PETROLEUM HISTORY SOCIETY

OIL SANDS ORAL HISTORY PROJECT

TRANSCRIPT

NEIL LUND WAS BORN IN SARNIA, ONTARIO AND OBTAINED BSC AND MSC DEGREES IN CHEMICAL ENGINEERING FROM QUEEN'S UNIVERSITY IN KINGSTON. HE WAS HIRED BY IMPERIAL OIL IN 1947 AND WAS GIVEN LEAVE TO PURSUE HIS MASTER'S STUDIES ALMOST IMMEDIATELY. HIS FIRST WORK WAS TO HELP DESIGN THE EDMONTON REFINERY. ON COMPLETION OF HIS STUDIES, HE WORKED IN THE ENGINEERING DIVISION AT SARNIA UNTIL 1958 WHEN HE BECAME TECHNICAL SUPERINTENDENT AT THE MONTREAL REFINERY. AFTER THREE YEARS, HE RETURNED TO SARNIA WHERE HE WORKED IN THE ENGINEERING DIVISION UNTIL 1968 WHEN HE WAS MOVED TO CALGARY AS REFINERY MANAGER. AFTER A YEAR, HE WAS TRANSFERRED BACK TO SARNIA WHERE HE WORKED UNTIL 1974 WHEN HE WAS SENT TO SYNCRUDE TO BECOME VICE PRESIDENT OF OPERATIONS. WORK ON THE PLANT BEGAN IN 1973 WITH DRAINAGE OF THE SITE AND REMOVAL OF TREES AND SHRUB. HIS COLLEAGUE CHUCK COLLYER WAS RESPONSIBLE FOR THIS, ACTING THROUGH BECHTEL, THE OVERALL CONTRACTOR. THE FIRST PHASE OF LUND'S JOB AT SYNCRUDE WAS FROM APRIL 1ST, 1974 TO EARLY 1979 (THE SECOND COKER, THE LAST UNIT TO START UP, DID SO IN OCTOBER 1978). HIS TITLE CHANGED EARLY ON WHEN FRANK SPRAGINS BECAME CHAIRMAN OF THE BOARD (HE WAS SUFFERING FROM CANCER AND HAD TO RELINQUISH THE RESPONSIBILITIES OF PRESIDENT). EXECUTIVE VICE PRESIDENT BRENT SCOTT BECAME PRESIDENT, AND COLLYER AND LUND WERE NAMED SENIOR VICE PRESIDENTS OF PROJECTS AND OPERATIONS RESPECTIVELY. SHORTLY AFTER, COLLYER BECAME EXECUTIVE VICE PRESIDENT AND LUND, SENIOR VICE PRESIDENT OF CORPORATE DEVELOPMENT. HIS RESPONSIBILITIES INVOLVED OVERSIGHT OF RESEARCH, ENGINEERING DESIGN AND SITE ENGINEERING SERVICES. LUND RETIRED IN 1983. HE THEN SET UP AS A CONSULTANT WITH SYNCRUDE AS HIS MAJOR CLIENT. HE ALSO DID SOME WORK FOR AOSTRA

DATE AND PLACE OF BIRTH: 1925 in Sarnia, Ontario

Date and Place of Interview: 9 am July 16th, 2012 at the Lund residence below.

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Transcript reviewed by Interviewee: Yes
Last name of subject: LUND

AD: My name is Adriana Davies, and I'm a researcher/interviewer on the Petroleum History Society Oil Sands Oral History Project. Today is Monday, July the 16th, and it is 9:25 a.m. And I'm in the home of Neil Lund, conducting this interview.

Neil, thanks so much for agreeing to be interviewed. It's an important historical/archival project. So can you tell me where you were born, Neil?

NL: I was born in Sarnia, Ontario.

Outside voice [videographer]: Sorry Neil, just face her the whole time. You don't have to worry about the camera.

AD: Don't worry about the camera.

NL: I was born in Sarnia, Ontario.

AD: And Sarnia is, of course, deeply connected with the development of Canada's petroleum industry. Can you just give me a summary biography? You know, three or four major points, and then we'll talk about your involvement in the industry.

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NL: Do you want the story about me or about Sarnia?

AD: Well, I mean, of course, about yourself. Ya.

NL: Well, I grew up in Sarnia and took chemical engineering as a profession and started with Imperial Oil, and was with them at various locations in Canada, mostly in Sarnia but also in Montreal and Calgary.

AD: Now your father was involved in the oil patch. How did that happen? Can you tell me a bit about him and his involvement?

NL: My dad worked in Winnipeg, around the turn of the 20th century, and he joined Imperial Oil as an accountant or bookkeeper about 1910. He was transferred to Sarnia in 1922 and married my mother and I was born.

AD: So what attracted you to the study of chemical engineering, specifically its applications in the oil industry?

NL: Well, oil industry and chemical industry because Sarnia was also the location of some chemical plants, such as Polymer, the synthetic rubber plant. And you sort of gravitated to that type of industry.

AD: And so when you, when did you finish university and what did you do then?

NL: Well, I graduated in 1947and, as I say, started with Imperial Oil in Sarnia in the engineering division.

AD: And what would have been your responsibilities at that point?

NL: Well, as a brand new engineer, you have to learn the business, and that was my responsibility at the time.

AD: What did that involve?

NL: In the engineering division, my job was mostly in the design of new petroleum refinery equipment. I worked there on that sort of work for about 10 years.

AD: And you mentioned that you were involved the design of the Edmonton refinery. Do you want to talk a bit about that?

NL: Oh, in 1947, after the discovery of oil at Leduc, Imperial decided that they had better look into a refinery in Edmonton. And I worked on some of the early work on that, which led up to them buying the wartime refinery in Whitehorse and moving it down to Edmonton. As a brand-new engineer I was a pretty small cog in the machinery, but I did work on it a bit.

AD: So you mentioned being transferred from Sarnia to Montreal. What did that involve, and what were your responsibilities?

NL: Well, in Montreal my job was technical superintendent, which was really looking after the technical questions from a process engineering point of view in the refinery. Mechanical problems were handled by the mechanical department but …

AD: And what did, you know, in terms of the processes what did that involve?

