite goes around, the more accurate that fix is. So after about 6 hours of measuring these satellites we know exactly, within one metre of where we are. So you could monitor the motion. What we found was that, after the first of January, throughout the Arctic, the ice moves less than 5% of the water depth. That is, if the water. . .we can tolerate a 5% movement, in other words if the water is 1,000' deep, we can tolerate a 50'

horizontal movement and throughout the Arctic the movement is less than that. So there are just a couple of places where that's not true, but for the most part the ice movement is quite small. So we worked with our own engineers and consultants to see how we could make a hunk of ice that would float a drilling rig. We also had another group working of what do you need to do to modify a land rig, so that it can be used offshore, from the ice. We knew nothing about the physical properties of ice. We didn't know what the modulus of elasticity, the sheer strength or any of the other mechanical properties, nobody else did. So we would bank up the snow and make a pond on the ice and pump it full of water and we'd put say, 500 tons of water, up on top of the ice and we'd measure then, the deflection of the ice and it's mechanical properties and we learned an awful lot about the strength of ice. We found that, if we built the ice up to a thickness in the centre of about 22', an area say, about 500' in diameter, that this would float a million and a half pound drilling rig. So we wanted to drill a well in the ocean. We had made a discovery to the west of the Drake field at a place called Hecla??? and we, from our seismic, knew that gas field extended out into the ocean. We wanted to drill a well but this was at a time when there was so much clamour about drilling in the Arctic. Dome wanted to drill in the Beaufort Sea and they'd been put on an embargo, they said you can't drill in the Beaufort Sea until we think about it and that kind of thing. And I didn't want to wait on them to think about it and Chretien was really the man that had to issue the permit. The thing that he had to face himself with was, would he issue the permit or would he go to the Cabinet and probably get turned down if he went to the Cabinet. We worked on the basis that we said, we're drilling a step out well in a known gas field, so you don't really have to worry about oil. He said, Mr. Hetherington, you have one more blot and they have a new Minister of Indian and Northern Affairs and they have a new President of Pan Arctic Oils.

#207 NM: Both of you would have been demoted.

CH: That's right. So, anyway Chretien gave us the permit, he didn't go to the Cabinet, he gave us the permit. So while they had the embargo on in the Beaufort Sea, we drilled an offshore well at Hecla. It was highly successful, the technique worked fine, the people that had designed the ice platform had given us a curve, showing that when we got the weight of the rig on the ice, the ice would continue to sink, because ice has kind of a creep to it. But it wouldn't sink beyond . . . it would sink less and less as time went by. When we actually measured the sinking of the ice over a period of about two months, we were just almost exactly what these engineers had forecast. So we had then developed what we called the Pan Arctic Ice Platform Drilling Technique, in which we drill with a modified conventional drilling rig, supported on artificially thickened ice. We thicken the ice up just the way you do a skating rink, we put water on top of it. First of all we put up a camp and we bring some fuel in, an electric generating plant, and we bore a couple of holes through the ice and put pumps in the ice and turn the pumps on and flood the water. You put about an inch or two of water up on the ice then you turn the pump off and let it freeze, then you turn the pump on again, on a good cold day, say, 40 below zero and a 20 mile an hour wind, you can make about 4 inches of ice a day. I just talked about Mr. Chretien and his interest. He has a tremendous interest in the Arctic and I made many

trips with him to the Arctic. I recall the first one, speaking about Eskimos, the first time I met him in the Arctic, I said, Mr. Chretien is arriving, get our two Eskimos out here to meet him and when he stepped off he had a half dozen photographers with him, he was very pleased to see the two Eskimos and he puts his arm around them and he said, boys take my picture and he gets his picture. But we go into the kitchen to have coffee and doughnuts and the Eskimos have taken off their parkas and they looked different to him. He said, oh, you've got two more of them, boys, get me a picture with these boys and he puts his arm around the Eskimos.

#238 NM: He did not realize. . .

