PETROLEUM INDUSTRY ORAL HISTORY PROJECT
TRANSCRIPT

INTERVIEWEE: Jim Livingstone

INTERVIEWER: Nadine Mackenzie

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NM: This is Nadine Mackenzie speaking. I am interviewing Mr. Jim Livingstone. Mr. Livingstone thank you very much for having accepted to participate in our project. Can you tell me, when and where were you born?

JL: I was born in Toronto, it's an unusual background because most people in the industry are from somewhere else. I was born in 1920 and went to school in the city of Toronto.

NM: What did your parents do?

JL: My father was a physician, he returned after World War I and set up practice there.

NM: Where were they from?

JL: My father was from the Orangeville area in Ontario and my mother had lived in Huron Country, and I guess had lived in Buford most recently before she came to Toronto and trained as a nurse at the Toronto General Hospital.

NM: Where were you educated?

JL: I went to school in the city of Toronto, I went for awhile to the old Model??? School, which has long since disappeared and ??? Collegiate, which was then and I guess still is, the smallest collegiate in the city. And the University of Toronto.

NM: What did you study at the university?

JL: I graduated in chemical engineering.

NM: Why did you choose this subject?

JL: Well, it's a long while ago but it just seemed an appropriate activity to get in, considering my interests and the way things were going at the time. Of course, I started at university really at the height of the Depression so it was a little different environment than there is today.

NM: Did you take any summer jobs while at university?

JL: Oh yes. I worked for one very long summer, it was just during the early part of the war, at Welland Chemical Works. They had a new chemical plant which was allied with the explosive industry coming on stream. So we worked from early April through, and I think that year school was postponed a little while so it was late in the fall when we went back to university. But worked on the start up of the plant and then on the initial operations. It went quite successfully considering the amount of talent they had available, they started up 4 or 5 plants that summer. They were all working reasonably well by the early fall.

NM: Which year did you finish?

JL: I graduated in 1942.

NM: And then what did you do after graduation?

JL: After graduation I went to Imperial Oil in Sarnia and at that time the big oncoming project was Canada's synthetic rubber project, which was closely allied with Imperial. Imperial was to supply feed stocks. It was organized as a separate company and separate

activity. And initially there was a fairly large number of us hired at that time, some with more industry experience than I had but many or most were new graduates. There was a training pool to acquaint us with the hydrocarbon industry through Imperial and then some of those people went to Polymer Corporation and some of them stayed with Imperial. I guess I was fortunate in that I stayed with Imperial but at the time we were all in the same pot as it were.

#043 NM: Do you remember who hired you?

JL: Yes, the man that actually interviewed me and wrote me the letter was a Mr. E. B. Lesby, who at that time he was the Chief Chemist for Imperial Oil. I was hired for a 40 hour week at 75 cents an hour. 34 hours, I'm sorry.

NM: Was that good at the time?

JL: Well, you have to remember that we'd moved from Depression into war time period and there was . . I'm not too clear in my mind but there were some significant restraints on salary and wage increases. I would say that it was proven in the next year or so to be a little bit on the low side because as more people were hired and the operation began to get manned, why they increased the salary modestly 2 or 3 times.

NM: So you were put through a training program?

JL: Yes, it was designed as a training program. There were some limited amount of lectures and then on the job training with Imperial's operations. At that time, the Polymer Corporation, when I first went to Sarnia, was really, they were just clearing the site and digging holes in the ground. So it was about a year and a half before there was anything really ready to operate there.

NM: How was Sarnia at the time?

JL: Sarnia I guess, was a typical Ontario small town that had been about the same size for a number of years. There were really two significant employers, Imperial Oil and the Canadian National Railway. Of course, it went through between 1942 and 1950 or thereabouts, it went through a terrific period of growth and it brought many, many problems for the city.

NM: What type of problems?

JL: Well, problems of expanding population, inadequate housing. During the whole period I lived in Sarnia housing was always in short supply and . .

NM: So people were pouring into Sarnia?