NL: The department had contact engineers who visited the units under their watch every day and kept track of what was happening. They didn't direct the operation, but they analyzed the operation and passed the necessary information on to the process department, which really ran the units.

AD: Now, you know, was it an established technology or were there still problems at that point?

NL: Well, the Montreal operation was pretty well grounded, but there are always problems that crop up, so no end of work that has to be done. It wasn't new technology in the plant, though.

AD: Was the plant there bigger than at Sarnia or not?

NL: No, it was slightly smaller, but Sarnia was a different sort of operation because they manufactured lubricating oils and specialty products that were only manufactured at the one plant in Canada. Montreal did have a specialty. They had a big asphalt business, but by and large it was a fuels operation.

AD: So you were then transferred back to Sarnia. Am I correct?

NL: That's correct. I went to Sarnia, again as technical superintendent, but within a year I was back in engineering division looking after the design section.

AD: Now, you were sent to Calgary. You know, for what reason and when was that?

NL: The manager of the Calgary refinery retired, and I was appointed manager of the Calgary refinery.

AD: And what year was that?

NL: 1968.

AD: '68. And how long were you there?

NL: We were there just a year. At which point, I was transferred back to Sarnia.

AD: And back to your old job or a new job?

NL: No, I was back to Sarnia refinery rather than engineering division, and I was a petroleum products manager at Sarnia.

AD: So now begins your involvement with the oil sands industry. Can you tell me how that started and what you did?

NL: Well, it started by being offered the job of manager of operations at Syncrude. Up until that point, I'd had no real contact at all.

AD: So can you tell me what that happened? You had to move.

NL: Oh yes, we moved to Edmonton in 1974. We were in Edmonton for about three years. I was up to Fort McMurray frequently, because that's, of course, where the operations were. But there was no housing, so we stayed in Edmonton until housing was ready. Moved to McMurray in '77, and the plant started operation in '78.

AD: So can you tell me … I mean this is an enormously exciting and challenging era, so can you tell me about your involvement and some of the day-to-day concerns.

NL: Well, the work started really in 1974. I was the only person representing operations so had to get some other people on board. There were a few people who had been hired into the project who were slated to come to operations, but beyond that we had to find and hire the appropriate people,

which started in 1974 and kind of continued right through until the startup itself and following that, because we were still short a few people at the actual startup.

AD: So can you tell me a little bit about the hires? What kind of requirements did you have? And mention, you know, people that you hired and their responsibilities as well.

NL: Well, we had to man up the minings' area first, and I depended on the people who came. Mel Farries was the first person in operations mining. He had worked for Great Canadian, and was familiar with the industry, so he provided a lot of the contacts for mining people, both operational and technical. There were I think over a thousand people that had to be hired into mining. And I think we were still hiring when we started the plant up, so it …

AD: So where did those people come from? Where were they recruited from?

NL: They were recruited from all parts of the mining industry. Of course, some people came over from Great Canadian, who had oil sands experience. But a great many people came from places like Labrador, because one of the iron mines there was shut down just about at that time and we were able to recruit some of workers to come to Fort McMurray. When you're talking that number of people, they come from a vast array of sources.

AD: Was the connection to Newfoundland there from the beginning? Because one knows, of course, that a huge number of Newfoundlanders worked in the industry.

NL: I suppose the recruiting at the iron ore company mine would have been the first of any significant number of Newfoundlanders, but the word gets out. People tell their friends and relatives and more people applied. And we got quite a few people from Newfoundland, including some from the refinery at Come-by-Chance. But they came from northern Ontario and from Manitoba and many of the mines in the north. I couldn't begin to remember all the sources.

AD: There was an Ontario Hydro connection as well. Do you want to tell me a bit about that?

NL: Well, after ARCO [Atlantic Refining Company] pulled out in late 1974, there was a big rearrangement of ownership of Syncrude, and one of the owners turned out to be the Province of Ontario, which had a 5 percent interest in the project. They had a startup team whose job it was to put their generally coal-fired hydroelectric power generating plants on line in Ontario. And they had come to a pause in their operations, and through the Ontario government we were able to get the services of their startup team, or at least a startup team, who came out to give us a hand with the startup of our power generation.

AD: Now were there any Americans?

NL: Well, given that one of the owners was City Service, yes, we got quite a few people, mostly as startup help. Not too many permanent employees, because at that time the Canadian dollar was, what, 60, 70 cents [laughter], and they weren't interested in taking that kind of a cut.

AD: And where did they come from?

NL: The ones that we had, that I can recall, mostly came from Lake Charles, Louisiana, and Tulsa, Oklahoma.

AD: And were they already working in the conventional oil patch down there?

NL: Yes, City Service was a conventional oil refiner and marketer, and producer too. So they were from the oil industry.

AD: Now you talked about getting the mining operation going first. Then, of course, I mean, power is required. Do you want to talk about the power component and what that entailed?

NL: The plant required quite a bit of electric power, and the plant was not connected to the Alberta grid really. They got a bit of power from Fort McMurray, but there was a relatively low-voltage line that came up from central Alberta to supply the town. But it wouldn't begin to supply either of the plants. In fact, if they had trouble in the town, the plant supplied Fort McMurray, but that didn't happen too often. As a consequence, Syncrude had to supply all the power that was required for the plant. There were five different generators, five or six, I have to think now, which were … They were able to supply power for the plant under various conditions of steam load. Because the plant took a lot of steam, it took it at varying rates, and the steam-operated steam turbines had to be able to back-pressure steam into the plant or run as a condensing unit when the plant didn't require steam. There were also two gas turbines, which only required gas and a battery really to get started, so they were capable of what's called a black start. When you don't have any electric power at all, you can get going with the gas turbines.

AD: So were you responsible for the construction of the electrical plant.

NL: No, that was the purview of the project people. They were the ones responsible for the construction. We were the ones responsible for the operation and ongoing maintenance.

AD: And then, of course, the third component is the whole, the processing side. Do you want to talk a bit about that?

