

LARRY K. BROCKE

PETROLEUM HISTORY SOCIETY OIL SANDS ORAL HISTORY PROJECT TRANSCRIPT

LARRY K. BROCKE WAS BORN IN EDMONTON ON FEBRUARY 10TH, 1944 AND GREW UP IN COLD LAKE WHERE HIS FATHER WAS THE HIGH SCHOOL PRINCIPAL. IN 1962, HE BEGAN B SC STUDIES AT THE UNIVERSITY OF ALBERTA AND COMPLETED ONE YEAR AND LEFT BECAUSE THIS WAS NOT THE RIGHT COURSE FOR HIM. HE WORKED FOR THE RESEARCH COUNCIL OF ALBERTA FOR TWO YEARS IN THE SOILS DEPARTMENT AT THE U OF A AND THEN RETURNED TO THE UNIVERSITY AND COMPLETED A B SC DEGREE IN AGRICULTURE WITH A SOILS MAJOR (1968). IN 1970, HE OBTAINED AN M SC IN SOILS. HE TAUGHT FOR A YEAR AT FAIRVIEW COLLEGE IN NORTHERN ALBERTA AND THEN ACCEPTED A JOB IN THE LAND USE ASSIGNMENT SECTION, ALBERTA LANDS AND FORESTS (DECEMBER, 1971). HE NEXT WORKED IN BUSINESS AND, IN 1975, SET UP HIS OWN CONSULTING FIRM – PEDOLOGY CONSULTANTS, THE FIRST CONSULTANCY IN THE PROVINCE TO FOCUS SOLELY ON RECLAMATION PLANNING. HE LEFT PEDOLOGY IN 1978 AND SET UP WESTERN SOIL AND ENVIRONMENTAL SERVICES. IN 1981, HE BECAME CHAIRMAN OF THE DEVELOPMENT AND RECLAMATION REVIEW COMMITTEE SET UP BY THE GOVERNMENT OF ALBERTA AND DESIGNED TO REVIEW ALL MAJOR PROJECTS DEFINED IN LEGISLATION (COAL, OIL SANDS). IN 1993, BROCKE SUCCEEDED JOHN KING AS DIRECTOR OF THE LAND RECLAMATION DIVISION. AS A RESULT OF GOVERNMENT (DOWN-SIZING) REORGANIZATION IN 1998, HIS POSITION WAS ABOLISHED HE LEFT GOVERNMENT AND HE SET UP HIS OWN CONSULTING FIRM MILLENNIUM EMS SOLUTIONS LTD. HE RETIRED IN 2009.

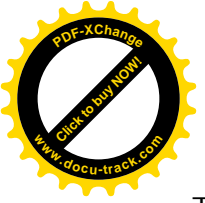
Date and place of birth (if available): 10 February 1944, Edmonton, Alberta

Date and place of interview: 22 January, 2013

Contact Information of Interviewee:
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Name of interviewer: Adriana A. Davies, CM, PhD

Name of videographer: Jimmy Bustos

Consent form signed: Yes

Transcript reviewed by subject: Yes

Interview Duration: 2 hours, 19 minutes

Initials of Interviewer: AD

Last name of subject: Brocke (LB)

AD: It is January the 22nd, and it's 9:47 a.m. My name is Adriana Davies, and I'm a researcher/interviewer for the Petroleum History Society Oil Sands Oral History project, and this morning I'm interviewing Larry Brocke. Larry, thank you so much for agreeing to be interviewed.

LB: My pleasure.

AD: Now, Larry, can you give me the time, date, and place of your birth, because this is going into the Glenbow Archives and we need to have that information.

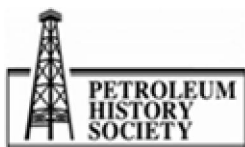
LB: I don't know the exact time, but it was February 10, 1944.

AD: Excellent, and where?

LB: Right here in Edmonton.

AD: In Edmonton. Now, could you give me sort of a three-minute summary biography, and of course [in the later] questions then you'll be able to talk about your employment and so on, but just, you know, thirty seconds education, jobs, etcetera?

LB: Sure. I grew up in Cold Lake, Alberta, where my dad was principal of the high school. Came to Edmonton to go to the U of A in the fall of 1962 and enrolled in the Science Faculty. After the first year, I was not sure what I was doing there, so I stayed out a couple of years. Got a job with the Alberta Research Council as a lab assistant in the Soils Department, Faculty of Agriculture, working for Dr. Fred Cook. And that kind of tweaked my interest over the two years. I decided that from



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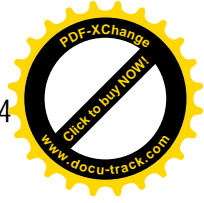
there I would go into the Faculty of Agriculture in Soil Science, which I did. Graduated with a major in Soil Science in 1968. Continued on, did a Master's in Soils, and graduated in 1970. At which time, then, I needed a job. So I had two choices. I had worked with the federal Department of Agriculture in earlier years on their Soil Survey program. I could have gone with that, but I had to relocate to Newfoundland. My other choice was to stay in Alberta, go up to Fairview College, and be the Soil's Instructor, which I opted to do. And it was there, working in that, got a call from a gentleman I'd known for a long time: "There's a job available in the Department of Lands and Forest, and I think you'd be really good at it and if you're interested, apply." So, okay, I did. Got the job. Moved back to Edmonton, in the fall of 1971, I guess, and was working there in the Land Use Assignment Section. And strangely enough, the area they assigned me to was back up to Fairview and west of Fairview, which was okay. I felt sort of familiar with it. And I stayed there for a while, and then got an offer completely out of, out of my background, and that was to be a sales rep for a business systems company. So, okay, I'll do that. That was an opportune thing to do at the time. I learned a lot about sales, and business, and operating, and so forth. It was very good. And, incidentally, it was at that time when the legislation came affecting major projects like coal and oil sands.

And, in that time period there, from 1973 to '75, I started getting a number of phone calls from companies: "We need some help here. We need soils inventory and help developing reclamation plans. That's the new requirement." And so I started doing some of those, and because I was working I had to do them on the weekend, which I did, which was fine. Finally, it became there was so many of them that I formed a consulting company [with two partners – Don Pluth and Len Leskiw to do that], called Pedology Consultants. And we worked really hard and did lots of inventories for major resource projects and helped them with their reclamation plan. And, along in there, about two or three years into that, I left there and started another one, Western Soil and Environmental Services. Did that, doing the same business, same work. I got maybe a little bit more involved with helping the companies with their regulatory obligations—I guess you could call it. And worked and worked at that. And I guess maybe got tired [laughter]. And, incidentally, got a phone call from a guy that I had worked with a bit through what we were doing, from the Department of Environment, saying the Chairman of the Development and Reclamation Review Committee was leaving, and they need a replacement: "If you would be interested, we think you would be really good at it." So, I applied and got the job. Started in the Department of the Environment in the beginning of April, 1982, as Chairman of the Development and Reclamation Review Committee. And we'll talk about that later, I guess. And I was all the way through the department and became Director, Land Reclamation Division when the Director that hired me retired. So it would have been ... what date? Early '90s somewhere. And stayed there until there was a massive reorganization of the department and regionalized everything and the position of Director, Land Reclamation, was abolished, and I thought well it's my time to get out of here, which I did. And I set up another consulting company [with partner Derald Starchuk] called Millennium MNS Solutions, and boomed along on that.