JL: Yes, well, all this new industry, there was first of all the construction brought in a great many people and following the construction the permanent work force. So there were a lot of people came to Sarnia. Although there were a lot of Sarnia natives that were employed it was by no means enough to make it run on its own. And then as more people came there were more service industries required, they needed more doctors, and they needed more stores. So Sarnia had a very tumultuous period of growth and development. And I think if you were to go to Sarnia or talk to people in Sarnia, some of the results if not problems have remained right through. One thing that happened in Sarnia was the early downtown centre did not expand to accommodate the new requirements until quite recently. So it was bypassed with suburban development.

#082 NM: And after your in training with Imperial, what did you do?

JL: Well, I worked on the Imperial side of the synthetic rubber program through until, I suppose until about 1947 or '48. And then at that time, when the war was over, there was a greatly increased demand for petroleum products in Canada and Imperial began a program of refinery improvement and expansion. At that time, as an engineer in the company I worked on a number of projects and in a number of locations at that.

NM: What about the staff, were you working with a big staff?

JL: It too grew of course, as the activity grew. I guess at one point in that Polymer training pool there were probably 100-150 people. Then as they were assigned their permanent jobs there were probably 8 or 10 engineers in Imperial Oil on the refinery side working on the feed stock and that aspect of it. That was synthetic rubber. As we moved towards expanding refineries though after the war, there was a very determined effort to hire more people. The company needed more people to manage the growing business and at that time the numbers began to grow quite rapidly. Again, space was a great problem because for many years before the war there had been 1 or 2 new people hired a year, maybe 3 or 4 at most. Suddenly they were hiring 25 and 30 and they needed a place to put them. So one device that provided some very much needed extra space was the company bought what had been a bunkhouse during the Polymer construction. It was one of those so-called temporary war time buildings. And that was moved onto the refinery site and fixed up a little bit. The holes in the walls were repaired and it was painted and so forth and made into an office for what was called the engineering division. That I guess as long as I was in Sarnia that was my home. Shortly after I left they built a new I guess you'd call it permanent building at that site or near that site but I had left and didn't work there.

#119 NM: Can you talk about the importance of synthetic rubber?

JL At least it was billed to those of us working on it as an absolutely essential part of the North American war effort. Because as the war had expanded in the Pacific, natural rubber sources had been cut off completely from the United States and Canada and Europe. So it was a crash project in time and it had a great deal of technical support from all over the United States. The one built in Sarnia, there were other plants that had parts of the same process or processing, so that there were several plants that were producing the same kinds of synthetic rubbers. But I believe Sarnia was the only one that produced the whole range of synthetic rubbers that were available. So it was I guess you could use the word crucial for the war effort. There was no problem getting rid of the product, it was shipped out as soon as it was produced and went off of course, to make tires and all the other things that rubber was needed for.

NM: Was it exported abroad?

JL: I'm sure that some of it went abroad. Much of it went in the form of finished products but I don't really know where the materials produced in Sarnia specifically went. As you know there was close integration between the Canadian and United States on critical materials and this was part of a critical material pool.

NM: How long did you stay in Sarnia for?

JL: I left Sarnia I think it was in the fall of 1952.

NM: And what did you do then.

JL: I went from Sarnia to a job they called the Assistant Superintendent at the Winnipeg refinery which is one of the ones I'd worked on after the war time period, to build a new plant in Winnipeg, which had not had an Imperial refinery before. So at that time I was the second man in the management of that refinery.

NM: Was it a big staff there?

JL: No, well, this was a smaller refinery and it was the start of what you might call the post war era of more compact and efficient operations. I think we had probably about 150 people roughly.

NM: What about the technology?

JL: Well, of course, there was tremendous development of technology during World War II, we moved a long, long way in petroleum processing. Largely under the stimulus of the needs for synthetic rubber and aviation gasoline. So the process that was used at Winnipeg I guess was the second, it was catalytic cracking, which is old hat today of course, but it was the second catalytic cracker that Imperial had in its operations. It was certainly the first of the smaller ones. There had been one built at Montreal that was somewhat refined from the war time model but this one had moved down to a much smaller and more compact unit.

#165 NM: Were there any safety problems at the time?

JL: There wasn't any safety problem but I think safety has always been a goal and an active part of the management requirements. We were making a very significant effort to operate the plant safely and cut down the number of lost time accidents. But there wasn't any unusual safety problem I don't think.

NM: How long did you stay in Winnipeg?