CH: Didn't realize they were the same people. So I went to our foreman and said, take those fellows and take their sweaters off and run them by again. He'll think we have six of them. I told him about this later on, he said, why you so and so to pull something like that on me. You were asking about my trips to the Arctic and I do go quite often. I might make 10 or 12 trips a year. During our active season we have 5 Boeing 727 trips a week round trip. We leave at 8:00 in the morning from Edmonton and it's about the same distance as Toronto, it takes about 4 hours to get to the Arctic and we dump off the men and the groceries and turn around and leave there about 2:00 in the afternoon and we're home at about 6:00. So it's quite easy, you can go up one day and come back the next. Right now, we only have. . . we're at a low level of activity, we only have one plane a week. But by September we'll pick up again to 3 or 4 planes a week. I just recently came back from the Arctic. We had this fine third delineation well at Cisco and I wanted to see the drill stem test and then we wanted to get some pictures of this Cape Macmillan well, which had discovered gas this year. As a matter of fact, it's opposite my message in the Annual Report, the 1982 report, here's this picture standing at Cape Macmillan with the flare and the rig in the background. When Petro Canada was first formed, Murray Strong asked me to take him up there. I did, along with Marshall Crow. After that I made another trip with Marshall, he was a great friend of Bob McNamara, the United States Minister of Defence and I took them to the Arctic. I took Ed Schreyer when he was the Premier of Manitoba and a couple of times since he's been the Governor General. Chretien, I've taken a dozen times at least. I took him one time when he wanted me to take some Francophone journalists to the Arctic and I remember a rather humorous thing. What we usually do on these tours is we go by Twin Otter and I like to take them by a well that we have on King Christian Island, which is a very high producer, it produces through valves around 200 million cubic feet a day and makes a tremendous roar and we light it one fire and it makes quite a spectacle. The journalists said, why do you flare the well, is that to relieve the excess pressure and I said, no, I'm just doing it just to show you what it's like. And they kept, either there was something lost in the French translation or something, I just couldn't get them over the idea that I was relieving the excess pressure, so I finally agreed with them and so in the Montreal paper, it shows me opening this well to relieve the excess pressure. I one time took Prince Charles to the Arctic. I shouldn't say I took him, I met him up there and showed him around the place. Prince Philip has been there. Government officials visit the area. Each year we host a group at Drake Point of the

senior military people and then we host a group called the Heads of Diplomatic Missions. And it's a funny thing to see an Arab up in the Arctic dressed in his white robes and everything.

#296 NM: Yes, what a photo.

CH: Yes. But they're very interested. I've taken Mr. Trudeau on a couple of occasions. I had a rather interesting thing with Mr. Trudeau one time. He wanted to put down a monument at a place called Perry's Rock. It's a great big rock on Melville Island, it's the only rock within 2 or 3 hundred miles.

NM: Why did he want to put a monument there?

CH: I think he was kind of staking the land for Canada's sovereignty you know, he had pyramid made out of cement, inside that he had a stainless steel tube with the Canadian flag and a letter from himself, that on this day, the Prime Minister deposited this thing at such and such a spot. There's no air strip or anything there and I had sent the Otter out the day before to pick out a good spot so he didn't drop the Prime Minister into a ditch or something. So we loaded up the aeroplane and the journalists followed in a second aeroplane and we tried to land and we couldn't. It was snowing and foggy, there was just no way we were going to be able to land. We had with us Lindsay Franklin, who was our Vice-President of Operations and when we got back up in the air, out of the fog, Trudeau said, Lindsay, you know, I think that if just you and I would have been aboard that pilot would have landed. But since Charles was aboard he didn't want to take the chance. In 1971, I joined Jean Chretien on a trip to Siberia, at the request of Mr. Trudeau and we travelled all through Siberia and in return the Russians wanted a return trip. So when they came over here, I took them to the Arctic. We had just a grand time with these fellows and . . .

#328 NM: There's a strong comparison between the Arctic and Siberia.

