PETROLEUM INDUSTRY ORAL HISTORY PROJECT
TRANSCRIPT

INTERVIEWEE: Lloyd Hatlelid

INTERVIEWER: David Finch

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DF: Today is the 27th day of March, in the year 2000 and we are with Mr. Lloyd Hatlelid at the offices of the Canadian Society of Exploration Geophysicists in Calgary. My name is David Finch. Could you start by telling us when and where you were born?

LH: I was born in a town called Lafleche in southern Saskatchewan in 1925.

DF: What were your parents doing there?

LH: My dad was a farmer, had a farm about 20 miles south of Lafleche, but we did live in town during the wintertime to go to school and moved out to the farm in summertime.

DF: Tell us about your education and how you got interested in science?

LH: I took my high school in Lafleche, I graduated in 1942 from grade 12 and that's when I joined the army. I was in the army for 3 years, part of that time in the Signal Corps and that got me interested in electronics, so when I came back to Canada and got demobed, then I used my army credits to go to university. Being interested in electronics I signed up for electrical engineering and that's the story.

DF: What did you learn as an electrical engineer?

LH: At that time when you took electrical engineering, you took electronics, as well as electrical transmission. Of course, engineers take a lot of different subjects, in a lot of different areas. So besides electronics we did learn about electrical transmission. So on graduation you could go into either field. In my third year I was hired by Imperial Oil as a summer student, to work on a seismic crew. I liked the company and I guess they liked me well enough to ask me back upon graduation and so I ended up with Imperial Oil.

#024 DF: What did you do on that summer crew?

LH: I did two different jobs, if I remember correctly. I worked on a seismic crew, doing different things, helping the shooter load the hole and helping the reel truck driver lay out the reels and hook up the geophones, jug hustlers they called us in those days, and just about everything to give me a good idea. Then I ended up that summer on a gravity crew, working up in central Alberta.

DF: Tell us first about when you were loading the explosives, what size charges were there, how did you decide how big to make them?

LH: That was strictly the seismic operators choice. He'd look at the seismic records and decide whether or not he had enough energy and if not, he'd up the charge. If he had too much, he'd lower the charge. I suppose the average would be about 2 ½ pounds, at about 40-60', depending on the area.

DF: Tell us about work on a gravity crew. Most people these days don't even know what you

were doing in those days on a gravity crew.

LH: Gravity meters. . it wasn't used that often, but it was used in the early days to get an overall picture of the depth of the sub-surface at that time. I really don't know much about it, I never got into the gravity interpretation. I was just out there grinding out numbers, so that's all I can tell you about it.

DF: But tell us what you did in the field on a gravity crew, what was your daily routine?

LH: I was, most of the time, working with a surveyor. We'd have to survey in the locations where the gravity meter set up and then I'd sometimes be with the gravity meter when we set it up at these locations and set it there in the ground and took a reading on the earth's gravitational pull at that particular point.

DF: What was the instrumentation on a gravity meter, was it numbers, directional arrows or a bunch of different. . ?

LH: Numbers, yes, on the gravitational pull. You had to set it there and make sure it settled down before you could take a reading.

DF: Did you level it, did you. . .?

LH: Yes, you had to level it and make sure it was quiet before you took your reading, yes.

DF: How about if there was wind or things like that?

LH: I can't remember having too much wind bothering us, no.

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#046 DF: Okay, what did you do next?

LH: When I graduated then I got back in seismic operations again. In fact, I did this then, for six years, traveling around on seismic crews, first as an instrument operator and then as a Party Chief. Going all the way from northern Alberta, bush crews, down into southern Saskatchewan and southern Manitoba. So I covered all three prairie provinces in those six years.

DF: Now instrument operator sound like a fairly straight forward job, but a Party Chief is a complicated job, tell us all the parts about that, what you did?

LH: Party Chief had the responsibility of moving the crew, making sure the crew was in the right place, close to the operations, making sure that the trucks were running, looking for office space or living accommodation for the crew when you moved to a different area and different things like this. And of course, getting the data and checking it out and getting it into the field office.

DF: How did you learn to do that part of the job, the data part?