NL: The processing from the mine through the extraction plant and froth treatment was a technology that Syncrude had worked on for years and had been put in operation by Great Canadian, so we knew approximately what to expect there. The upgrading consisted entirely of well-proven technology, the only problem being that some of it was much larger than anything else. In particular, the cokers at Syncrude, of which there were two, were about twice the size of the largest ones that had been built to date. They turned out to run reasonably well, but as cokers they were subject to the problems of the process which includes having, producing not only the powdered coke but also lumps of coke that bounced around in the unit and eventually could plug things up and cause a shut down. Aside from that, the rest of the upgrading operated as normally as any refinery upgrades.

AD: So tell me a bit about, you know, the events leading to, you know, the official startup, and if you could talk a bit about that ceremony.

NL: Well, the startup, it's hard to pinpoint the beginning of a startup. I guess you could go back to 1974, '75, when the drainage was put in the mine site, and there was a beginning of overburden removal and preparing for mining machinery, which carried on through until, what, 1976. The first draglines began I would think about 1977. They were built. There were four of them. They were finished at intervals. They weren't all finished at once, but the first dragline would have started work, I would guess, in 1977. By 1978, they had an opening cut and were stockpiling oil sands in windrows. In early 1978 the extraction and froth treatment plants were ready to go. And in February of 1978, Frank Spragins came up and we had a very small ceremony, and he pushed the button to start the actual continuous production. All the equipment tested out before that, of course, but this was the actual start of processing ore through the extraction equipment.

The ceremony took place in the mine control tower, which is only meant to accommodate three or four people who were operating the mine, so it was a little crowded to have half a dozen or so there. Nevertheless it was a ceremony more or less. And I think Frank was quite pleased to come up and do it, because he had put in an awful lot of years in preparation for that day. From February, the units were put on in order but the bitumen, of course, was separated and was stored. The hydro-treating units and hydrogen unit were all started with startup oils, not with the material they were really going to process. And, finally, in June we fed bitumen to the number 1 coker. It produced product that went through the rest of the process, and oil, finished synthetic crude, reached

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Edmonton in July, I think it was. So that was the startup. Following that, of course, there was the second coker and the duplicate units, because there were really two lines. They all had to be started up. That really didn't get accomplished until 1979. But I count the startup as June 1978, and in September they had a grand opening ceremony with all the manner of people representing the owners and everybody.

AD: Can you tell me a bit about that? I mean, who were the owner reps?

NL: Well, at that point the owners were the three remaining oil companies: Imperial Oil, Gulf and City Service. And there were the three governments: Canada, Alberta, and Ontario, and they all sent representation.

AD: And do you remember any of the VIPs? Do you remember any of those representatives from government?

NL: I'm afraid I don't. It's on record.

AD: I guess you were just concerned about the plant doing what it was supposed to do. Right?

NL: Yup. At the time, of course, I knew them, but it's 30-odd years ago. I'm afraid my recall's not too good.

AD: No problem. So how many people did you actually end up hiring yourself on the operations side?

NL: Well, I didn't hire that many, because I would be concerned usually with the department heads or very specific, very specific jobs. But in total, and I think the employee relations—they're now human resources—but they were the ones who did the hiring, but it would be around 25 hundred people.

AD: Wow. Now, do you want to talk about some of the department heads that you actually hired and supervised?

NL: Well, I didn't always hire them. I mentioned Mel Farries. I think he came while I was "hiring." The corresponding general manager of upgrading was Tom Harkness, who I'd worked with at Imperial Oil and had been on the project. He was already hired. After a while, we found it necessary to get another general manager in, and Carl Sherman came from Gulf. He had been the manager at

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the refinery at Port Hawkesbury, and Carl did a tremendous job of managing the odds and ends, of which there were tons. It wasn't a little job. And he was able to do that very well. And those were the three fellows that I dealt with directly.

AD: Now, you know, you also had your wife and two of your children join you. Do you want to talk a bit about that, when they came up?

NL: I mentioned that there was a housing shortage in Fort McMurray. Well, of course, we caused the shortage. And Syncrude undertook to … I'm sorry, I've just noticed. I guess it's the guys doing the fertilizing of the lawn. I can see the motion out there. Sorry about that.

AD: No problem.

NL: Where were we?

AD: In terms of the family coming up.

NL: Oh yes,

AD: About housing difficulties.

NL: Syncrude managed to get agreement, or permission, to develop some land in Thickwood Heights, and they built a variety of housing, including single-family dwellings and apartment-type dwellings and other forms of housing, starting in about I guess 1975 as far as operations were concerned. They had also procured housing for the project people, who were looking after the construction, because all this is going on in parallel. The first houses for operations were completed in about 1976, and they came on-stream for months after that. And the first people to move in were the ones who were actually working in the plant every day. Since I spent half my time in Fort McMurray and half my time in Edmonton, our family didn't move up until 1977, at which time I still spent half my time in Fort McMurray and, well, usually about one day a week in Edmonton. So that our family didn't go up until '77. The housing that Northward built, Northward being the development arm, were very good. We were quite satisfied with our houses. It was difficult for them to find the trades to build houses at anything like a reasonable price, because any tradesman could go out to the plant and get more money. Now, there wasn't that much roofing, for instance, out at the plant, but it affected all the trades. So Northward had their hands full building the houses. But the product was generally pretty good.

AD: So would it be bungalows, you know, like you would find in Edmonton or Calgary, or what kind of housing was it.

NL: Well, the apartments were, or townhouses, were much like you might see in Edmonton. The single-family dwellings were made from NuWest plans that were for construction in southern Alberta, or central Alberta, I guess. So the streets looked like they were in Edmonton or Calgary or Red Deer.

AD: So it wasn't just the construction of the plant, which was humungous, those three different components, I mean, they were creating a new town, really, weren't they?

NL: Northward was certainly creating the housing for a new town. The town itself was eager to develop. The trouble was, for instance, the merchants weren't always eager to come to Fort McMurray. They wanted to have the plant up and running and know that they were going to have a market before they would come and build. However, eventually, Hudson's Bay Company for instance did build a new Bay store. And Safeway came, and it gradually filled out, but it was a little tight at first.