CH: Yes, there is. That was what they were interested in. You could see that we obviously had a lot better equipment than they did and they were just awed at the quality of our camps and our equipment. The Senate Committee held hearings in the Arctic and I've shown them all over the Arctic, so trips of that kind. I've taken the financial people, we, every so often take the insurance people because when the insurance people see that the Arctic isn't really all as bad as it's made out to be that improves our insurance rates.

NM: Am I right by saying that Pan Arctic is the only Canadian company exploring in the Arctic?

CH: We are the only one physically operating in the Arctic, but there are many other companies that are exploring. We just simply spend their money and we operate on their behalf.

NM: This is the end of the third interview with Mr. Hetherington.

## Tape 3 Side 2

NM: This is the fourth interview with Mr. Charles Hetherington, President of Pan Arctic. Mr. Hetherington, can you tell me a bit more about your trips to the Arctic?

CH: Yes, I had mentioned that we go to the Arctic from Edmonton, in a Boeing 727 that we charter from Pacific Western Airlines, it takes about 5 hours to get to our base at Drake Point and then we continue to fly to each individual drilling rig that has a particular crew change. Once we get in the Arctic, our transportation from one location to another is by DeHaviland Twin Otter. This is a short take off and landing aircraft and we have the aeroplanes equipped with large tires, low pressure tires, so that we can land almost anywhere. If there is an airstrip we'll land there but we can land almost anyplace in the Arctic. I have mentioned that the terrain of the Arctic is generally monotonous, except in the eastern Arctic. We can usually find a place to land just on bald ground. I've been all over the Arctic in our Twin Otters. We even have a set of skis that are hydraulically operated so that if the snow is too deep to land on wheels we put the skis down. I made one interesting trip. It was a tour of historic monuments. I planned this tour about a year ahead of time. I had a man from the National Geographic Society and man from Carlton University and an amateur archeologist and the head of National Monuments from the federal government, a man named Stephenson and we made a tour, starting over at the west on Banks Island. We stopped at Mercy Bay and saw where McLure had spent three years there, frozen in the Bay. He still had some coal left, he wasn't going to freeze to death because he still had a pile of coal there. I brought some of the coal back. We went to Deely??? Island, where Captain Kellit??? in 1854, had rounded South America, come in through the Bering Sea and left off a cache of food and clothing for Perry, who was coming in from the east. Strangely enough, Perry made it within about 20 miles of this cache and they didn't know they were that close together when they turned around and went back to England. Perry got as far as a place called Perry's Rock, I mentioned it earlier. It's a great big rock on southern Melville Island, that's the only rock within about 300 miles. It's called the Post Office of the Arctic, in that anybody up there left messages under this rock and they also wrote their name on the rock. Nearby Perry's Rock is a place called Captain Bernier's Shack, where Captain Bernier came up, this would be the early 1900's and he built this little house, his longboat is still located there. We went to Beachy Island, which is south of Devon Island, where Sir John Franklin's last known camp was. Lady Franklin left a cenotaph there. When the English tried to bring it in, the ice was too tough and they couldn't make it so they dropped it off in Greenland and the U.S. navy, a year later, brought the cenotaph from Greenland in to Beachy Island where it now stands. We visited Fort Conger???, that's on the eastern side of Ellesmere Island, where some early explorers stayed. We visited the defence post at Alert, which is the most northerly camp or community in the world and it's manned by the Canadian Army.

We stopped at Cape Columbia, there's nothing at Cape Columbia. We landed on the ground there, near the beach. The only thing unique about Cape Columbia is it's the most northerly piece of land in the world.

#040 NM: And during this time the photographer of the National Geographic must have been so happy shooting all these photos.

CH: He was. He took some very fine photos, which . . . we published an article on this tour of historic monuments in the Beaver Magazine, it's published by the Hudson's Bay Company. I've had some . . . I wouldn't say scary trips necessarily, but they were eventful. One time I went from Inuvik to the northeastern side of Banks Island, where we were going to drill a well. It was in the early fall, I was just a passenger but the men were going over to see if the airstrip had dried up enough that they could bring a Hercules in. Well, when we landed, unbeknown to us, it had rained and it was not nearly as cold as we thought it was and when the Twin Otter came to a stop we sunk into the mud, stuck. So here we are, about 500 miles from no place all on our own, stuck in the mud. There were three of us, a pilot, two other men and myself and the pilot had forgotten our lunch.