LH: The data part. I learned it on the crew, firstly I guess and then I did spend a year in the Regina office, I remember after I was taken out of the field and there I was taught the fundamentals of data interpretation we called it then. Because you didn't do any processing, no what we have now, the computer processing. It was all done manually, it was all paper records, no tapes at all.

DF: Can you explain that paper process to us, how did the image get on to the paper?

LH: That's a little complicated, we had a special camera. This was on photographic paper, we had a special camera that had galvanometers, 24 galvanometers for 24 traces in the field. The galvanometer had a little mirror in it and when the geophone would get the signal,

that signal would be sent back to the instrument truck and the type of the signal, positive or negative, or high volume or whatever, it would move that mirror so that it would reflect more on the paper. So then you'd end up with 24 wiggly traces on your paper. The next thing, in those days, that the operator had to do, was to develop that record. That was my job, when I first started, having to develop those papers. So we had the developer and the fixer and then the rinse in the operating truck. The developer had to be kept at a certain temperature and it was very hard on your hands, that's all I remember about it now.

#073 DF: How did you keep the temperature stable?

LH: It was hooked up to . . there was a valve hooked up to the radiator of the truck to keep it warm. So all you had to do was turn the valve off or on to get it warmed up again.

DF: And those chemicals, did you mix them up?

LH: We mixed them up every morning.

DF: How many paper traces would you do in a typical day?

LH: There were 24 traces to records and the record covered maybe a quarter mile, each way. So we'd shoot with a quarter mile spreads on each side, then move down a quarter mile, shoot again, move down another quarter mile, with 12 traces behind us, 12 traces ahead. We could do 30 or 40 of those during a day, depending on whether the drills could keep ahead or whether or not we had enough line to keep us going, that kind of thing.

DF: So 30 or 40 records a day.

LH: Possibly more than that, but 30 or 40 might have been a good average, yes.

DF: Now, did you learn to do the interpretation right in the field, from senior people?

LH: Yes. Not from senior people but we had interpreters on the seismic crews in some of those locations. So yes, especially when I was a Party Chief, I'd always be helping them get these records ready, before we took them into town. So I did learn something. But then, as I said, I spent a year in the office in Regina, learning more, trying to get more knowledge.

DF: So once you understood what you could see on the records, did that change your shooting from one day to the next?

LH: Oh yes. Because even before we went out, we'd know what we were looking for, say a certain reflection at a certain depth on the record, say, 1.5 seconds or something. And then we'd look at it at night and decide whether or not it was strong enough or weak enough or whether we were using the right technique or whatever, so that would influence what we did the next day, yes. Generally in an area, we'd always know what to use.

DF: Any stories about those survey crews, what did you do for entertainment?

LH: That would depend where we were. If it was a bush crew, we had our own camps that we lived in and our entertainment might be a movie at night, or playing cards, some would be playing poker. The kitchen door was always open so we would be in there a lot, drinking coffee or whatever.

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#098 DF: Were the Imperial crews dry or was there some drink on hand?

LH: They were dry I'd say. Not to the point that we'd fire a person if he was caught bringing one in, unless we had problems. I can remember a crew in one area, where I did have problems with the cook and camp attendant. In those kind of places I had to make sure it was a dry camp.

DF: Now if you were in a town, how did you go about getting accommodations for your people?

LH: When I was party Chief, I'd usually go ahead of time, to the next town and look for, first of all, an office and then talk to officials in the town and see if there was any accommodation. You know, the best 2 years I spent on a seismic crew, we all had trailers. It was in southern Manitoba and southern Saskatchewan. So we'd look for a field that we could set them up. Towns were always good to us that way, they'd help us get set up and make sure we had water and sewer facilities or toilet facilities of some kind. So we were always well fixed.

DF: What did you find for offices?

LH: Usually a place downtown, I remember one time we were next door. . .in fact, I rented it from this person that ran the Chinese restaurant and I rented it from him. Just a great big double room which was good for us, the interpreters could be in one part and the office in the other part.

DF: How long would you typically be in one location, one office?

LH: Anywhere from a few days, to . . I remember in Carnduff, Saskatchewan, we were there for almost a year. That was just like home after that length of time. We still have fond memories of that place, we made a lot of friends there locally and they had a good curling rink, we'd curl in wintertime, and a ball team, some of the people played on the ball team. We just fit right into the community. They had a party for us when we left, the town did.