AD: I gather you had some responsibilities with respect to, you know, improving amenities, and that you also met with wives of workers, etcetera, a group of wives to talk about their needs.

NL: Yes, to talk about the wives. First of all, you work on the principle that, unless the family is reasonably happy in Fort McMurray, you're not going to have a very happy workforce. So we tried to do what we could to ease their problems, of which there were many. The project people had a group of wives that met, but they were concerned with their problems. Some of the operations' wives got together to form an informal association, I guess, and talk over their problems. And I'd meet months and months and months with them to finally hear what they had to say and see what we could do to fix what we could fix.

AD: So what kind of problems did they identify?

NL: Oh, usually slow construction. They were going as fast as they could, but it wasn't fast enough to satisfy everybody. Lack of telephones was one, I can remember. The telephone company couldn't do much because they had a terrible backlog that they would try and fill. But Northward, I think, managed to use one of their lines to at least give them some communication. The problems were ones of, as I say, delay in construction, muddy roads, you name it, it's whatever you get in a new construction area.

AD: Now, the senior management was located elsewhere in Edmonton. Do you want to talk about that and …?

NL: Well, that's the way Syncrude was structured, and the president and the other department heads were located in Edmonton, which was where their departments were. And I was the only one that was in McMurray. That's what kept me going back and forth to Edmonton approximately every week, for the management meetings and trying to reach decisions on what to do next?

AD: Did you fly down?

NL: Normally, yes. For one day, flying down and back was the only way to handle it. When, up until 1977 when I was living in Edmonton, it was the other way around. Fly up, typically, and stay in town, but I had a company car up there that I could get around on. When I was living in McMurray, of course, I'd fly down. This, of course, is where the municipal airport was invaluable, because you could get down into town in no time flat and get home that night.

AD: Now, did they have their own airstrip and aircraft?

NL: Eventually, they had their own aircraft, King Air. And the flight might be into the airstrip which Syncrude had at the plant or it might into Fort McMurray, depending on circumstances. Most times it would be to the strip at the plant.

AD: Now, in terms of the, you know, one reads about the death highway and so on, transportation whether road or air was problematical, wasn't it, in terms of the growth?

NL: Well, air was straightforward enough, excepting the plane was always full. So you had to make sure you had your reservation and you got there on time. This is if you're taking PWA. If you're on the company plane, it's full too, but it's a much smaller plane. Nobody drove unless they were trying to move something up to McMurray or going on vacation, whatever … It was really about a five-hour drive, and you didn't do that unless you were going to be outside, if you want to call it that, for a significant length of time and wanted your own car.

AD: In the two years that were there and that you lived up there, you know, what were your biggest challenges would you say?

NL: At the plant, the preparations for startup were the big challenge. I mentioned we went up in '77. The actual startup of the units, meaning the processing plant, the extraction froth treatment, and

upgrading didn't start until 1978, so there was a year there that you were concerned with getting startup materials in. You have to run the units there on some sort of oil, so you have to bring it up, and in fact what happened, there was a product pipeline built to take the synthetic crude out when the plant was operating. And we simply reversed the line and brought startup oils in. We also brought in loads and loads of coke from existing fluid cokers, mostly I think from Billings, but I've forgotten now exactly where.

AD: And where did the oil come from? Was it the Edmonton refinery?

NL: We got it mostly from Imperial Oil. We may have got some from Gulf, too. I've really forgotten that. And the last load up was crude oil, which was bought on the market. And since the oil, the line was full of crude oil, when it was time to start shipping material out, that crude oil was sold as crude oil because it all returned to Edmonton.

AD: So once you did your startup stint, how were you then deployed after that?

NL: Well, in April of 1979, we were moved back to Edmonton and I became a senior vice-president, corporate development, which could mean anything you want, I guess. In fact, what it was was the research and engineering and project management for major projects for Syncrude. The plant itself had an engineering group to handle the day-to-day engineering problems and the project group in the corporate development was located in Fort McMurray, so of the people in corporate development, probably two-thirds of them, were in Edmonton, or maybe not quite two-thirds, and the balance were actually in Fort McMurray, so once again I'm up to Fort McMurray every week.

AD: Now, there was a decision made, and maybe you can talk a bit about that, to have management and administration and so on actually live in Fort McMurray. When did it happen, and what motivated that decision?

NL: I had nothing to do with it, so I can only speculate. I think the idea of having the Edmonton office was that there was gong to be more than one project in time. When I started with Syncrude, there was the Fort, sorry, Mildred Lake Project, and then the thought was that there would be further projects and that they would be duplicated elsewhere in the oil sands. But, by 1981, it became obvious that if there's going to be an expansion it's really going to be based on Mildred Lake, and it's not going to be a bunch of separate ones. So, I suspect the question was, "Why are we having an office in Edmonton?" I guess it fell to me to argue that the location of research, and I felt that research would probably be better in Edmonton, because they not only dealt with the plant, but they also dealt with groups like the universities and other research-orientated entities that were in

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Edmonton. And it was going to be also better, it was going to be easier for them to deal with the distance to Fort McMurray so far as the plant was concerned, but it's better to be next door to your other research groups. Because the company had projects in the university and other organizations too, in the matter of research, particularly fundamental research which Syncrude didn't do at all. But they did finance work, say, in the university.

AD: So when did the senior administration move up to Fort McMurray?

NL: I think it was 1983.

AD: So in terms of the last stages of your career, that was based in Edmonton.

NL: Yes, I was based in Edmonton until eighty … Well, really the office moved to McMurray in 1983, and I retired April of that year.

AD: And, you know, in terms of the industry and its development, in 1983 did you get the sense it would take off or was it still iffy?

NL: Oh, there was still a lot of questioning in the general public about whether the oil sands were, projects were really viable. Umm, the industry was certainly helped by the skyrocketing value of crude oil. At the same time, of course, their operating costs went up in parallel, but the whole exercise was profitable at that time. But nobody had a lot of money to put into it, so it wasn't … There was more talk than action.