NM: What did you do?

CH: Well, there were some materials there related to this well that we were going to drill and we walked over about 3/4 of a mile to where the materials were and brought back some plywood. And we had a couple of shovels and we dug the wheels out. The wheels were in the mud about 3 or 4 feet. We dug the wheels until we could get this plywood under it and then by working. . . the mud was so sticky that when you would take a shovel full of mud you couldn't get it off the shovel, you'd have to shake it, it was very tiresome. But after five hours, we finally got this aeroplane up on the plywood. We hauled six pieces of plywood and we put two pieces under each wheel, so we had a 16' runway.

NM: But you were lucky to have the plywood.

CH: Oh, yes, we needed that.

NM: Because that could have turned into a disaster.

CH: It was bad because we were too far distant for a helicopter to come help us and there was no point sending another Twin Otter because it would simply get stuck in the mud. So we were on our own to get the thing out.

NM: Talking about disaster, you had one when the plane collapsed in the Arctic, did you have any other disasters?

CH: Yes. Going back to my story about West Coast Transmission Company and the Fort St. John plant. We had built the Fort St. John plant on the north side of the Peace River, at the point where the Alaska Highway crosses the Peace River with a bridge. This bridge was put in by the U.S. Corps of Army engineers, during the war and was done in a hurry. It had been a bridge across the Tacoma Narrows and maybe if you remember back in history, the Tacoma Narrows bridge fell in the ocean. So this bridge had been salvaged and since there was a shortage of steel during the war and the bridge was available, the army engineers brought it up and put it across the Peace River. They did it in a hurry, probably without proper checking of the foundations. About the time that we were ready to start up the McMahan plant and the West Coast Transmission pipeline, the north

abutment of this bridge fell in the river. All our pipelines, all our water pipelines that provided the cooling water for the plant, ran beneath this abutment to a pumping station. I was called up at 3:00 in the morning and they said, oh disaster, the Peace River bridge has fallen in, it's taken all our water lines out, it's wrecked the pump station. I said, don't panic, I'll get the pilot, we'll get the aeroplane, we'll be up there in a few hours. So when I got up there, by this time it was light. It's true the pipelines had been wrecked and they were rather large, they were 56 diameter water lines. And when the bridge did move, the water lines broke and that really lubricated the bridge, it just went right out into the middle of the Peace River. It had messed up the pump station a little bit but it really hadn't hurt it. So we got together and replaced the pipelines, putting them across the Alaska Highway, at the top of the slope, not beneath the abutment. That bridge has since been replaced. You might consider this a disaster too, it certainly gave us a few uneasy moments. I had mentioned that when we first got the pipe from England, to build the West Coast line, there were some defects in it and we had buried some of this pipe. And we found that even after we had tightened up on the inspection, some of the pipe still had defects in it. So when we filled the pipeline up it would blow out and usually start a fire. In those days we weren't so concerned about the environment, so if you started a fire, you just put it out. But nowadays they don't test pipelines with gas, you test them with water. But we tested the line with gas and we would fix it, pump it up again and it would blow out again. I said, look, maybe this whole thing is bad, this is where a disaster could have come in. I said, let's take and blow it up and then take the shortest piece. If it blows up 20 miles on one side and 10 miles on the other, let's take the 10 mile side and pump it up and if it blows up, maybe there will be 1 mile on one side and 4 miles on the other side. So we'll pump up the one mile side and finally we got one piece to hold and we realized it was just a few flows. I think we blew the pipeline up about 28 times before we got the defects out of it. Since then, there have been no. . .

#102 NM: So that was lucky.

CH: That was lucky, that's right. So really it wasn't a disaster, it could have been and for many months there we had a lot of apprehension. Then I guess you could call the blow outs that Pan Arctic had in the early days on their wild wells, I didn't consider these so much a disaster at the time. . .