[Interruption]



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AD: Okay, yes. You're going to have to put down the paper because he [the videographer] can here the crackling.

[Videographer: Sorry, I just want to make sure it's nice and clear for you guys.]

AD: Okay. The other thing is I'm going to turn the heat down because, as you know, it sounds like a jet engine. I don't want it to get too cold but [faded out].

[I just want to make sure I can hear that.]

AD: Otherwise, everything is okay?

[Oh ya.]

AD: Larry, thanks for the overview. And now I'm going to ask some questions to do with the area of land surveying with respect to resource projects and then reclamation. Because it sounds like you started in the private sector as your own consulting company but then you moved into government. So, when you started, you know, what was the state of the art, what was the practice to do with land reclamation?

LB: You mean in the 1970s, way back there?

AD: Yes.

LB: Well, it was a brand new thing that major projects, and that was brought in by the 1973 legislation, where major projects had to get a development and reclamation approval from government, essentially the Department of Environment. And that was new in that time. And they needed to get soil survey information. They had to know what they started with, so the reclamation plan then had that goal to return back to what it was before. So that's where we fit in, in doing soil surveys or an inventory of the soil resource that was there and what the landscape was and all that. And that then worked in with the company's project plan or mine plan, if it was a mine. And it helped them develop their reclamation plan so that it was integrated with their development plan, which makes a lot of sense to do that. So, that's how it all started and went through. There were, you know, little things that came up throughout where improvements were made. There were amendments to that legislation, particularly in 1983, just after I went to the department that I pushed for was the objective of reclamation to be the return of land capability as opposed to productivity, which made way more sense to me. And that's what we strived for and that became part of the legislation in '83.

AD: Can you describe the difference between those two states of the reclaimed land and why you pushed for that change?

LB: It was not so much that there was a difference in the state of the land. It was just what measure were you going to use to determine success. Productivity, as you know if you've gardened or



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anything, you manipulate productivity with your management—fertilization, watering, all that kind of stuff, which on big projects like a mine or whatever, you don't ... or it's not a good idea to have your objectives subject to management. Capability, on the other hand, is what the land, the soil, is capable of, with no consideration for external management factors. So that's why we switched over.

AD: Now, in the '70s, when you were doing independent work, do you want to give me an idea of some of the projects you worked on?

LB: Through that time period it was predominantly coal, because there were more coal operations, they'd been in operation for a long time, and the plan—the government plan—was to get them in order. And so that's where most of the time was spent. Oil sands at that time was two projects, basically, Great Canadian Oil Sands, now Suncor, and Syncrude was just coming in in the early and mid '70s. So I didn't have much, or any involvement in oil sands at that time.

AD: So then tell me about the move to government and then what your responsibilities were.

LB: In 1982, when I went to the Department of Environment as Chairman of the Development and Reclamation Review Committee, that committee was introduced in the 1973 legislation along with the requirement that major projects had to get development/reclamation approval. So, the D and R Review Committee was a group of folks—mostly within government—that were charged with reviewing a company's development and reclamation application. And that's what we did. Our chore was to review it—all the technical aspects. All the government departments with any interest at all were a part of it. We regularly reviewed all the technical parts of the application, questioned them, brought the company in, had them explain, went out to the site, looked, visited, trying to get an understanding of how the operation works and how this would fit it. And make it so it would work. That's what we did. And we'd come out of it with an approval, with approval conditions that the company was to follow in their operation. That approval was then headed off to the Director of the Reclamation Division for signature and issued to the company.

AD: Now what were the other departments that were part of this process besides Alberta Environment?

LB: There's whole bunch of them, but trying to remember them all: Agriculture, obviously, Culture ...

AD: Just to pick up on that, now, Culture would have done what?

LB: That was from the archaeology point or side of things. If they'd found something when they were mining, Culture needs to know about it. And Department of Lands and Forests. Resources, Forestry in there, Fish and Wildlife, Energy was all one at that time, so had members on the committee. ERCB had two, both coal and oil sands parts.



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AD: I'm sure you'll think of some more. You know, can you give me an idea of the piece of the legislation that dealt with land use and reclamation. You know, what was its specifics, because what you did spun out of that.

LB: I don't know if it was so much to do with land use there, but the legislation and reclamation requirement was to ensure that you could reclaim the land back to as close to the same usage as it was before.

AD: Okay, very simply put, but elegant. Now I gather that Alberta was an innovator in this area. Was that your sense of it at the time, you know, in the 1970s when you started to do this work and then when you went into government?

LB: Absolutely. We were, Alberta was way ahead and, not coincidentally, I don't think, because there was a lot of activity here. And starting way back in the '40s. Initially, it was spurred by public reaction to upstream oil and gas. Well sites—do something with them. You can't just, you know, drill a well and then walk away. You have to reclaim. And so that was the start. And by '73—that was in '63—by '73 then new projects came into the legislation, which was coal mines and oil sands, pipelines, things like that. To get them when they're planning their project to plan for reclamation as well.

AD: I'm being very precise in my questioning because in terms of contemporary environmental opinion that, you know, the province and the federal government have basically let the companies run roughshod over the environment. But that is not your sense of it, either as a consultant working in the field and then working within government.

LB: Definitely not. We worked very hard to work with companies to understand the operation. You gotta understand the operation too. You can't just impose something. You've got to understand how it's going to fit in, how it's going to work, how they can do it within the operation. We worked very hard to do that. We worked, and we got good results. If we wanted to go check the numbers or do a tour around the coal areas, you'd see how much land is reclaimed. And I defy almost anybody to tell the difference between what's been mined and what hasn't, especially in the prairies. It's now back to agriculture.

AD: Now, what was the first big project that you were involved in once you joined the government.

LB: Oh dear [laughter].

AD: Or just some interesting projects.

LB: They were all interesting at that time. It was busy. Lots of coal mines and ...

AD: Give me some examples.



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LB: Oh the ones that were working at that time. Some of them I had worked on before I came to do their soil inventory and help them with their reclamation plan. Then I wound up being the regulator and reviewing my own work [laughter]. There was a number of those, which was interesting to say the least.

AD: So that would have been in the Rocky Mountains area?

LB: Both plains, foothills, and in the mountains, for coal. Alberta is everything, right? You have all kinds of ecosystems and areas that are all a little bit different, but our resources occur in all of those areas.

AD: What was your first involvement in the oil sands, and I assume that would have been as a regulator?

LB: I did one soil inventory for a project before government, but that project never went ahead.

AD: Which project was that?

LB: I can't even remember the name of it now, but it was north of Syncrude and on the east side of the river. It never did proceed, for whatever reason. That was their decision. And then went to government. The involvement up there was both Syncrude and Suncor and getting them working.

AD: Now Suncor, of course, had started before the 1973 legislation, so how did you and the team deal with Suncor?

LB: Well, ya, it was a bit of a catch-up, for sure, to get it ... Because they had already started, so they had some areas that had been disturbed already, and soil salvage wasn't part of the thinking at that time when they started in the late '60s, early '70s, before the legislation requirements. So, ya, there's some catch-up work to do there, and get things working so it could be dealt with.