AD: And you mentioned the expansion plans, well those didn't happen. How long was it?

NL: Well, they happened incrementally. The first thing you do in any project— refinery or otherwise I suppose—is to see what you can do with what you got. And it soon becomes apparent where the choke points are and, it's a terrible term but it's used all the time, debottlenecking. You make changes to take those choke points out and the plant capacity will go up. The plant was originally put on line expecting about 110 thousand barrels a day of product. But in order to conserve money, there had been pieces deleted which, if restored, would get it up to about 130 thousand. And then more points were discovered and ameliorated. There was a capacity addition project which deliberately added capacity to the plant. And a number of new units, a hydrocracker, and I did a little work as a consultant for Syncrude when they were doing the process selection.

They got a vacuum unit, which was after I had completely retired. And these were the sorts of things that could be added. And the capacity of the plant edged up. Then they did have a real expansion here, where they put in a third coker and all the associated equipment.

AD: And when was that?

NL: Now, I had no connection, so I have nothing to hook it on, but it would be between 2000 and 2010, somewhere in there. Probably closer to 2010. I've forgotten the actual startup time.

AD: So how long did you consult after the 1983 retirement?

NL: About 10 years. But it was in a gradually diminishing role. When I retired, I took with me, if you want to look at it that way, a project which was a leftover from the original construction and had to do with the performance of two of the boilers which were meant to take exhaust gas from the gas turbines and use it to replace some of the air to the boilers, and that lasted for several years. Not full time, by any manner or means, but it was finally settled in the early '90s.

AD: Now, you know, I've heard about both with GCOS/Suncor and Syncrude, you know, problems with fire. I mean, it's a highly inflammatory process, and there's equipment breakdowns, etcetera. Did you have to deal with any of that?

NL: Well, the most embarrassing one was just before the official startup in September of 1978. The coker unit includes some pumps which handle oil at several hundred, well six, seven hundred degrees Fahrenheit, or in that neighbourhood. And one of them sprang a leak, a seal let go. And at those temperatures, the oil auto ignites. You don't have to have a source of ignition. It burns, and it scorched the instrumentation and electricals in the neighbourhood and shut down the coker just in time for the startup [laughter]. As it turned out, the second coker was almost completed, and it took less time to finish the second coker than to fix the first one, so we got back in production a few weeks later using the second coker instead of the first one, and it was no urgency to get the first one finished because there wasn't enough capacity to run two cokers right at that time. The production of the plant started out at, I suppose, at 50 thousand barrels a day, something like that. And it takes time to build up the mining rate, particularly. The upgrading is not too difficult. You just turn the controls up and it processes more feed. But the mining is a materials handling problem. It is a slower build up.

AD: Now, your 10 years as a consultant takes you to 1993, when the industry was in desperate need of help, and people like Eric Newell, Mr. Curry, Don Curry from the Alberta Chamber of Resources

and others, you know, did a task force to look at essentially how to get re-investment and expanded development. I mean, did you track any of that?

NL: No, no. I was just happy to be fully retired at that point. And there might have been … I think at that point, Eric Newell was the president of Syncrude. I didn't sense there was any great demand for, certainly for the type of work I was doing as a consultant. As a consultant, if you're going to stay in business, you have to be out beating the bushes all the time, and I was not about to do that. I would do work where I was approached, but I wasn't chasing it, so I really have no feel for the situation at that time.

AD: Now, in terms of … some reflections on the industry. Because, I mean, you were one of the people [who spent] a significantly lengthy period in the conventional industry and then in the oil sands industry. What's your take on the two? And from your personal perspective.

NL: Well, I didn't work in the production end of conventional oil at all. I was in refining, and refining bought the crude oil from wherever. And there's another whole story about people who find that crude oil and produce it, and I had no part of that. The upgrading part of synthetic crude oil production—which is what Syncrude is, they're not a bitumen producer. They're a synthetic crude oil producer—is not unlike a regular refinery other than it's got a very heavy feed stock, which has its own problems. But the other processing is very similar to an ordinary refiner.

AD: Now, in terms of your educational credentials. You know, the chemical engineering degree was that really useful to you or was there a lot of learning on the job?

NL: Well, if you go back to when I started work for the first 10 years, I used my chemical engineering training every day. Once you become a part of management, you're into another field altogether. And by the time I was at Syncrude, if I'd been doing my chemical engineering it's what they would have called management hobbies. You let the current engineers deal with that [laughter].

AD: The … so you really saw, this project is dealing with oil sands project pioneers, and you were really a part of that pioneering era.

NL: Probably. Great Canadian, of course, had to go through the same problems before us. And so far as the relationships at Fort McMurray are concerned, with Great Canadian, the town went from a thousand to seven thousand, and with us it went from seven thousand to, I suppose, over 20 thousand. And I think going from one to seven is more difficult than going from seven 'til 20, excepting that, of course, they had the advantage, they had the old town that they could fill out.

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There was no clearing of new land, to start with anyway. I don't know that … We were developing things as we went along, some were not too significant, I suppose, excepting you needed them for day-to-day operation. As an example, Syncrude was running pilot operations for years, and when you're analyzing the streams it doesn't matter that it may take you a day to get the results back. But, if you're operating an actual production plant, you can't wait that long, because when you get the result back the oil's already gone somewhere else. So, you had to develop new testing methods which the research department did. In fact, they produced a manual, "Syncrude Analytical Methods," called the SAM manual for all the tests that were necessary to control extraction and froth treatment, while operating as distinct from while doing research.

AD: That's an interesting point that Syncrude was doing all this prep work waiting for the Government of Alberta to actually give it the go ahead to actually construct the plant.

NL: Well, you're not referring to that SAM manual because that happened after …

AD: No, the point that you made that Syncrude was actually doing all sorts of research before the actual plant …

NL: Oh, well yes. Syncrude research went back to the '60s. Some of your respondents, Ron Gray, Clem Bowman, those would go back. I had no part in that whatsoever. Oil sands was about the farthest from my mind until 1974 [laughter].