JL: I wasn't in Winnipeg very long, I was there roughly a year, it might have been 13 months or something like that. And then I came down to Toronto and worked in what was called the Coordination and Economics Department.

NM: What were you doing?

JL: I was the Assistant Manager there for about 2 years I think. There was I guess, at least 2 main activities, perhaps a third one as well, but the one was the assessment of supply and demand of petroleum products and the petroleum industry in Canada, the balance and where we were going and projections of supply and demand for the purpose of planning future needs of equipment and budgeting facilities. And then the other part was the investigation of the economics and advantages or disadvantages of a variety of new projects that people might put forward as a possibility. That was a period of time when pipelines were really just getting going in Canada so there were a lot of thoughts and possibilities for pipelines, some of them relatively small pipelines in the crude producing field and then right through to the inter-provincial pipeline that supplied eastern Canada. One of the major uses of the supply and demand balances was to assess the capability of the inter-provincial pipeline to supply what was then a growing requirement for petroleum.

NM: Where were the pipelines coming from, were they coming from the States?

JL: No, the ones . . there were pipelines that had come from the States. There was a line that had supplied Sarnia from Illinois but the new pipelines were pipelines handling Canadian crude from western Canada. What had made the Winnipeg refinery possible really, was the availability of a pipeline to bring the crude to it. So that the crude was moved to Winnipeg, refined there, rather than crude refined in Calgary and products moved by truck or tanker.

#208 NM: What about equipment, where was it coming from, the equipment for refineries?

JL: By and large I'd say that 85% came from Canada, Canadian manufacturers. And in fact, with the need for pipe for example, for oil field use and for pipelines, Imperial encouraged and supported one steel mill to put in a facility to make pipe, which I think over the years has been very successful for them. But everything that was producible, including some things that hadn't been produced before, but companies began to produce were purchased from Canadian sources and there was always a small piece of things that either weren't produced in Canada or the Canadian facility, they couldn't see their way clear to start producing them.

NM: Were you staying mostly in Toronto at the time or were you travelling?

JL: I would say probably I stayed mostly in Toronto, there was some travel but it wasn't what you'd call ???.

NM: And for how long did you keep this job?

JL: I went on and became manager of that department and I guess I was manager there til about 1957 or 8 and then I went back to what was called the manufacturing department where the refining is done. And worked there essentially, on new developments, budgets and projects of that sort. I had the title of Assistant General Manager and there was one gentleman that was mainly responsible for the operations and I was the supply and to some degree facility investment expert I guess. Then in the middle of that assignment I went to the United States and spent a year, almost a year and a half on loan to Exxon.

NM: Was it in New York?

JL: Well, I had my office in New York. But Exxon was organized a little differently in those days and the activity that I was concerned with was the basically the refining activities in European countries. The countries that I had were England and Ireland, France and Italy.

NM: So did you have to go to these countries?

JL: I probably spent very close to half the time that I worked out of New York, I actually was in one of those countries.

NM: So in fact, Exxon borrowed you from Imperial?

JL: Right. I was on loan to Exxon and in retrospect you could also say it was a training assignment. But it was productive work that had to be done for Exxon.

NM: What did your post entail, what were you doing exactly?

JL: Well, as I said a few minutes ago, it was a period of rapidly expanding petroleum facilities to meet growing demand and it wasn't just in Canada, it was world wide. In all three of those countries there were very significant projects for expansion and what I was doing was working with them on the presentation to Exxon of their need, the budget procedure and getting money for them and getting them organized to go ahead with their

expansion projects. In some cases also there would be competing projects, in Italy and the U.K. for example, that wanted to supply an export market, a market in Europe somewhere. And one of the things that I was concerned with was to try and find which one made more sense.

#280 NM: Did you find the approach to the oil business different from the approach here in North America?

JL: I'd put it this way, I think the approach to business maybe was somewhat different but their approach to the oil business was maybe not all that different. They had forecast demands, they had inadequate supplies and all of them were anxious to build something new to supply it and enhance their own business. They were maybe not quite as advanced in their skill development in market estimating and some of those things but it was something they quickly caught up with, there was no great difference really.

NM: And after New York, what did you do?