AD: So what was done, because I'm interested, as future historians will be, in the details and how was Suncor treated and what kind of studies were done and so on?

LB: The thing was to be reasonable and to see if we could catch up now. With, you know, there were areas with more topsoil than what may be required for return. And we could get the areas that didn't have any salvage. Anyway, work it all ... Again, we spent a lot of time with the companies working out how it could be done in a practical, reasonable fashion and still get what we wanted to get.

AD: So basically we're talking about the strip mining operation, which is the mining side of it, and then what about the Tar Island, the tailings pond, did you deal with that as well?

LB: Yes, that was all part of the operation. And it does ... that was one of the major issues to deal with in oil sands up there where they're processing. You wind up with tailings. That's just what you



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do. So you have to deal with it. It, to this day, remains a question that's not entirely solved. They're working on it. Tar Island has been put to bed, if you like, and done with. And that was all worked out together with the regulators—how it was going to happen, given the time it was started. You have to understand these things and not say "That's what's required today, so that's what you gotta do today." Well, the plan didn't include accommodating that when it started, right? So you have to be reasonable too.

AD: So hindsight is 20-20. So what would have been the requirements for Suncor's mining side, in terms of the reclamation. And, then, the Tar Island dyke/tailings pond, at that time? You know, we're talking about the early '80s now, when you're actually ...

LB: Well, the thing, when the legislation came in, the mine was already underway and Tar Island was already there. So, now, you gotta deal with what you've got. You're not going back, right? So that's kind of where it was with that. But, like I said, we worked very carefully with the companies to see what could be done. If they would have come in after 1973, the requirements would have been way different. Soil salvage would have been there, to accommodate both the mine and reclamation of the mine and Tar Island. It could have been—I'm not going to say for sure—but it could have been Tar Island would not even have been approved. They'd have to move the tailings away from the Athabasca River. So ...

AD: Now, in terms of the reclamation requirements with respect to Suncor, do you want to talk a bit about those and the time frame they were given, and how did you arrive at this?

LB: Well, from the knowledge we had, in conjunction with the new legislation and all. There was research going on from the beginning. There were things being learned, and we took them and applied them as we could, whatever they were. And a lot of that early stuff had to do with soil salvage—how much? And how much do you have to put back? Not just topsoil, but subsoil root zone, and what if you ran into something down there that's toxic to plant growth? Soading material, which is quite common in Alberta, even up in the oil sands. Then, you've got to salvage good material or suitable material to put back on top of that so that it doesn't affect your plant growth above. All of that had to be figured, and that relied on their soil inventories, which we were doing.

AD: Now, I think of the conventional industry [oil], and you've brought that up, I mean, you know, wells occur in conventional industry in the middle of wheat fields where there are crops and so on and so that's arable soil. Now, with respect to the oil sands, we're dealing with muskeg, which is not arable soil in terms of it doesn't have an agricultural use. But, of course, it supports various species, so what was the reclamation criteria specific to muskeg and, you know, areas of permafrost in terms of agricultural purposes or even forestry purposes when those don't apply?

LB: No, no agriculture up there. Just forestry purpose. And again that depended entirely on your pre-site inventory of resource. So, ya, there's commercial forestry. So just for an example, say, take an area, and half of it is commercial forestry and the other half is wetland muskeg, which is pretty common area-wise. Like you say, there's lots of wet area up there, but there's lots of commercial



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forest too. So, in your reclamation plan you want to get back to what you had before, or as close as you can. So, commercial forest, salvage soil, put it back right, so you can grow commercial forest. Wetlands are always an issue, cause those things don't occur overnight. Nothing occurs overnight, right. In reclamation, that's why we went to capability. It says it's capable of doing that. But, if you look at what's there when you started, that evolved over the last ...

AD: Thousand years ...

LB: Twelve, 15 thousand years, since the ice left. So, there's all kinds of natural things happened in there that you can't account for. Fire being one of the big ones that can do things. Drought versus a very wet period—all those things affect things. All you can do is provide the landscape back that is capable of providing those things. You can't put it back the way it was immediately. You just can't.

AD: So what would have been the timeframe for the reclamation plan for the Suncor site? You know, the duration.

LB: That was a huge topic of discussion at the time, trying to impose a timeline on them. And most everybody at that time didn't have any understanding at all what time might be. So, the forestry folks came back for the forested areas and would assess it at some time when the seedlings, whatever, whenever you could just then had enough information, growth information, to say, "They're in a free-to-grow state. Good. That's all we can do." Wet areas are a little different, and I don't know that I can say much about those, because you can't replace muskeg either.

AD: Well, you see, that is what I think is significant. The models for reclamation were really to do with projects like, you know, mining and drilling in arable land areas, not in areas where you have some borderline forestry operations and then muskeg that wasn't ... I mean it was perhaps used by Aboriginal people for traplines, I don't know. We're getting into different areas.

LB: Yup, it's quite different.

AD: So, in other words, you're with oil sands, you're dealing with land that has evolved over millennia and that the criteria isn't getting it back to a use, an agricultural or other conventional use. It's ...

LB: But the plan is understanding the timeframe, the plan is making sure that what you put back is capable of getting there, where it was. So that's reclamation. It goes to another question then, versus restoration.

AD: Yes, capacity.

LB: Restoration is put back what is there right now. You can't do that. Reclamation, the intent is to provide the ability to get back there, not to put it there. How could you go back and put back 80 or 100-year-old trees? You couldn't. Or four, six, or eight feet of muskeg. You can't. It's got to evolve itself over time. You just provide the ability for it to happen.



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AD: Would it be fair to say that the oil sands really provided challenges and it was a new area of resource development that traditional land reclamation criteria just couldn't address?

LB: Na, I wouldn't say that. The whole of reclamation was pretty new. It was all evolving, everywhere. And the research that was going on provided information and then we'd implement. More, we'd say, "There's a problem here." Well, then, the research folks would dig into it for a few years. The Research Council in conjunction then with the legislation, in conjunction with the D and R Committee. There was a research, reclamation, technical advisory committee to define research needed. And it was, they were part of the D and R Review Committee, so they're familiar with the issues and worked on them, the research side.

AD: So then, if I'm understanding you correctly, the Research Council of Alberta also was involved in defining reclamation requirements and research into reclamation.

LB: Oh, they were, research, absolutely. They were part of it, to understand what the issue was and then to go and research it.

AD: Okay. So, in other words, the government was involved not only in setting the regulations and then monitoring to make sure then that those regulations were met, but also in terms of the research establishment, the Research Council of Alberta, that was looking at those issues as well.

LB: Oh yes, definitely.

AD: And so RCA members would have been a part of the D and R Committee?

LB: The Research Council had a member on the committee, and they did pull out at some point there, but the liaison was still there through the reclamation research technical advisory committee that was always there.

AD: Okay. And how long in advance to a project development and implementation did the whole, the request for a permit to develop and then, you know, setting in motion development of the inventory and then the reclamation plan? What would have been the typical time frame?

LB: Somebody's talking in there.

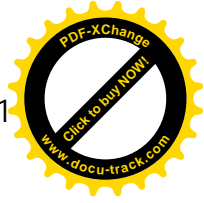
[Other voice: Sorry my alarm went off.]

AD: Okay.