AD: Now, you, also in terms of the work you were doing, were—it wasn't just getting the plant online. You know, that crucial era. But also you were doing some work on anticipating how the industry was going to evolve from the areas where you had direct responsibility. Can you talk about any of that anticipatory stuff and long-range planning that you were involved in?

NL: The long-range planning, my involvement in long-range planning didn't really start until I was in corporate development later on. And while we thought about things 20 years down the road, at that point corporate development was still concerned with just a very few years in the plants. There were just a host of items, none of them major. Well, some were of significance—that you had to get sorted out and solved before, to get the plant up to its designed capacity. And so our long-term, my personal long-term outlook, wasn't as far ahead as it might have been if we'd had anything working to our satisfaction.

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AD: So do you want to talk a bit about some of the specific issues that you dealt with. I mean, the whole, the expression debottlenecking. I mean, can you give me some examples of what you tackled?

NL: Well, one fairly major action was a task force to try to sort out and solve some of the problems on the fluid cokers, which ran alright, but not nearly as well as they might have. There were literally dozens of points where improvements could be made. These were made over a period of a couple of years, a couple of years because a couple of them couldn't be made unless the unit shut down, so you have to wait for a shutdown to do anything about it. And that was under the direction of Phil Haley, a friend of mine from Imperial Oil who was on loan to Syncrude to look after the coker task force. And they did a good job and eventually all these recommendations were incorporated, and the capacity went up a bit every time. So that's the sort of thing. And you repeat that … That was a large activity that had quite a few people involved, but on a lesser scale just multiply that by as much as you want and that's what was going on.

AD: Now, did you have anything to do with the research establishment at the university? I'm thinking of people like Jacob Masiyah, who in 1979 began to do some serious research.

NL: Well, he was one of the ones that was funded by Syncrude for certain work. I didn't deal with Jacob directly. It would be probably Rob Schutte, who was the head of research at the time. He reported to me. And there were a number of contacts at U of A. I think there was some at U of C. It's kind of lost in the fogs, mists of time, I guess right now.

AD: Because, I mean, there was a real, when you think of scientific eras, you know there's the Clark process and all of that, but then you've go the whole era of new science, which really began, and Jacob Masiyah is one of the exponents, where he doesn't actually work with the material itself. They're doing modeling, and they're dealing with particles, which is very different, isn't it?

NL: Yes, I guess that's what we kind of called fundamental research, which I'm sure people in Syncrude could do, but the people in the universities, for instance, have more time to devote to that exclusively. More exclusively at any rate than when you're trying to respond to operations. So Syncrude research, when I was there, was perhaps more development than research. But it was called R and D.

AD: So, when you moved into the operations management back in Edmonton, what order of magnitude are we talking about in terms of the responsibilities of your unit?

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NL: Operations? Well … Now are you saying after we moved from Fort McMurray to Edmonton?

AD: To Edmonton, where you were strictly management.

NL: Oh, well, I had a successor and I think it was Jim Guthrie at first, but as vice-president operations, so that was the job I'd had. But as corporate development you are assisting the operations to the extent of site engineering services for instance. And they're not quite the day-to-day, but when the job gets too big for the day-to-day people, it's passed over to the site engineering services. Then, research would provide assistance as requested in their line of work. And as I said, there weren't ever really big projects, but we did have some projects and they have to be worked with operations. When you've got an operating plant, anything you put in has to be installed so that you can keep operating the plant safely. And so you're working with operations, but the whole thrust is production of synthetic oil, so you're all headed for the same ultimate objective and it's just a case of sorting out who does what.

AD: Now you mentioned something about that the plants operate 24 hours a day, the whole shift work, but also then they have to be shut down so that any essential repairs or routine maintenance can occur. Can you talk about that cycle in your experience of it?

NL: Hopefully you can schedule your shutdowns. During the time that I was responsible for operations, the units were telling us when they had to shut down, which is not a very comfortable or helpful way to operate. But you gradually get a grip on that and, to the extent possible, you'll schedule your shutdowns so that they're not in the middle of winter and don't interfere with each other. You have to plan things so that you can keep operating at at least half capacity, or two-thirds capacity, I guess it would be now with three cokers. It's still possible to have a forced shutdown through failure of equipment. The whole object of scheduling shutdowns implies that you've got some sort of inspection or keeping track of how equipment is performing so that it doesn't shut down on you unexpectedly. That, I think, has improved a good deal at Syncrude with experience and with new facilities and inspection methods and that. But, nevertheless, I still see that something shut down a few weeks earlier than it was anticipated.

AD: Where there any serious accidents in the era when …?

NL: Well, I was in charge … I guess the most serious accident to me, of course, was the fatality. I've never had a fatality when I've been responsible for the operation. We do get the occasional lost-time accident, which is the next worst, when somebody has to take time off to recover.

AD: Was there a strong safety …?

NL: Oh yes.

AD: Do you want to talk a bit about that?

NL: Well, we were fortunate that Dick Hunt—again, a fellow I knew from Imperial Oil—was willing to come to Syncrude. He had a long experience with fire and safety. The fire is an ever-present possibility in a plant that's handling something flammable like oil. And we set up a … I should say Dick really set up in the lower camp, using bits of equipment from the old pilot plant, a fire training school. We also sent people off to fire training schools, some in the U.S. I think there's one in Sarnia too, but I don't exactly know how that's today. At those schools they, of course, cover quite a variety of circumstances—the kinds of fires that you get. And there's a safety program, for instance, contractors don't come on the site without having safety instructions beforehand. We started this back in 1978, '77, '78, but it's expanded quite a bit ever since, and you should talk to somebody who's dealing with the plant today to find out just what's happening. But I do know that fire and safety is a very serious concern, and there are activities that account for that.

AD: Under your umbrella of operations, did you also get involved in setting up a training program?

NL: Oh, yes. To start the units up, we had a relatively small number, but it added up to nearly a hundred people, I think, from the participants to assist in the startup at the method of operation was for them to tell, instruct the new employees who didn't have any background typically—though we had some with a background in refining or in mining—in starting up the new employees who didn't have any background—they were the non trainers; they were trainees I guess—did the startup and were told how to do it and given instruction rather than somebody else starting it up and saying, "Okay, there it is. Away you go."