JL: I came back from New York and went back in the manufacturing department for a few months as so called Deputy General Manager and then became the General Manager of the department which was all of the refining. I was there for roughly 2 years and became a Director and Vice-President of the company and had various assignments there until I ended up being President.

NM: Mr. Livingstone you have seen Imperial expanding and expanding, can you talk about that?

JL: Well, certainly expanding because through a major part of my career, until 1974, the expansion was the order of the day. The demand increases of those years in the 50's of 8 and 10 per cent coming along. The problem was to provide the supply facilities to meet them.

NM: This is the end of the tape.

Tape 1 Side 2

JL: A large part of my business life was, one way or another to provide supplies to meet anticipated and actual demand that actually developed. So there were two ways we were doing it, one was to build our own refining facilities and process crude and make products and the other was to enter into various kinds of arrangements with other companies, either to purchase products or semi-finished products in Canada or in many cases we had to buy them outside of Canada. I think the domestic heating oil business is a very good example. It took off like a sky rocket after World War II and at one time we were importing regularly large quantities of heating oil to meet our winter peaks in eastern Canada.

NM: Which year were you President and Director of Imperial?

JL: Well, I've been a Director since 1969, I guess I'll have to look at the records to see when I got to be President. I think it was '78. I became an Executive Vice-President in July 1975 and then in April of 1979 at the time of the Annual Meeting I was elected the

President.

NM: Can we talk about your work as the President?

JL: The President has a wide range of activities since he's looking at the whole of Imperial Oil. I guess my work as President was essentially the Chief Operating Office of Imperial. Mr. Armstrong at that time, was Chief Executive Officer. So I was doing a lot of travelling. I was interested and involved in the operations of all aspects of the company and concerned about them and of course, the final measure of the operations was what we showed on the earnings report every quarter and then the annual report at the end of the year.

NM: What about the relations with the government, were you involved a lot with that?

JL: Yes, I think beginning bout 1973 we became much more involved with governments. Of course, there had been involvement before that but in the early days when new refineries were built, someone in the organization, not usually the Chief Executive by any means, talked to government people and made arrangements for building permits and the various routine matters and that was about all that was involved. The governments were happy to see expansion and usually if there was an official opening there would be senior executives of the company and senior government officials participating. But with the changes that took place in the industry in the early 1970's that changed and government was interested in all aspects of our business, everything from price to supply and volume and source etc. And of course, the environmental aspects became tremendously more important so that there was a many fold increase in the number of government contacts, both at the manager and working level and also at the executive level.

#044 NM: In 1973 there was the OPEC crisis, what was the reaction of Imperial to that?

JL: There was an OPEC crisis, price increases but I think both in that one and the subsequent one that came about when there was a crisis in Iran, Imperial was able to supply all of its customers. We maybe had to scramble a little bit but business went on as far as the customers were concerned, according to the way it always had. Now the price was a different matter because prices had moved for a number of reasons, including greatly increased government taxes.

NM: Yes, people saw that coming too, it was not sudden.

JL: Well, people maybe saw it coming but that doesn't mean that the customer when he gets his bill isn't pretty upset about it.

NM: When did you retire?

JL: I retired in the late fall of 1982 and with some accumulated vacation and so on, I guess I officially retired at the end of the year.

NM: And now what do you do?

JL: I sometimes think I'm busier than I ever was but that of course, isn't true. I'm on a couple of company Boards, I'm on the hospital Board, I'm the president of a golf club this year and I'm working on a couple of other activities, Junior Achievement is one. So there always seem to be things that I have to do and as I say, sometimes I wish there weren't so many there, that I had a little more freedom. No, actually I don't. So far I've kept quite busy with my own activities and with a little bit more leisure time. I have managed to

spend a few weeks in Florida the last two winters so that's something that I never did when I was working for Imperial Oil.

NM: It seems oil people just cannot retire fully, they're always keeping busy with something.

JL: Oh, I think so yes, unless their health or something.

NM: You have been a witness to Imperial discoveries, can you talk about that.