NM: It was an adventure.

CH: It was an adventure yes. As I pointed out, we put the blow out at King Christian to good use. One other time I had a kind of . . . well, again, it wasn't dangerous really, but we went to a lake on Baffin Island and landed on a sand bar. When we landed we found we had a flat tire. Apparently this tire had blown out on take off from just a rocky strip that we had taken off from. So here we are again, 500 miles from nowhere with a flat tire. I had a doctor along with me, Dr. Dixon and he looked at the tire and he said, you know, I think I could fix that. So he got out his kit and scalpel and he began to cut off a hunk of the tread and he was going to take this with a screw driver and poke it in the hole and fix it. So I had some chest waders with me and I also had some patches with me, with the glue that you use to patch chest waders. So I gave the doctor the glue and he proceeded to cut off a

hunk of tread and shove it in this hole and we pumped the tire up. The Twin Otter has a turbo prop engine with a compressor, so there's a bleed line on the compressor that we used to pump up the tire. This is rather handy. I've also had some other, say, sporting trips to the Arctic. Each year I would take a group of 10 or 12 men and one time I took the wives, only once.

NM: Only once, why?

CH: Well, it's just better to have a group of men under these circumstances. I'd take the group to the Arctic, we would inspect Pan Arctic's facilities, usually visit a drilling rig or so, inspect the Drake Point camp, which is quite a thing in that it's completely self contained with it's own fuel supplies, electric generation, electric heating system, machine shops, a hangar for the aeroplanes.

NM: So it's like a little town?

CH: Like a little town yes. It's more like a camp than a town but. .

NM: But for the Arctic you can call it a town.

CH: Yes. And we would visit our facilities and then we would go fishing. The Arctic Char, fishing in the Arctic, is absolutely the finest in the world. The place we went to in the early days was a place called Kaluktu??? Bay, on Milne Inlet, on Baffin Island. As part of recruiting our Eskimo help, the Eskimos one time took our personnel man to this place to go fishing. He said, boy, what a wonderful spot, why don't you put a camp in here, get your Eskimo cooperatives to put a camp in and we'll rent it for the first year to get you going and then you can advertise it and other people will come up and you'll have a new business. And we did this, they built some tent houses made out of plywood and 2 x 4's with a tent over it and they had a nice cook house. The river there is called the Robertson River. If the conditions are right, by that I mean if the weather's not too bad and it doesn't rain. If it rains the river rises and gets dirty and it's not all that good. But I've been there at least nine times when it was like fishing in a barrel. One time we were going to go to Kaluktu and it was right while I was en route with this group, they radioed that it was raining and the river had come up and the fishing was no good. So we radioed Drake Point and said, take some seismic tents and put them at Thomas Lee Inlet on Devon Island and we'll try a lake there. And this was all right, we had a lot of fun, caught a lot of fish, but it wasn't nearly as good as Baffin Island.

#148 NM: And there's plenty of fish over there?

CH: Yes, tremendous fish.

NM: And you didn't have to wait long to catch one?

CH: No, you catch a lot of fish. The limit is, you can only take out 7 fish and I guess you can catch all you want to eat.

NM: They are big?

CH: They range from, the smallest ones would be 2 or 3 pounds and they go up to about 20. So what we usually do is we snip the barbs off the hook and if they're not 10 pounds we throw them back because otherwise we would catch too many fish. We fished at a place called Crooked Lake, on Prince of Wales Island and I've been up to Hazen??? Lake on Ellesmere Island, which is the most northerly lake in the world. Usually there we fish

through the ice. The river flowing out of Hazen Lake is called the Ruggles??? River and it drops very rapidly, so that even at 50 below zero it doesn't freeze, so there's fishing all year round there. And this last year I lucked into a real spot on Victoria Island, near Minto Inlet. I was flying over that area to go to a geological camp that we had on Victoria Island and I had the pilot fly low and try and locate a lake that was about 10% thawed with a river running out of it. We found one, we found a place we could land. And the first fish I caught was a 35 pound lake trout. And then we proceeded to catch char up to about 18 pounds. We had some very interesting trips there. Getting back to the technology that we developed, this ice platform drilling is turning out very well. It's now our standard method for drilling offshore wells. We have successfully drilled 26 offshore wells. On the exploratory wells, when we drill then, we evaluate them and then abandon the wells. We don't try and reenter them. It just costs too much to leave them in a condition that they can be reentered. Until we get a market, it's better just to drill the wells, evaluate them, bank the reserve and abandon the wells.