It's not only a question of knowing how to start it up. It's also a question of knowing how to shut it down safely. So, yes, it was an extensive program. We had quite a sizeable training process down in the lower camp. The lower camp was lower because it was down really on the floodplain of the Athabasca. It didn't flood, but it was a couple of hundred feet lower down. And that's where the pilot plant had been, and that's where the pilot plant camp was. So, in the early days, we had operations people living down there. And we built a two-storey building, a steel-frame construction. It was a nice building, with the idea that it would eventually become the training building, but it was the office and work centre for the operations people from 1976, '77, until we got our permanent up in the plant around 1978, I think.

AD: Now, how aware were you at that time of any environmental issues? You know, were you involved between 1975 and '80, there was a federal-provincial initiative that did the environmental and social assessments for Syncrude.

NL: Those assessments were handled by an environmental group which was part of research at the time. The design of the plant was such that the two big items were water pollution or air pollution, so that of water the design was such that there was no water going back to the river that had been anywhere near the process area. Now the plant was about, counting the mine and the tailings pond, was probably about 15 thousand acres. Two leases, 17 and 22, totalled almost a hundred thousand acres. So on the 15 thousand acres, nothing went back to the river. On the other 85 thousand acres, well sure, rain subsidence has occurred from time immemorial. So that was one item on the water was that nothing went back to the river.

For air pollution, there's no doubt that the coker stack gases are not very pleasant. And the technology of the time, which was accepted by Alberta Environment at the time, was you get a great tall stack and you get them up high enough and it's diluted enough that it doesn't harm anything at grade. So that was all decided before I arrived on the scene.

I guess our biggest concern environmentally was the rehabilitation of the ground that had been disturbed. This wasn't because of mining but because of construction. There were quite a few acres—I've lost track of how many now—that had been cleared, but they knew that they would not be working on that area. And the requirement by the Alberta government was that trees had to be planted at a certain density as all laid out by their requirements. So we had to find 250 thousand tree seedlings a year. I went to the Alberta government, and I've forgotten which department it is that grows the seedlings for forestry here—but they didn't have the capacity. They couldn't supply 250 thousand or any for that matter, because they were all used in Alberta. We could get some from British Columbia, but they weren't hardened off to Alberta temperatures. So, in the long run, what we had to do was build a greenhouse and as far as I know it's still there, producing 250 thousand seedlings a year, and then it has to be planted. We were able to hire planters. I don't know where the planters came from. Eventually, early on, we thought some of the, I think it was a Métis group, thought they'd be interested in planting seedlings. So those were the environmental questions as I remember them. But it was a continuing question.

AD: And, you know, of course, this was the days of the settlings ponds. Did you have any involvement with that?

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NL: In operations, the only thing we were doing really was putting the sand, which is what the settling ponds really are is sand storage. They have to be built, a dyke built, and the sand carried a water slurry, which is dumped in the middle of that. Water settles up, the sand goes down, and you gradually build it up, up, up, until it's quite an imposing mountain.

The question of settling was one being addressed by research at the time, so, as far as operations were concerned, they were simply planting the sand and the water goes back into the process and the gluey material in the middle had no solution. Oh, I guess we did have one problem which, of course, became a real one later. Bitumen, the sand water mixture carries a small amount of bitumen. The recovery is over 90 percent, but there's still some bitumen going back out to the ponds, and it goes out hot, under which conditions the bitumen floats on the surface. But, when it cools down, the density of the bitumen becomes greater than water, and it simply sinks. And, of course, the birds are attracted to nice warm water. And so we had to invent, and I think this happened after I - the real work happened after I left operations. They put out these cannons, which were a little fabric and, I think, canvas, people with scarecrow arms that went around and around; things to keep the birds away. So, that was a problem almost from the first operation and, of course, I think you're well aware of the one incident where the birds got mired in the bitumen.

AD: But, in the era where you were directly involved in operations these issues were just emerging.

NL: Oh yes. You see, the settling pond at Syncrude wouldn't have started to fill until maybe March of '78, and I was gone by March, 1979, so we were concerned with a lot of other things besides that. As long as we could build the pond safely, that was the most important thing of the time.

AD: It became the responsibility of your successors. Now, you talked about your title that it really covered a whole bunch of things. I gather that there became an awareness between the senior management in the oil sands operations that there was a kind of inequity in terms of not only salary levels and titles between the conventional industry and Calgary-based personnel and others. So, did that come in in your era? And, then, the changing of titles and the leveling of the playing field.

NL: Well, I can't really comment on the titles. At the time I retired, the titles had been the same since the day I arrived. I think there was, there were changes in titles and perhaps inexact titles were applied. I can't really talk about that, because I didn't experience it.

AD: It wasn't in your era? Now, I think that you know we've talked about, you know, a whole range of issues, was there anything that I haven't asked you about that, you know, that you want to bring forward? Any reminiscences, any stories or anecdotes?

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NL: Well, stories and anecdotes are a dime a dozen I guess [laughter].

AD: Well, may some of your favourites.

NL: Well, this has got nothing to do with the plant, but it's an example of how Fort McMurray was to a certain extent. When we moved to Fort McMurray, we had a nice new house with a fireplace. And we bought a glass screen for the fireplace, with a nice brass binding. And when I got it up there, there was about a half an inch on each side that's left over space. Well, I'll get a couple of angle irons and put them in. So I had no trouble getting the angle irons, and I got them in place. Put the brass screen up, and sure enough it covered the space. But now I've got two rusty streaks on each side of the fireplace. So I couldn't figure out just what to do. Any paint you'd put in would burn off with the fire. So I could remember my farming relatives years and years and years ago had wood stoves and they put stove polish on it. Well, I thought, I'll just see if there's such a thing as stove polish, because it'll blacken it. Went down to the local general store, which was run by, owned by Alice Haxton. I don't know whether you've spoken with Alice, but she can give you all sorts of background on Fort McMurray. At any rate, I asked the girl at Alice's if they had stove polish, and the girl incidentally I think was older than Alice, but she said, "I think we do." And she disappeared up into the attic and came back 10 or 15 minutes later with a bottle of stove polish, which worked fine. It blackened the iron strips. And so far as I know, they're still black. But she said, "You know, we don't get much call for that any more" [laughter]. And that was … you know, you could go down to Alice's and find almost anything.