JL: Well, of course, the first discovery at Leduc was one that really triggered the expansion program that I mentioned earlier. I can remember quite well being in Toronto, I guess the second day after that discovery and already the interest was high on how to possibly utilize it. The problem that had existed in western Canada was a growing need for petroleum products for more mechanized farming which was developing and no good source of petroleum products. The only source that Imperial had were old refineries in Calgary and Regina that were, in Calgary supplied with Turner Valley crude and in Regina we were bringing crude by tank car from as far away as Texas. So the first order of business was to try and get a refinery and it was felt that it should be in Edmonton, close to the oil fields. That part, the location, I wasn't involved in. But then the next step was how to get one quickly, at a time when there were still significant material shortages after the war. A deal was made to acquire the idle equipment and equipment that was unlikely ever to be used again from Canol, move it to Edmonton and make a refinery there out of it.

NM: It was a small refinery.

JL: Well, it was a small refinery at Canol yes, but it had some very sophisticated and complex equipment which wasn't really needed for the post war Canadian market. But the result was it had bits and pieces, pumps and fractionating towers and so on. In effect what was done was to take the equipment, the pieces at Canol and use it as parts to make a different kind of refinery in Edmonton. Now some of it we only modified modestly but some of it was quite radically changed. At one time there was quite a store yard of unused pieces at Edmonton that had been left over that weren't required in the refinery. But over the years a good many of those, there was a use found for them and they were incorporated in what was original Edmonton refinery. That was a refinery that more than doubled in size. By the time we had started up the first crude running unit we were well on the way to planning and designing a second one which would more than double the capacity.

#106 NM: So it was going fast.

JL: It was going fast. So I guess that was the big part of discovery. Now the other discoveries that came and they were coming pretty quickly in the early 1950's were building up a supply of oil which was more than adequate to supply Edmonton. That then developed into the need for moving the oil to other markets, which developed into the inter-provincial pipeline activity that I mentioned to you. And that in turn made it possible to build a refinery at Winnipeg, ultimately to expand Regina and of course, Canadian crude came to Sarnia at an early time too. The first crude that came to Sarnia was shipped to superior, Wisconsin and then there was a fleet of lake tankers that took it from Superior to Sarnia. But that had only a relatively short life before the pipeline was fully extended as more crude was found and they were able to route a pipeline through the United States.

NM: Were people talking about problems of environment at the time? Because it is a very big thing now.

JL: No. I think it wasn't thought of in nearly the sense or context that it is today. We were very conscious of things like oil spills and there were provisions for collecting any oil that went in the waste water and so forth. Those were, I guess the best way to put them was those were built to what were considered the industry standards at the time. The industry standards or the environmental standards have got a lot tougher since then. And there was less consciousness of things like smoke and so forth from refineries. But the facilities that were built in those days were certainly as good as the ones in paper mills or other kinds of industries.

NM: Nowadays everybody's talking the environment.

JL: Yes, people have become much more conscious of the environment and in part because of the much greater industrialization.

#138 NM: What other discoveries were you a witness to?

JL: Well, I really wasn't witness to any discoveries since I didn't work in the oil fields itself. But as the additional fields there was more crude oil supply and when we were working on our supply and demand we'd pound in Pembina or whatever the most recent discovery was. One of the needs was to, with the assistance of the people in the producing department was to try and forecast what could come from those fields as they were brought onstream and additional wells were drilled and so forth. And that was really the complexity of the supply side of the industry.

NM: And what about Syncrude?

JL: Syncrude was a tremendous project that went through a tremendous development and growth period. Now Mr. Armstrong was part of the small negotiating team of governments and company people. I was not part of that team but immediately afterward, had the responsibility of working with, they had an agreement in principle that was on one or two pieces of paper and from that we had to provide all the contractual documentation and establish clearly the relationship between the governments and the Syncrude participants. Who was going to do what and what we were going to pay in royalties etc.

NM: Were the negotiations difficult?

JL: They were extremely lengthy and quite difficult because there were a lot of people involved on the one hand and because there were different governments involved and different companies there were political issues that had to be recognized, although they didn't always lead to, either the expeditious or best solution for Syncrude. At the same time that we were negotiating Syncrude, Alberta and the federal government were getting quite upset with each other, who was getting the money and so forth. So that the environment was difficult at time, but we ended up, after about a year and a half I guess we finished up I think it was the end of October with the final documentation but we had contracts and papers and documents that were signed by all the parties were several hundred pages of paper. It was a difficult negotiation and there was a great deal of time and effort went into it. I think Imperial probably contributed substantially more than its

proportion of the effort during those negotiations but the documents when they were finally signed they provided a basis that I believe has been reasonably satisfactory to work with and there's been minimum problems within Syncrude because of it. But I think the very fact that there were several owners and all their interests weren't the same at any one time was bound to make it. .