LB: Okay, a couple of things here, I guess, and I'll use coal off the bat, because it was first. But it was set as a two-step process. And the ERCB, who's the overall regulator of energy resources, required, had a two-step process, which was first, a permit. In other words, you'd apply for a permit for a coal mine. The board would determine from that application whether this project, whether there's coal there, whether it's a reasonable project, and is it in the public interest? If yes, the permit



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was issued. Then they'd apply for a licence to operate, which then is where the environment approvals tied in with the licence. Not to say we ... There was input to the permit, because part of the permit application was also environmental impact assessment, which comes from another division in the department. Relatively high information, looking for the impacts, where the effects going to be, and so forth. So, then, when you come to the licence, then the D and R approval process kicked in, in conjunction with the mine licence. And we worked together on that, back and forth between us and the board, always the company's there, so we could work out this within this operation, because not all operations are the same. Different areas, different things, all kinds of things make them all unique in their own way. So, we worked on them that way. The board was satisfied they could have a licence to operate and we were satisfied that the environmental side and reclamation side was doable as well.

You jump to oil sands then, it wasn't quite the same. There wasn't a distinct two-step process, so you had to get working on both at the same time, which created some issues. But, in any event, it worked. Time frame? A permit could take anywhere from a year to two years to get through the application preparation, the review through to a hearing, should the board decide there needs to be a hearing, and then the issuance. It would be a year, at least a year. More like closer to two years. And then, an application for a licence, typically less time, because it's, then, it's technical review, get on it, do it.

AD: So it was not instantaneous.

LB: Absolutely not, no.

AD: And the company couldn't just say, "We want to do it, and we're going to start doing it next week"?

LB: No, no.

AD: Now, you would have been involved in, with respect to Syncrude, because as you know the environmental impact assessment lasted from 1975 to 1985, although a huge portion was done in that 1975 to '80 period. And this was both the environmental impact assessment and the social impact assessment, which was a first. Now, you would have been at the ministry when the whole land reclamation aspect came up. Can you talk a bit about that?

LB: No, I would have been ... I was there when the renewal. The initial was already done.

AD: Okay.

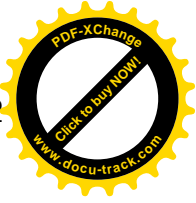
LB: And, then, like you say, in '85 it was up for its 10-year renewal, so then I was involved.

AD: So do you want to talk ...

LB: I wasn't involved before that.



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AD: Okay, do you want to talk about that then, and what did that involve?

LB: Well, like I said before, that there's application requirements, there's soil inventory, the reclamation integrated with their operation plan, how it was going to work, where they're going in the next 10 years, how that's going to affect everything, what's going to be affected. And then we reviewed all those aspects, along with the ERCB, because they would also have their operating licence, so it was as integrated as it could be for requirements and making sure it could work within the operation.

AD: Now, did the approvals for Syncrude at that point differ in any way from for Suncor?

LB: Well, there were ... I can't remember the details. It was this thick.

AD: Ya.

LB: But, ya, each project could have a number of conditions that would be different from the other one, because they're put together to apply to that project, so they could ... They're not all the same, right? All projects aren't the same. There are some things at the upper level that are ... ya, you gotta do this, you gotta do that, but the details of how you do that will be different.

AD: And the Syncrude leases were different from those of Suncor, and the conditions for the tailings pond were different as well. Now, again, do you remember any of the details pertaining to the land reclamation for Syncrude?

LB: Particular details, I don't know that, but certainly soil salvage now was a requirement. Where, how it was going to be stored for future use. Those had conditions on them. You know, it couldn't erode away in the 25 years from now when you needed the material. It's not there. And use it as quick as you can. Things like that became requirements on all mines. Not that any one of them was pinpointed and said, "Okay, you're doing this." All mining operations were basically treated the same in terms of the overall requirement. The specifics would be different.

AD: Now, let's talk about that. You've got the strip mining operation. But, then, in terms of the extraction, of course, you had water, water impregnated with oil, and then you had the fines. I mean the sand. I mean you had these various elements that were a part of the by-products of extraction. So, there were really two kinds of land disturbances and materials arising from that. So, how did you regulate that process?

LB: Well, basically, designating the tailings pond. Because the material you're talking about is tailings, whether it was a ... Once they're in operation, you may designate a part of a pit that's been mined as being for tailings. When you're starting, you don't have that. So, you have to build a tailings pond, which, that was what Tar Island was. Syncrude has an external one too that's on the surface that is for containing tailings. So, those were issues. Now, they are into tailings disposal or storage in mined-out pit areas. And that's just part of the rationale of the operation.



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AD: And that again would have comprised a part of the reclamation strategy, what they were allowed to do. I mean, because people think that with its proximity to the river that, you know, Tar Island, that there was seepage into the Athabasca. Well, that was regulated. And that, in fact, the bitumen that is in the river has traditionally been in the river, because it breaks away from the bank and, you know, and floats. So, that it's there, so the whole issue of seepage. I mean, maybe at the beginning there might have been, but certainly as the earth dam technology improved there wasn't going to be seepage.

LB: And that was part of the issue there with Tar Island. It did seep, at the foot, but they also had a big canal there that intercepted it, took it to another pond, back to the original pond. So the likelihood of very much getting in the river is pretty slight.

AD: So in other words, the whole reclamation plan dealt with all of those aspects of the operation.

LB: Not so much that. That more the operation, more the ERCB licence to operate, ...

AD: Okay. Right.

LB: Dealt with that, although there were environmental issues there, obviously.

AD: Right.

LB: But not so much on the reclamation plan. That was more, that's way, way in the future.

AD: In the future. Right. So, Syncrude has reclaimed an area, and they chose in consultation with the Aboriginal People of the area to make it into a buffalo paddock. Now, the reclamation plan for Syncrude wouldn't necessarily have envisioned that, would it?

LB: No, but it was accommodated in the plan.

AD: Oh, can you tell me a bit more about that?

LB: Well, it was there as part of an application. It was worked in and was accepted at the time as one of those uses for the future that would be acceptable. That's where it started.

AD: So, it was in the original plan. That's interesting, you know, because you talked about that, you know, there are commercial forestry operations and that ... So, if I understand it, then, I mean the presence of these various government departments and agencies, like the Energy Resources Conservation Board and then the Research Council of Alberta were there so that broader vision of the resource but also its utilization and then remediation, which is what reclamation is about, that expertise was around the table.

LB: Oh ya. Let's not confuse reclamation with remediation.



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AD: Okay.

LB: Two different things.

AD: Well, talk about that.

LB: Remediation in its truest sense, I guess, deals with contamination and cleaning that up.

AD: Okay.

LB: Whereas reclamation is reclaiming the land to what it was. And in that business with the buffalo paddock, for example. It was still a return of equivalent capability, but in that definition of equivalent capability it didn't have to be the same use back but an equivalent kind of use. So, you could switch from forestry to agriculture or agriculture to forestry as long as the equivalency is there.

AD: And so, they were respecting the wishes of the Aboriginal People with ... that had been, I mean, ... the impact assessment, the largest component was clearly Aboriginal land use, so that the Aboriginal peoples' wishes ... and, of course, there's Wood Buffalo up there, so you could see why they would want that type of usage. It's ... again we go back to the models that had been for coal mines and the conventional industry, largely in agricultural land and that here, these were large tracts of land that other than that, you know, there was fishing, there was some forestry, but largely it was hunter-gatherer lifestyle, I mean, it was trap lines and very, very different in that area.