NM: Tell me, are the major companies involved now?

CH: You'll recall that I said that when the government issued the exploration permits in the 1960's, the majors didn't choose to come into this area. When they saw that Pan Arctic was in fact, a reality and that we were making some substantial successes up there, the majors changed their mind and began to come in by the route of the farm outs. In the early days, both Imperial and Gulf came to us and said, they'd like to farm in to our land and we let them. Gulf wanted us to operate, Imperial wanted to operate themselves. Both Gulf and Imperial each drilled five wells and they were on good looking features but they found only just some show, they didn't find anything commercial. Then in 1976, Gulf, Imperial and Petro Canada joined with us in what we call the Arctic Islands Offshore Exploration Group, AIEG, and we farmed in to all of the lands in the offshore area of the Arctic. This land was held by Suncor and a company called Global Arctic Islands. By spending roughly \$150 million, we earned 60% of Sun's and Global Arctic's land and this is where we've made all these offshore oil discoveries, including a number of the offshore gas discoveries. Speaking of oil, in 1981 we discovered 3 oil fields, on this AIEG land, Cisco, Skate and McLean. I've already referred to the Cisco discovery and how important I think that is. Skate and McLean could also be important but that remains to be seen as we drill delineation wells. Because of the indications of large oil at Cisco, we have been investigating ice breaking tankers. We've even gone so romantic as to investigate submarines. General Dynamics have a real plan to build a submarine tanker. I won't see that in my time I know, but I think, I'm predicting that in the future the way to get oil out of the Arctic Islands is by submarine. In the meantime we're going to have to rely on the more conventional technology of ice breaking tankers. When one considers what has to be done to develop an oil field like Cisco, here it is 10 miles offshore in a thousand feet of water. We have to have some very heavy equipment on the bottom of the ocean and how do you get that equipment up there when the area is ice bound most of the time. We're looking at two ways to do it, one is to carry it on air cushioned vehicles. They've been built to handle several hundred tons but we'll have to have a vehicle that will hold 4 or 5 hundred tons. This would go over the ice and be pulled by an all terrain

vehicle of some type. Just recently we've been working with some people from Switzerland and Germany, who have the great technology in military submarines. We asked them to design a submarine carrier that we could pick up these big heavy modules at Drake Point, take them off the boat at Drake Point, pick them up with a submarine and take them under the ice instead of over the ice. So we're still working on that technology and I don't know exactly which way that's going to come out.

#221 NM: That's a huge technology. Would the submarines stay under the ice for a long, long time?

CH: Well, it doesn't have to stay under long. It has to haul the materials from Drake Point, about 150 miles to the Cisco field. So they would go 150 miles under the ice, drop off this piece of equipment, they do have means of ??? holes through the ice to get air, so they can recharge their batteries. But according to the people we're working with it's perfectly feasible just using technology that the German Navy already knows.

NM: Why not. What are your plans for Pan Arctic now?