#187 NM: That helped, that was helping.

JL: Oh yes, well that was bound to make it more difficult. And with the Ontario and the Alberta and the federal governments having different political interests at one time we complicated it some little bit. But I think the real triumph with Syncrude as far as I was concerned was the fact that while we were doing all this progress was being made on the construction. If you go to Fort McMurray now Syncrude is a vital and growing concern that's producing oil from the tar sands, perhaps not quite as profitably as everyone had hoped but profitably.

NM: But the cost is astronomical.

JL Well, the cost was high but the cost for drilling wells off Hibernia is high too and nobody knows how they're going to get the oil onshore yet. So the thing I think is, it's working and it's working with a profit. As I say, it may not be quite as profitable as everybody had hoped it would be but it's working with a good profit.

NM: It's a long term development.

JL: Syncrude had at least reserves of tar sand that were reasonably available to the plant for at least 20 years. I think with some development of technology of moving materials they can probably go quite a bit further than that. It's long term, long producer and a very substantial contributor to Canada's oil supply.

NM: What was exactly your involvement with Syncrude?

JL: I had been involved before it became the crisis that it did, when it was an experimental or a research type of project as one of Imperial's representatives on the research committee and the management committee of the experimental aspects. Then when it became, after the meetings with governments and industry and it became a project and a commitment to go ahead I'm not just sure I was on the Board of Syncrude maybe before that, I think I was but certainly, at that time, it became a much more demanding job. And the one 9 month period I think I spent, there were only 2 weeks in that 9 months that I didn't spend at least some time in western Canada or some time in Toronto when Syncrude meetings were here. About 90% of them were in western Canada so I was in western Canada at least once almost every week during that period.

#231 NM: That meant a lot of travelling.

JL: It was a weekly routine. Probably go out Tuesday night and come back Friday night kind of thing.

NM: What do you think of the National Energy Program?

JL: Well, I think the National Energy Program was ill advised and at the time it was put in place and I thought it was then, and of course, events since have demonstrated that it has been a disaster really for the petroleum industry. I think many of us recognized that there

was going to more government taxation if you like, of the industry but I think the form of it has greatly handicapped the industry as a whole and it's crippled a good many members. There are many aspects of the National Energy Program that we could talk about and I've had, when I was actively working made many speeches about the National Energy Program. I don't know that we want to go into all the bits and pieces here but it's going to have to be changed and revised and revamped to accommodate, or if the government wants to accommodate a growing and prosperous petroleum economy.

NM: How do you foresee the future of the oil business in Canada?

JL: In some ways the future has started to develop. I told you a few minutes ago that I've been involved in a long period of growth but the latter part of my period was managing a declining demand and I think that's going to continue. Perhaps not at quite as rapid a pace but there seems to be ways every year that consumers and people that use petroleum in various ways cut down their need for it. So I think that it's going to be a smaller volume business, there's going to be more selective markets. The domestic heating oil market has largely disappeared through most of Canada. I think there's going to perhaps be some changes in the chemical supply too and I think as the price is much higher now. It's not as high as some of the forecasts maybe for the National Energy Program but with higher priced raw material it's important that liquid petroleum, crude oil is used efficiently and for its highest, best possible use. Now natural gas is in over supply in Canada, it looks like it's going to be in over supply for quite a long while, so I think we'll see a continuing major effort to substitute natural gas for liquid petroleum where it can be used and certainly as a chemical feedstock.

#285 NM: You have seen the ups and downs of the oil business, what do you think of this situation, it's like a yo-yo?