LB: Oh ya, and not the level of use that you would see down in the populated areas.

AD: And, then, when you bring up the whole remediation, of course, any land that has been saturated with petroleum—I'm thinking of the conventional stuff—then remediation. But again, when we're dealing with these huge tracts of land where the petroleum is naturally existing and the requirements are not to get it to remediate.

LB: Oh, you have to remediate. I didn't say there's no remediation.

AD: Okay, okay.

LB: If there's land polluted or contaminated, it definitely has to be cleaned up.

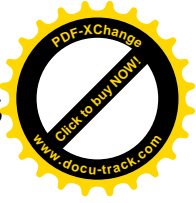
AD: So, in other words, where the extraction plants were and, of course, the mineable resource has a limited time span. And so that 20 years from now, there may be no longer any mining up there. It may be all SAGD and in situ extraction, so that where the plant actually sat, then, there would have to be some remediation.

LB: Absolutely. You have to clean up the site.

AD: Is that a part of the land reclamation plan?



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LB: It does become that now.

AD: Okay, but not at the time.

LB: Not then. There was another division within the department and in conjunction with the ERCB that dealt with contamination.

AD: Okay. Now we've ... a huge issue up there is to do with water management and water quality. What did the reclamation plan for Syncrude say about that?

LB: Again, it was control it. Control. Do not allow runoff off site. Control. Contain it within the site. Have settling ponds. Treat it if necessary. Test it. Release it to the outside when it was of equivalent quality to outside. That was the big thing, to contain it. Don't allow runoff to run right through the site, because then you would have contamination offsite.

AD: So that was ... would that have been a part of the reclamation plan?

LB: It would have been part of the operating plan. Ya. Yup, it fits in there.

AD: Okay, but the monitoring happens through another agency, then.

LB: Well, they had there ... Ya, that's right. The conditions were set by them, another part of the department.

AD: Ya, the Energy Resources Conservation Board.

LB: Well, they were part of it, but there was the Pollution Control Division within Environment had big input there.

AD: So that, in other words, you know, the legislation, the Environmental Protection Act, didn't just sit on a shelf. It was implemented and made actionable through a number of these agencies and processes. Is that fair?

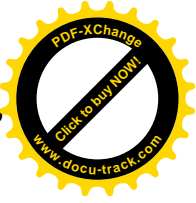
LB: Oh, absolutely. Yes.

AD: And, then, in terms of what the Land Reclamation Act required, it looked at water management, it looked at (I gathered from the literature you shared with me), materials handling, which dealt with the conservation of soil materials, materials placement and contouring, revegetation and interim land management, physical infrastructure access and haul roads, aesthetics, and safety. So this wasn't token.

LB: No, not at all. Not at all! It was very serious. The companies took it serious. We worked with them. I'm not saying it was a walk in the park every day. It definitely wasn't. But that's why we were there. We went up to the project to understand the operation. Is this even practical to do, what we



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want? Yes, no, well adjust it. Make it work. Similarly, the companies had to adjust their operations to accommodate. You know, it wasn't just like that. It was work it out, work together, make it work.

AD: So, you know, as a soil scientist, I mean, it opened up all sorts of career areas and opportunities for consulting and working within government that weren't there prior to the existence of the legislation.

LB: Absolutely.

AD: So you saw a huge boom not only in petroleum engineering but, of course, where Alberta became an international leader. But also, in terms of soil science and the whole reclamation area.

LB: Absolutely.

AD: Which is, you know, which is intriguing. And when you look at the technicalities, and of course you've written some of those papers, you've presented some of those papers on behalf of the Government of Alberta as the regulator and you've referred to terminology, you know, reclamation versus remediation, but again in the papers you gave me you were also dealing, you were also defining terminology, weren't you? I mean, because there's reclamation versus restoration, reclamation versus remediation, conservation versus reclamation, land versus water, scientific possibilities versus practical realities. I mean, this is an emerging field.

LB: Absolutely. And that's the way we dealt ... and that's why I say what I just went through: getting up there, working with the company, learning about the operation, understanding it, and then understanding what the legislation is and see how we could put it together and make it work. That's what we did.

AD: So, do you want to talk about this reclamation versus restoration? What does restoration, what did it mean, what does it mean?

LB: Well, I think I went through it earlier. Restoration is putting back exactly what is there now. In most ... Anywhere, you can't possibly do that, especially in a forested area. To do that, you'd have to come back and plant 80-foot-high trees that are a hundred years old.

AD: The peak, I mean ... Well, ...

LB: Ya, that's what was there.

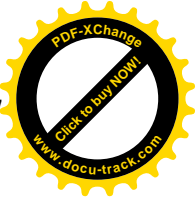
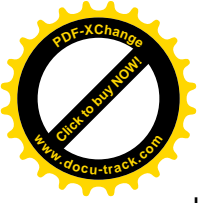
AD: Ya, Boreal Forest, 60 to 75 years old with maybe maximum tree species.

LB: Ya, so you're not ... You can't ...

AD: You can't do that.



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LB: You can't restore muskeg—eight feet thick of muskeg. You can't replace it, immediately. It evolved itself over many, many thousands of years. You provide the ability for it to happen.

AD: Exactly, and so planting seedlings or some of those kinds of things. Now, what about the conservation versus reclamation?

LB: I don't think that's a versus. They're together. They're, one works with the other. Strict conservation would be you don't do ... you don't go there. But applied in this sense, conservation applies to salvaging the soil material for use after.

AD: Okay.

LB: That's my view.

AD: And you know, what about land versus water.

LB: They're always two separate things. I mean, you've got to provide for water management or there's going to be runoff. There is everywhere anyway. So, in the reclamation plan, you have a drainage plan as well that'll work. And you have to have that. And that then is integrated with the rest of the plan. And every reclamation plan has to fit with the surrounding area so that it works. It's integrated. So, the drainage moves off so that when this reclamation gets to its peak, you know, 80 years from now or whatever, the landscape looks similar to what's beside it. It's not different. It's much easier in the agricultural area. Mining: typically after mining's done, they're back using it within five years, sometimes less. You can't tell the difference from what was mined and what wasn't. It's back in its original usage.

AD: So, you know, in terms of, then, bitumen, which is also mined and then processed and refined, and the complexities of processes and the duration of those processes, we're not talking about a five-year reclamation plan or a 10-year. That it is much, much more extensive than that.

LB: Over most of the area, yes, that's quite true.

AD: And I guess the public did not understand that.

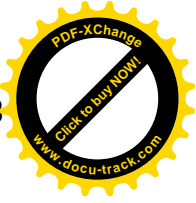
LB: That's right. Probably still don't. There are certain areas within that can be reclaimed and certified and moved out. Syncrude has one of those areas called Gateway Hill. I don't know if you're familiar with it or not.

AD: No, tell me a bit about that.