AD: The old general store, right?

NL: Alice turned 90 this year and had a big birthday celebration.

AD: Now the tradition of your family working in the industry. You have a son who followed in your footsteps. Do you want to talk about him?

NL: Charlie is our oldest child. He also studied chemical engineering and also got work with Imperial Oil, and he's still with them. He was in Toronto for many years, started in the Strathcona Refinery out here. But he's in Toronto for many years, and now is in Calgary since Imperial moved their offices out to Calgary. And I find it passing strange that he's approaching retirement age [laughter].

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AD: And so he spent his career … I mean he started in chemical engineering but I'm assuming he has some management role.

NL: I think, you know, I don't actually know exactly what he does at Imperial Oil [laughter]. I think it's more in a specialist role, but …

AD: And he never worked in the oil sands?

NL: No. No, I think that's right. I don't even think he worked summers. But I could be wrong on that. It seems to me he worked out at the fertilizer plant when it was an Imperial Oil plant one summer, but I don't remember him working a summer in McMurray.

AD: Is there anything else that comes to mind that you'd like to share? Another anecdote perhaps?

NL: I'll think of them probably tonight [laughter].

AD: Well, thank you so much for agreeing to share your experience with us about the starting up of Syncrude and your involvement. Thank you.

NL: Well, you're more than welcome.

Outside voice [wife Jean Lund]: I didn't hear the beginning. I'm wondering if there was anything said about your trips to the various native locations …

AD: Oh, hold on.

Jean Lund: to try and get people. You and Terry Garvin were flying in, flying out, trying to encourage natives to come.

AD: Well, okay. Great, can we get you [to talk about this]?… Thanks so much Jean. Bless you.

NL: I don't know. I just …

Jean Lund: Well, it was just when he was talking about the people working in the …

AD: Incidentally, Terry Garvin's a really good friend of mine.

NL: Have you interviewed Terry?

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AD: I have … Well, I've interviewed him on the Aboriginal side, absolutely, but not for this project yet.

NL: Well, of course, …

AD: So did you have any Aboriginal involvement in terms of the operation?

NL: Well, when we were trying to man the plant, we were having to encourage people to come from as far away as Europe to come and work for the plant. And it seemed to us that there are a population in northern Alberta that was living there. It would be simpler if you could get them to come and work for you in the plant. And that was mostly, of course, Native and Métis. There were some people from the south who had moved to the north, and we got a few of those. But we made some trips to talk to native leaders, and we went to places like Fort Chip and, oh dear, I was going to say Conklin, but that's not quite right. It was one of the bands on what's now Highway 881, but of course Highway 881 wasn't there. We had to fly into speak to them, and Métis bands. I can think of, Kikino was one.

The problem as seen by the elders, or at least the chiefs—chiefs and elders are two different categories—was that they really didn't want to lose their young people, which was of course what we were recruiting. We weren't recruiting people about to retire. And, of course, we'd also be after the best-educated ones, and they were somewhat reluctant. We did talk about people coming up for specific work, and that did happen. For instance, after I'd left, it was in connection with the birds on the tailing pond, the band at Fort Chip would send people down to look after these bird deterrents during the summer.

But we talked with the people at Kikino about planting trees, and I'm not certain now whether we actually got any from Kikino or not. We did plant the trees. Another was work that could be sent to Native settlements, and we attended the opening of a laundry at Saddle Lake, which was quite an event. I think it's still functioning. They were given the training and the set up was organized by a laundry in Edmonton, which was very good of them because they might have chased the business themselves, but they gave the help to the band at Saddle Lake. And they would pick up loads of, it was really coveralls and gloves. They would pick up loads at the plant and take them down to Saddle Lake and wash them and mend them and send them back. And it was a business that worked then. I'm assuming it's still working, but I don't know. That's the sort of activity we carried on trying to interest the natives in …

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AD: Now you mentioned Terry Garvin. How did you meet Terry and how was he involved?

NL: Okay. Terry was employed by Syncrude. He was part of the environmental group that I mentioned, but his particular field was relations with the Natives. We also had Herb Calahoo, who was an employee from the Calahoo Band out here, which isn't a band anymore. His grandfather … the band just all became conventional citizens.

AD: Well, the Calahoo family has a very important role in terms of the fur trade. I think Michel Calahoo was known as the Sun Traveler.

NL: I've kind of forgotten everything Herb told me about his family, but they were … He was Iroquois …

AD: That's right, from Ontario. They came out.

NL: They came with the fur traders, but they stayed.

AD: Terry, of course, had worked in the Northwest Territories as an RCMP officer before he went to university to study environmental and social impact assessments.

NL: I was trying … Oh yes, now her name escapes me.

Outside voice [Jean Lund]: Merle Rudiak.

NL: Merle Rudiak was also part of the Public Affairs I guess it was [in Syncrude]. But she was married to Peter Rudiak, but her background was Native. She also was a help in contacting with the Natives.

AD: Ya, these were small steps, but when you look at in terms of the Aboriginal employment in Syncrude, it grew astronomically and then of course they nurtured all of these businesses. I mean, you talk about the laundry at that point, but you know a whole bunch of native businesses evolved in the service area.

NL: Ya, well that suited the Native leadership. And as long as it works, I guess. We started out thinking well, we'd like them to come to the plant. But that wasn't to be. Some work at the plant. People who live as close, say, as Fort McKay, it's no problem to go to work at the plant. And there are a fair number, many of them women, who work at the plant.

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AD: Good, well thank you for that additional bit of information, because I think that it's significant. And you know, it grew.

NL: Well, it's probably going to grow some more, as they say.

AD: Yes, thank you.

NL: You're welcome.