#121 DF: What year was that?

LH: That would be '64 and '65 I guess. That's right because I left there to go to Regina for a year.

DF: Tell us about your work in Regina, what did you learn there?

LH: Just interpretation of seismic records and these were the paper records. I was working under one of the senior interpreters, so he'd give me all the records from a certain area and I'd have to do the picking of the certain horizons we were looking for and then make. . . in those days, before data processing, we had to make our manual cross sections of the earth's sub-surface. So that's what I was doing, learning how to recognize certain blips on your record to make for picks and this stuff.

DF: How many crews did Imperial have in the field at that point?

LH: When I started we had about 3, in '48 and then when I came back the next year they had 5 and we got up to 9 at one time.

DF: What year was that?

LH: 9 would be in about 19. . . late 50's I guess. And about the time we started. . .we got up to 9 crews, we started dropping back. And that's another problem, we started working mostly in wintertime because that's when your ground is frozen and you can get better

records, better than working in . . that's when our operations moved north to . . .

DF: Tell us about those northern operations, how did you get around out in that bush country?

LH: In wintertime it was quite simple, we had trucks and ordinary seismic equipment. We'd have bulldozers going ahead to make our trails for us, to make our road out to the area we were going to be working first. And then cut the trails for us out there. In summertime it was a big problem. We used to have track equipment, like Bombardiers or Nodwell units, those kind of things. But it was always a headache and we always seemed to spend half our day pulling equipment out of the muskeg. And because the ground wasn't frozen, we weren't getting the same type of data that we were in wintertime. A geophone when it can be sitting on a solid base, in this case in the wintertime, on frozen muskeg, then you get a better signal than you do on. . . Well, it's just like putting a geophone on a feather bed, to set it on some of this muskeg.

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#149 DF: Couldn't you have some control over where you shot, like couldn't you shoot in the north in the wintertime and in the south in the summer.

LH: That's exactly what we did do. But then there was always some kind of a rush for data in some area, where oil was discovered or whatever and we'd have to try to get in there in summertime and do something. But generally, that's what we did, we'd send crews north in wintertime and south in summertime. But then the problem later became there weren't enough places in the south to send them. The south is all shot up, except for certain areas that got hot every once in a awhile.

DF: Did you ever shoot in the foothills?

LH: I never did. No. I never worked in the Calgary office and our foothills operations were looked after from the Calgary office.

DF: Were you involved in the discoveries of any fields?

LH: I think so. The work we did certainly did lead to discoveries, I can think of the discoveries . . .of course, they didn't amount to much at that time, the discoveries up in the Arctic Ocean, like Atkinson Point and some of those. I could never lay claim to being the one to discover them, because this was all done by the interpreters back at the office, after it all was processed properly.

DF: So that work in the far north, were you involved with that, was that offshore work?

LH: Yes. In later years it was, that's what we would do in summertime. We had one crew that would be. . .we'd have them working in the wintertime in regular units and then we'd move them to a boat in the summertime to do the marine operations.

DF: Can you tell us about the marine operation, what's all involved, that's quite different?

LH: Yes it is and I was involved with marine operations there as well as out in the Atlantic Ocean during my career. There, it's quite simple, you have a long cable, maybe 2 or 3 miles long, that you pull behind the boat. The cable has, in this case, different types of geophones, they're pressure sensitive rather than a moving coil in a fixed magnetic field. So these were all right inside the cable, these pressure sensitive phones, so when the shock waves hit the cable then those pressure sensitive phones picked up the changes in pressure and sent that signal back to the ship where it was recorded.