LB: But it was on the edge of the operation, early on, an overburden disposal area would create the hill on the edge of the lease area. It was used throughout its time to test various tree species and shrub species, 'cause this was early on in the whole reclamation concept up there. We're doing a lot of testing in different things, so that's what this area was used for. Things grew. It took off. Became



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a really nice area. Okay, now it's done. We're not going to tear it apart and start over. So, they were encouraged to apply for a reclamation certificate. Did it. Got a reclamation certificate. It's done: Gateway Hill. But you get farther inside the operation, then, the integration of the whole thing does introduce a different time factor, for sure. With the buffalo pasture, probably okay the way it is, but it's inside the operation. How are you going to certify and release what doesn't work very good with the operation? Because then there's a whole lot of other issues related to safety of public access and all that kind of thing. You just can't have. So, ya, time wise it's way different.

AD: So that's a bit of a showpiece. I mean, I have visited it, and they do take visitors out there. There was a Historical Resources meeting up there, so we actually not only visited the plant but we visited the buffalo paddock. Are there any success stories like that with respect to Suncor that you can think of?

LB: Oh, they've got lots of stuff going on too, but, again, a lot of it is within and not able to release, so you don't hear about these things. Right? I guess it's reasonable to say there hasn't been very much said about what's been done at these operations.

AD: Ya, the whole reclamation aspect of it.

LB: There's been very, very little said, which I think is a deficiency.

AD: And why is that?

LB: Oh, gosh, I don't know.

AD: But it's the government not saying, and the companies not saying.

LB: Right.

AD: But that these things ... They're compliant with the legislation, because the legislation is in place, the regulations and the different agencies involved are there and doing their job. So it's just a failure to communicate that.

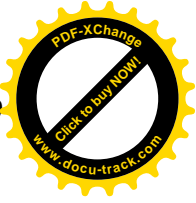
LB: I think that's a good way [of putting it]. And the processes, too, you have to remember, continues to evolve and get better. This big new monitoring program that's coming in. Some of the impression that folks have out there is that this is the first time anything's going to be monitored. Well, it's not. It's evolving; it's improving.

AD: And it's built on that solid foundation, you know, of those early years of the implementation of the legislation and the science around that.

LB: Yup.



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AD: Now, with respect to ... your tenure and your position and your serving as the Director of the Land Reclamation Division within Alberta Environment, you mentioned it was phase two, the renewal, the 10-year renewal for Syncrude, was there actual public involvement? Where there any hearings held at that time?

LB: There were ... There's a series of hearings always. And that's ERCB doing. And we always participated. They could call a hearing on any particular thing they wanted. Or if there was a question, or if there was public reaction. And they did that.

AD: So, there were hearings. But, in 1985, you know, the '70s and early '80s were discussed as the era of megaprojects and that certainly the environmental movement was active but not to the extent that it is today around megaprojects. But there were hearings held which was the normal way of the ERCB and the Land Reclamation Division doing its work. Do you remember any Aboriginal involvement in the process?

LB: Oh yes, yup. They were there. To hearings, always had their say. They were always working with both Syncrude and Suncor. A big part of the Fort McKay Band is ... they have huge employment at both of them. So, ya, they work in there.

AD: And so they would have participated in the hearings process back in the mid '80s. Do you want to talk about any other projects that you ... I mean, those were the early two, big two. Do you want to talk about any of the other projects?

LB: Well, there would have been other ones coming on that were treated with the requirements, same way. That would have been CNRL's Horizon project, Total's project, and any number of the in situ ones that were coming. They were all subject to the same regulatory requirements and went through the process. And we were involved that way.

AD: So, in other words, every one of these projects that has occurred has gone through both ERCB and D and R review.

LB: Let's rephrase that a little bit. ERCB and Environment.

AD: And Land Reclamation, because there was that division within Environment.

LB: And there's environmental impact assessment process and the D and R process.

AD: Yes. What is the relationship between the ERCB and the Ministry of the Environment and then the D and R Review Committee?

LB: I always thought it was good. It was a working relationship. They were involved with us within the committee to put forward what the operating plan was. How it was going to work, so that any of the reclamation requirements, environmental requirements, could integrate in there in a workable fashion. It worked well, as far as I was concerned.



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AD: So then this was all an approval process and so that a certificate could be issued for development. Now, is there any post-certification liability for corporations involved in oil sands development?

LB: Okay. When you're using the term certification, you're meaning when it's done and they're finished. All reclamation is done and there has been a reclamation certificate issued. Is that what you're meaning?

AD: That's what I'm thinking. In terms of my reading of the requirements.

LB: Okay. There can be. In the reclamation certificate itself, once you got that, you were free. That's how it always was. There was no liability beyond that. But for any contamination or plant sites, liability continued.

AD: I raise this issue because I'm thinking of the conventional industry. And some of these companies are no longer in business, and so the whole issue of contamination ... And I'm thinking for instance, say, of Turner Valley. You know, the first area where oil came in, it was extracted, processed, and it's a historic site now, or part of it is, but, of course, it's a huge reclamation issue.

LB: That was an area pre-legislation.

AD: Yes.

LB: So there were no rules. You know, the company's gone, the government's got it pretty much, hey. So there's been many, many dollars spent reclaiming abandoned sites. Not just oil and gas, but old abandoned coal mines. There's a lot of Heritage money spent reclaiming them, not so much to the standards today, but removing any hazard, making it an acceptable landscape I guess would be a reasonable term.

AD: Would it be fair to say that within this period, post-1973, that the government is more aware of those issues, of soil contamination and, of course I mean in terms of Bitumont—that site that was used over a number of years with no regulation of any kind? I mean that the ministry is dealing with contamination ...

LB: Yup.

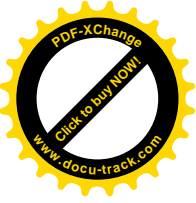
AD: On that site, and, of course, no active mining has been, has happened on it because I believe it's the first designated historic site in the province.

LB: But all this, all you're getting at is describing the evolution of the regulatory process. More recognition, more to do.

AD: And is that your experience from being within government?



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LB: Oh yes, definitely.

AD: Was it an exciting time?

LB: I thought it was. I like it. I didn't have any boring moments, for sure. We were always getting new stuff. You know the research folks were, "Oh geez, look what we found here." Well, then we had to figure out how do we implement that. And, you know, the legislation evolved. There was three versions of the legislation over time, plus amendments—specific amendments—in between those times. So that's evolution.

AD: Based on implementation, but also new research.

LB: New information, new understanding. Okay, we saw how that worked or didn't work, as the case may be, and now we ... but the research says well, you can do this. It works. And here's how you solve that one. So it's all part of the evolution of the whole thing.

AD: Now there was ... Well, I'll ask another question. What was the role, if any, of external agencies or organizations such as the Alberta Chamber of Resources or even the Pembina Institute? I mean, do you want to talk about that?

LB: It's better for them to talk about that, I guess.

AD: But from your perspective.

LB: I think mostly they are ... I guess I would say advocacy for the industry. And also facilitate, facilitation, getting the various sides together to talk about things.

AD: That's the Chamber of Resources then.

LB: I think that they would, that that was one of their big roles.

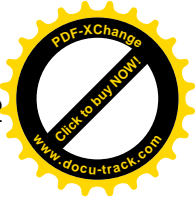
AD: But they've taken on, well among other things—you've mentioned the advocacy for the industry, because, I mean, they started I think in the 1930s as the Chamber of Mines and whatever, whatever it was called at the time. And then when the oil sands came in, of course, the organization was restructured to become more all-embracing and, of course, were involved in the Oil Sands Task Force and so on. But they also have under their umbrella the whole land reclamation issue as well, don't they?