CH: Our present plans. . .first of all, let me state what our objective is. Our objective has been and still is, the discovery of commercial quantities of oil and gas and bringing these products to market. The change in the . . .when the new Canada Oil and Gas Act came out, it changed the manner in which land gets held by the exploring companies. It divided the lands up into what are called Exploration Agreements, of about 2 million acres each. It was necessary to go to the Canadian Oil and Gas Lands Administration, it's called COGLA, and negotiate the work to be done on this land, oh 50% of that land. We have negotiated 20 agreements with COGLA that call for the drilling of 25 wells over the next 5 years, well really 4 years, one year is gone now. We and our partners must drill these 25 wells if we're going to hold half of all the land. We don't have to drill the wells, if we don't drill them we just lose the land. So our plans are to continue on this exploration program, to earn the parts of the lands that we think are high quality. That means continued financings over the next four years, to do exploration. At the same time we want to delineate the oil discoveries that were made. In due course as the price of oil stabilizes and the demand for gas increases, we want to develop our gas fields for, first, LNG production and then for production by pipeline. So as I see Pan Arctic unfolding, we continue to finance, to do exploration, we continue to delineate the oil field, particularly starting with the Cisco oil field and then in due course, we'll develop the Drake field for gas production.

#261 NM: You have a lot of publications, can you tell me a bit about that?

CH: I thought that I might give you an index of the publications. There are some 70 of them. Starting back in 1971 the publications were directed mainly to getting the public and organizations, including technical organizations, acquainted with Pan Arctic and the prospects of the Arctic Islands. In 1970, Pan Arctic was not a very well liked company. It was considered to be a government owned company and that had a stigma on it and it was not run by its own management, it was run by Dome, so it didn't really have any presence or character and people and industry in general didn't like Pan Arctic. So the day I was

given the job, the government told me, they said, look, your first job is to get the people to like Pan Arctic. They said, we can put all kinds of money into Pan Arctic. . .

NM: So you had to do public relations.

CH: Yes. So long as people like you, the government said, we can put money in, but if they don't like you, if you keep your present posture, we're going to have to clamp down on the budget. So this was my. . . my publications were related primarily to that. Then as we developed things like this ice platform drilling and when we completed the offshore gas well, this got us world renown actually. We were asked to come to the World Energy Conference and give papers on how we drill these wells and how we complete them offshore.

NM: In fact, you are making the Arctic familiar to people then.

CH: That's correct.

NM: And all these publications you have, are they mostly on the Arctic or technology?

CH: They're all on the Arctic. Some of them deal with the conditions of the Arctic, the environment and how we operate. Some of them deal with the technology that we've developed. Some deal with the people that we employ. Some deal with, how are we going to get the oil and gas to market, what are we going to do. Some of them deal with the economics of operating up there and some of them deal with financing.

NM: Can you tell me about the environment because it's something that people talk a lot about nowadays?

CH: Yes. The Canadian High Arctic is a frozen dessert. The rainfall, total precipitation is very low, at Drake Point it's about 2.5" total. I think in Calgary we get something like 20", 10 times as much rain as we get in the Arctic. If the land were not frozen, it would be a dessert. But as it is, it's a frozen dessert. The ground is frozen to a depth of about 1 kilometre and so you can't drill a well to get water for example. When you get below the, they call it perma-frost, where the ground is permanently frozen, the water is brackish. And there aren't very many lakes in the Arctic deep enough to keep from freezing. So even water is a real problem. We get most of our water by melting snow, we have snow melters. We take diesel oil up there and melt snow. That's an expensive and clumsy kind of an operation. The temperature during the winter is 40-50 degrees below zero Celsius and in the summertime, on a nice day, it can get up to. . . the temperature usually is about 4 or 5 degrees above zero and a good day is 10 degrees in the summertime. The sun sets the second week of November and doesn't come up again until early February, so it's totally dark for three months. The sun comes up in April and doesn't set for three months. It's rather interesting, you look at the sun. . .

NM: End of the tape.

## Tape 4 Side 1

CH: yes, in July for example the sun just goes around in a circle above your head and at noon the sun will be in the south and at midnight the sun is in the north. And you can always tell your direction if you know what time it is.

NM: What about the animals living there?