JL: No, I think that it's a yo-yo but it's got a very long string because it went up from roughly about 1950 to 1970 or '72 and it's come down somewhat from '72, 3 or 4 to '84. I think it's probably going to go down somewhat but I guess the real answer is the petroleum business would appear to be a mature business and that it's going to have . . there area areas of petroleum growth and there are areas of petroleum demand shrinkage. On balance it's shrinking, the demand for heavy fuel oil, the demand for domestic fuel oil is shrinking. I think there's probably going to be a modest increase in gasoline demand and at least with restored economic growth there's likely to be a fairly significant increase in diesel demand. So I wouldn't quite put it as a yo-yo but like a lot of businesses it's changing over time. You only have to look at one of the monsters of economy, is the steel industry, which is changing radically.

NM: What do you think of the contribution of the province of Alberta, to the development of the Canadian industry?

JL: The province of Alberta has been, for all practical purposes the Canadian industry and I think they have, from the birds eye view point of view, have been constructive and encouraging to the industry. In the process of course, it was extremely helpful for the province of Alberta. In latter year I guess some of the details may be questionable and some of the arrangements that they had made under pressure with the federal government

that contribute to the National Energy Program and to the pricing arrangements. I might like to see some of those changed a little bit.

NM: This is the end of the tape.

Tape 2 Side 1

NM: Can you compare the training of the oil people in your time to what it is nowadays?

JL: Well, I don't know that it's training so much of oil people except perhaps the training they get once they join the industry and work in the business. But I think that people that are coming to companies from universities and from outside have a much more sophisticated technical training. It's just the way education and knowledge have grown in 40 years.

NM: And technology is changing all the time too.

JL: Yes, the technology is growing and the means of coping with it. For example everybody that comes out of university now has a reasonable familiarity with computer work. 30 years ago we didn't have any computers, just to put it in perspective, anything they did they did on a slide rule. I don't know that you can even buy a slide rule now. So I think that in order to cope with the technical complexity, the technical schools and technical training has increased tremendously. I think the same thing probably applies in the industry, that the people in the 1940's in the industry were well familiar and well trained with the activities that were employed in those days and the ones we have today are the same. I think there were imaginative developments in both times. The development of the technology that led to the aviation gasoline program and the synthetic rubber program in the war were big developments at that time. Now we've got other kinds of new activities coming on, like the Norman Wells water flood program and so on. Some very imaginative technical people have taken an idea and worked it into a commercial project.

#024 NM: Mr. Livingstone, what do you consider your achievements?

JL: I think probably it divides itself into about three categories or three time frames. Working in the 1950's, in the expansion of the supply system of Imperial at that time certainly was I felt personally rewarded by. You could see a need and you could see it being fulfilled and look back and see that things had gone nicely. I think the Syncrude development has to be one that, although very difficult was rewarding. And then in my career as President I was working very hard on the efficiency side of the company and trying to get it as effective and efficient as we could be. I think that was largely successful and I think it's been carried on and expanded on since I left. But I think it provided a basis for Imperial going into the recession of the 1980's and coming out as successfully as it did.

NM: Looking back at your career, what do you think of it?

JL: There aren't very many pieces I'd like to change. I was always I guess, a contented and enthusiastic worker. I enjoyed what I was doing.

NM: So that's very important. And this is the last question, on the whole Mr. Livingstone what do you think of the oil business?

JL: I would say the oil business has been a very dynamic element in the economic growth, not

only of Canada but of a large part of the world. I think sure, there's the odd thing that people would like to change and so forth but I think it's been much over criticized, I think the industry and industry people had worked hard to meet the requirements of their customers and of their native countries. I think it's been a good industry and by and large it's worked certainly, for the benefit of Canada. I think there are many people that have been critical of it. They've been critical as consumers largely because of price, they've been critical on the basis that the industry made a lot of money but the industry invested a lot of money and spent a lot of money. I think I could say that in my whole period that I was involved with Imperial Oil that the refining and marketing part of the business was almost without exception, running on a very low profitability. Sometimes we used to wonder why we were continuing to expand because the profitability was so low. But we always had the hope that if we were a little more efficient and got a little more business that tomorrow would look better than yesterday. I think it's been a good business and as I told you a minute ago, I enjoyed my career, if I was able to turn the clock back I don't think I'd change.

NM: That is a great positive attitude. Thank you very much for this interview Mr. Livingstone, I have really enjoyed it.

JL: Thank you.