LB: Well, they deal with all aspects, ya.

AD: So, it isn't just an industry group that they've embraced all of these areas, which I suppose, I mean, you know, government has talked about wise use and all of these other theoretical and policy frameworks. What about the Pembina Institute?



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LB: Didn't ... never really had any involvement with them.

AD: Okay. Now there was a change in the department, as well as in other departments, and that's, of course, under Minister (Steve West).[Ty Lund was minister of Environment at this time and was involved in the government reorganization.] Do you want to talk about ...?

LB: I wouldn't use his name, actually.

AD: But that's public record. So what happened, then, in terms of restructuring and what period would that have been?

LB: If you're referring to the big change in 2008, or 1998 [laughter], '98 when there was a big push on from the government to regionalize, and I think their initial, their thinking at that time was to get the delivery of all government service, including regulatory, as close to the action as you could. In other words, be there.

AD: In the field.

LB: Well, not necessarily in the field, but that region, look after that region, look after that one, look after that one. So, the province was divided into a number of regions, and staff were dispersed to different regions; whereas, up until that point, we were centralized. And that way, I think what started to come out fairly rapidly in that, when things regionalized, was if you had five regions, you had five regional directions. Implementation of, on the regulatory side, varied, and there was a number of complaints from industry that were operating in more than one region. "Well, how come we've got to do that here, and it's different over here, and different over here? Why?" So it wasn't necessarily the right thing.

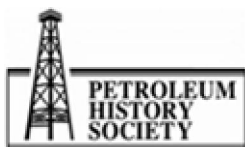
AD: So, the only function that was left centralized within the civil service based in Edmonton was the policy area.

LB: That's correct.

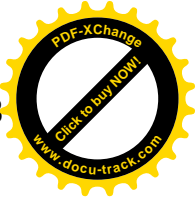
AD: And I think though it was talked about in terms, as you've described it, you know, let the regions make their own decisions based on the regional realities. I mean, of course, it was also an aspect ... it had a political aspect. It was the downsizing of the civil service and, you know, reduction in the number of ministries. I mean, all of that. It had an ideological aspect as well as a practical aspect. But I guess it isn't just in terms of land reclamation, but I mean, in terms of health care, the setting up of the regional boards. I mean we've now moved away from that.

LB: Coming back to central.

AD: Now, I'd like you to address what was lost in the move to regionalization from your perspective. I mean the land reclamation area. Why was it a bad thing?



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LB: Well, the biggest thing was different views of implementation. There was no more D and R Committee reviewing, that brought input from, that was rationalized all the way, which was provincial rationalization. Now, if there was any, it would be regional rationalization. You could still wind up with five different applications, which was, I don't think, a very good thing.

AD: You look at a region like ... I mean, you know, Fort McMurray and all the Aboriginal reserves and Crown lands in that area, with the level of development in that area. I mean, there were all sorts of pressures, you know, that you wouldn't feel in Drumheller or wherever else in the province.

LB: Oh sure, that's just the nature of the beast at the time. That doesn't mean what happens there has to be any different approach.

AD: But, in terms of the pressures on staff in these different regions, it's inequitable, isn't it? And you lose the overall provincial oversight and what's in it for all of Alberta and Albertans.

LB: Ya. I guess you could. That would be an end result, whether that's the cause or not. And you've got people over here doing one thing and people over here doing, supposedly doing, implementing the same thing. It doesn't mean the result is the same.

AD: And then, of course, land reclamation was only one aspect of the Environment ministry. I mean, you had the environmental impact assessment process and you had all those other monitoring mechanisms.

LB: Right.

AD: And they went the way of regionalization as well.

LB: Sure. To me, it splintered the regulatory process. I guess that's as simple as I can put it.

AD: And do you think that a part of the lack of transparency and the lack of communication, whether on the part of government or on the part of industry, that you no longer had that central entity to communicate. Everything had been regionalized, and who could speak for the province?

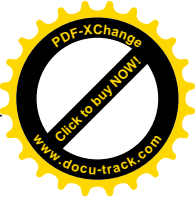
LB: That was the question, clearly. A big question. When it was centralized, there was one voice. Now it became five or six, however many regions they decided. And they weren't, certainly weren't going to be the same.

AD: I was going to ask you, "What do you believe is the proper role of government in the regulation of development and reclamation?"

LB: Well, that's a many-armed question, isn't it? My view is government is there to implement the legislation that it enacts. That's what government's job is. You come up, you provide legislation that says, "Here's a regulatory process." Then, you implement it. That's the government's role, to me. You implement it; that means through, from the environment's side, the environmental impact



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assessment process through to operation approvals through to operational monitoring through to any enforcement required there, and then, at the end, certifying it as done. That's got to be government's role, to me.

AD: And that's the model that you worked with when you were employed ...

LB: Yes, yes.

AD: By the ministry.

LB: Um, um.

AD: Now, you left government, and it was because your position became redundant.

LB: In the reorganization in 1998, my position and a number of others were abolished. So, I was in a place there where I had to make some decisions because I guess I could have applied for any of these new positions, which weren't particularly appealing to me. So, I decided it was my time to go. And I had just turned 55. Okay, I did. And I talked to a friend of mine who coincidentally or not was one of my staff in Environment who had left several years before. We got together one day for coffee and "Why don't we set up a company? Provide some assistance to these, to all the developers that need help marshalling their way through the regulatory system. Who knows it better than we do and knows all the people in there and can help these guys?" So we did that.

AD: So that's when you set up your second consulting business.

LB: Set up Millennium at that time.

AD: And so then give me an idea as to the type of work that you've done.

LB: Well, in Millennium there, we set up there, because of the experience I'd gained. It wasn't now just a soil inventory and help putting that into the reclamation plan. Now, we were the whole process. We knew what was required for everything, and we helped them put together their whole application. And worked through it all, got them through the process, and then helped implement the plan where needed. And some time at the end, hopefully, we'd be involved.

AD: And so give me an idea of some of those projects that you've been involved in in this latter part of your career.

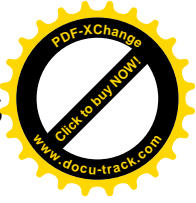
LB: Many of the new ones, I guess.

AD: We're talking about oil sands projects. Do you want to just name them?

LB: Total, for one. Not much ... Some more with Syncrude renewals.



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AD: Shell?

LB: I'm trying to think. Some of the guys in Millennium would have been. I wasn't necessarily directly.

AD: Yup, involved in all of those.

LB: Yup.

AD: Now, you know, what ... to go back to in situ SAGD technologies, are the land reclamation requirements any different?

LB: It's pretty close to being what a conventional well site is. It's just they'll be bigger. They could have 10 or 18 wells on one site, as opposed to a single well. So, it would be a little bigger. But, ya, the requirements are the same.

AD: And in terms of ... [interruption] so, you know, with respect to SAGD, of course, there are issues around water and, again, disturbance of the land. Do you want to talk about that from the reclamation perspective?