CH: There are very few animals, because of the low precipitation and the growing season is only about two weeks, there's very little vegetation and with the absence of vegetation there aren't many animals. There are, on Melville Island, there are a few caribou, there are some muskox, the muskox somehow seem to survive, I don't know how they survive over that three months total darkness in the cold, with very little vegetation. If you get on your hands and knees you're hard put to find any vegetation. In the eastern Arctic, on Ellesmere Island, it's closer to the ocean, the weather is more moderate and also being further north, they get more sunshine so they have a longer growing season and there are more animals over there. The Arctic Hare just abounds on Ellesmere Island. This is a kind of funny animal, it's about the size of a small dog and it has three means of locomotion, it hops like a rabbit and it runs like a dog and then if you startle it, it'll stand up on its hind legs and run on two feet. It's a rather odd animal. On Banks Island, Banks Island also being closer to the ocean, has a more moderate climate, and more vegetation and they grow a lot of Arctic fox. The natives on Banks Island, out of Sachs Harbour make a very good living harvesting the Arctic fox. There also are a good number of caribou and muskox on Banks Island.

NM: I know that oil men always go on working, even when they retire. Are you planning to retire some time.

CH: Well, I'm getting pretty close to it I guess. I'm getting long in years and I've got to think about what I'm going to do, I haven't really made my plans yet. I'm going to do something.

#022 NM: You were the first employed President by Pan Arctic.

CH: Yes. In the early days, in 1968, '69, '70, Pan Arctic was a corporation only and was operated by Dome. John Taylor was the Corporation President and in January 1, 1971, I became the first employed President of Pan Arctic, as a regular employee, with the task of putting together a staff to run the company.

NM: Looking back on your career, who was the most influential man or maybe who were the most influential men?

CH: Well, if I had to pick one man, I'd say Frank McMahon. I worked with him for 20 odd years and he was a very dynamic person. He was not educated but he sure had it in the head, where he didn't need education. He was a tremendous promoter in an honest way.

NM: Was he an easy person to work with?

- CH: Well, no. I got along with him well but most people couldn't. I only had one real falling out with him in the whole time, when he fired me. But outside of that we got along just fine.
- NM: He fired you ???
- CH: Oh yes. When Pacific Petroleums started supplying gas to the West Coast line, the gas wells didn't stand up the way they were supposed to. I had convinced the geologists that the gas was there so that we could get the financing for the pipeline and somebody had to take the flak and it wasn't going to be Frank.
- NM: It was you. But did you still remain friends?
- CH: Yes, we did. As you remember I told you that from '59 to '76 I ran my own company and in '76 he wanted me to come back again. It was convenient at that time for me to come back, which I did too.
- NM: So he was not really cross with you?
- CH: No, but he was a very. . . I learned an awful lot from him on how to deal with people, how to present projects, how to run an organization. Prior to being with Frank I had just really been in engineering work and I knew very little about what you might call the management side and I learned an awful lot about management from Frank McMahon.
- #046 NM: What about Cam Sproule?
- CH: Well, I didn't have much to do with Cam Sproule. By the time that Pan Arctic was formed, I told you that Cam was reduced to the position of having what they called a net profits interest and he really didn't have anything to do with Pan Arctic. I knew him as a consultant and we used him on a number of occasions when we were appearing before various Boards and I knew him personally but I didn't really have much to do with him as far as Pan Arctic was concerned.
- NM: Was he a bit bitter from having been pushed out?
- CH: Yes he was. He always wanted to operate. He was very critical of Dome, he thought that Dome maybe was the one that threw him out and he criticized Dome's operation unjustly.
- NM: What do you consider your highest achievement?
- CH: When I look back at everything I've done, I think organizing and running Pan Arctic Oils for the last 13 years has been my major achievement in life.
- NM: And looking back again at your career, is there anything that you would do nowadays differently?
- CH: Well, from say, an educational standpoint, a technical standpoint, a business standpoint, I wouldn't change anything. The only thing I'd do differently, if I had it to do over again, I would have bought more real estate in 1970 and less in 1981.
- NM: So you would have made more money?
- CH: Yes.
- NM: This is the end of the interview with Mr. Charles Hetherington, President of Pan Arctic. Thank you very much Mr. Hetherington.
- CH: You're a good interviewer.

45 Charles Hetherington

June 1983

Tape 4 Side 1