#178 DF: Where in the north did you use this technology?
LH: In the Beaufort Sea.
DF: On the Mackenzie River at all?
LH: Partly on the Mackenzie River. We did, in the early days, we did quite a bit on the Mackenzie River, without too much success. It wasn't very conducive to seismic shooting.
DF: So where did you go next, we have you in the 1960's up north?
LH: I was up in Dawson Creek for 10 years looking after the seismic operations of both Imperial's own crews and the contract crews. Most of that, up at the end of that period, 1960-61, it was getting more and more of it, into the Arctic. So then they set up a special group in Edmonton to look after the Arctic exploration, so I was transferred down to Edmonton and continued looking after the operation there.
DF: What year did you move to Edmonton?
LH: 1966.
DF: Then what did you do?
LH: When I was in Edmonton, that's when we started using digital tape to record the data. I spent a year, maybe it was closer to two years, in the data processing office, learning about handling digital tape. Then I went back, I guess I couldn't keep away from field operations, I went back and in 1972, we moved to Calgary and I was looking after all the geophysical operations for the whole company then, Canada-wide.
DF: Really, so what did that work involve, when you were in charge of the whole country?
LH: We were down to less crews by that time. But the same thing, of course, we had a good staff too. We had crews up in the north in the wintertime and we had crews in Saskatchewan, Manitoba, B.C. even, in the summertime. I had 3 or 4 supervisors working under me that could make all the trips to every area we were interested in.

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#206 DF: What contributions did you make to the science over the years, what did you see change?
LH: Well, I saw a lot of changes, but I can't pretend to be a mover and shaker. But there certainly were changes. I mentioned going to magnetic tape, first of all, to analogue tape and then to the digital tape. I guess that was the biggest change. We had to get digital equipment in the field to record those signals and then digital equipment in the offices to handle them. Our own Imperial Oil, we did our data processing in Edmonton to start with, as I was saying, using our IBM main frame computers. It took a lot of time at that time, now they've got faster computers and not as much time is involved.
DF: What did you enjoy most about your career?
LH: I don't know. I really enjoyed my career. And I think. . .looking after the field crews, I got to know so many of the seismic contractors and working with them and sitting down with them and planning how to do it and this stuff, I just really enjoyed that.
DF: Any regrets?
LH: No, I don't think so. If I had my life to live over again, I'd maybe want to do the same.

DF: Any stories about life out in the bush, did you have any encounters with animals?

LH: We certainly did have a few encounters with bears. Now that you mention it, this was a summer crew, out in the Keg River area. Someone gave me a 16 mm. camera to take out with me to take pictures. This was in the morning, just after breakfast, somebody yelled, there's a bear in the camp. So I grabbed my camera and rushed out and got on top of one of our Bombardier units that they were using and grinding away. The bear sure enough, came out there and he saw our cook heading for the kitchen so he chased. . I got some good picturers of the bear chasing the cook into the kitchen but then the bear turned around and saw me up on top of the Bombardier, so he came over my way. And I had this on film, the bear coming up and putting his front paws up on the brush guard, on the Bombardier and then just springing right up on top of the Bombardier, but by that time, I was on the ground and heading into one of the trailers. That was the end of my picture taking because I damaged the camera when I jumped over the side and banged it against the Bombardier.

#238 DF: Do you have that film?

LH: I don't know where it is now, no.

DF: What did you do, generally to keep bears away from your camp?

LH: There was just nothing you can do. I remember at that time, we were using the strip to land at the forest tower just near the camp and the next day I went up there to get the plane to go back to Dawson Creek and I was telling the forest ranger about this and he was telling me what he did. I think people would be horrified, but he said, I just take my 22 and fill them with lead and let them haul themselves away. I don't want to kill them right there and have to haul the carcass away myself. I guess that would be a temptation. I just hope he didn't see that many bears.

DF: Yes, pretty hard on bears. Anything else you'd like to tell us about your career?

LH: No. I can't think of much. I did spend my last four years, over in Indonesia, doing the same thing, looking after seismic operations there. This was an entirely new experience. There it was all manual operations, you didn't have any vehicles to haul the equipment around. They just built trails through the bush and hauled everything, the instruments, everything, the drills, they used portable drills and just hauled that by pieces down the line. That was just a real experience being out there.

DF: And what years was that?

LH: 1981-1985. There again, I was looking after the field operations and the data processing.

DF: Well, we're just about at the end of this tape. I'd like to thank you on behalf of the Petroleum Industry Oral History Project and the Canadian Society of Exploration Geophysicists for coming in and talking to us about your career and we'll end the interview at this time.

LH: Thank you, it's been a pleasure.