LB: Well, then it comes back in then, and not a whole lot different, than a mining operation, because there's a plant site involved and all the things that go on around that. The thing you don't typically have with a SAGD or other in situ is a huge requirement for tailings pond. So that makes a big difference.

AD: And also the whole strip-mining aspect.

LB: Oh, that's ... the land situation is way different. But you've still gotta reclaim. You've still gotta salvage soil material. And when you're done reclaiming, if there's any contamination over your plant or whatever, it's all gotta be cleaned up. The same as any other place.

AD: So, do you see any, in terms of the technology—and certainly the SAGD technology is now going to come, it's the technology of choice, isn't it?

LB: Well, and that's predominantly I think because that is the biggest area of reserves.

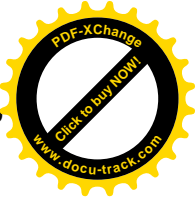
AD: Now.

LB: The mineable area is relatively small. And it will run out. The majority of the oil sands resource is obtainable by in situ technology. So that's ramping up hugely, as you know.

AD: Do you think that because there are not going to be the aerial shots of, you know, this huge pit that it's going to be more appealing to the general public?



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LB: I don't know about that, because I think—well, you hear it as well as everybody else—the big complaint is get rid of fossil fuel period. Doesn't matter where from.

AD: Which is totally unrealistic. Because it isn't just fossil fuel. We're talking about petrochemicals, which, you know, virtually everything in our home has a petrochemical component.

LB: Sure.

AD: Computer, you name it. Your car, whatever. Right?

LB: Yup. That seems to be the goal is get rid of that.

AD: Did the ... does land reclamation get involved in pipeline development?

LB: We did in some - the big ones, because in the '80s when that came into play, when I was there, the approval requirement was designated for major projects. So, you weren't going to get involved in every little four-inch pipeline coming off a well site. It was the big ones. The big transmission lines. The big pipes that were moving things to storage facilities. You know, the big pipes.

AD: So there were... Now, with respect to Keystone and Northern Gateway, we still have a fragmented jurisdictional approval process, so, you know, how can that oversight happen?

LB: Well, that's going to be a good one, because when it crosses jurisdictional borders, then, it becomes National Energy Board. So, the province has input but it will be NEB's approval that drives how it's developed.

AD: And the hearings, of course, are in process.

LB: Yes. None of what's going on at those hearings has anything to do with reclamation [laughter], as you well know.

AD: Which of course it should. In terms of the reclamation studies that were done, did any of them relate to ... I mean, they went beyond the cover of soil, but did they deal with species, you know, not just trees and shrubs and grasses, etc., but did they deal with fur bearers or ungulates or any of the other types of species of, you know?

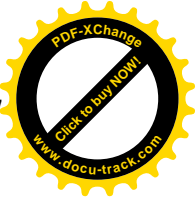
LB: I'm not sure what that means, but ...

AD: Well, I guess the environmental impact assessment dealt with that. But clearly they exist. They need certain soil conditions and vegetation conditions to exist, so that's where the land reclamation particular use, capability ...

LB: Yes. Species returned were species that were there.



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AD: Okay.

LB: That's where it evolved to through the '80s. And that became a very obvious benefit of the soil salvage because the whole seed stock, root stock came with it, and you got ... Especially if you took it off and placed it right away. You had the natural ... you know, what was there before coming back right now.

AD: So that's another purpose for the soil salvage, that you then did have the natural grasses and other types ...

LB: Particularly the shrubbery. There'd be arguments about how long that seed stock lasts, if it's in storage. You know, all of that comes into play too. But I think as these projects get older and older, and have been in place longer, and direct placement comes in more. If you're salvaging today because you're going to operate here, you've got a place over here where it can go right now. You don't have to put it in a stockpile. So there's more and more of that.

AD: Now, I don't know whether you've kept track of the current evolution of thinking, and certainly at the academic level, where I gather that in—I don't know, I think it's the university in Saskatoon—where they're actually looking at the whole re-creation of landscape. So, in other words, it isn't returning it to what it was and the capability to do different things that are appropriate on that site, but that you can almost enhance and improve. I mean, what is your thinking around that, and is it going to have any implications?

LB: I'm not familiar with what they're doing in Saskatchewan, but enhancing and improving has a ... What's enhanced and improved to you may not be to me, so that's a little bit of a loose—I don't know what the right words are even for it. Because you say it's improved, that's for your purpose. But it may not be for Joe Blow over there.

AD: Right. So, in other words, ... I mean, in terms of the people involved in reclamation, land reclamation, that you're purists in a sense, aren't you? That the technologies and methodologies may change but you still have the ... You've defined these principles, and we've discussed those earlier, haven't we?

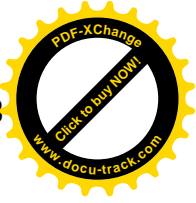
LB: Yup. Think so.

AD: Now, I mentioned the evolution in your profession, and I gather you're involved in a project, a book project. Do you want to talk about that? I think that's important.

LB: I can give you a quick rundown. A few years ago, I guess, basically about the time I retired, and then I started looking at some dates on things and 1963 popped up, as that was the year of the first reclamation legislation passed in Alberta. This is 2013 coming up. It'll be 50 years since the first legislation to deal with reclamation. So, I started thinking and talking to a few of my friends, and we need to document what's happened: how it started 50 years ago, all this ..., the progress, how things evolved to where it is today. So, yup, we have to get the history of land reclamation in Alberta done.



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And what better than a 50-year milestone to do that? So we're working away, trying to get this done together. As you can imagine, this is a huge, huge job. We're talking about conventional upstream oil and gas, pipelines, through coal, oil sands, into sand and gravel to road building. All of that and how it all came to be for each of those industry sectors. Where, how, it evolved. What started it. All those things. It's a very big project. We're underway. I have a publisher in hand, if you like, and she has ...

AD: Can you share that or ...?

LB: Kingsley Publishing out of Cochrane, and she's been involved in (this) ~~delete~~ history book preparation for many, many years. She got a couple of writers engaged, who are currently going around doing their research, gathering information, and taking it sector by sector. It'll be like a chapter book, and trying to get this thing going. It is huge, as you can imagine. There is tons and tons of information.

AD: So, can you ... You mentioned 1963. What was the particular trigger for, you know, the birth of land reclamation in Alberta, which is what we're talking about?

LB: The trigger on that was upstream oil and gas well sites. In the sense that land owners, public ... It was, "How come all they have to do when they're done on a well site on my place is come in, take the wellhead out, take away the garbage, and they're done? I can't farm this." Oh well, then we've got to get something to return it. So that was the initial trigger, getting reclamation headed to return to use that was there before. And then it just evolved from there.

AD: Of course, the implementation of the legislation gave it legitimacy and really nurtured the development of this specialty, which, I guess there are university programs now.

LB: Yes, there are. All—I shouldn't say all—but certainly U of A has, the technical colleges all have reclamation programs, other universities have, not just here in Alberta now. It's spread all over. Ya. It's created a whole new profession, if you like.

AD: And that the book, the 50-year history project, is not only going to be talking about the evolution of the profession, but the profession vis-à-vis all of the various resource groupings.

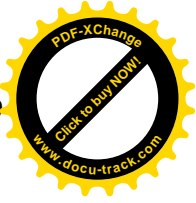
LB: Oh yes. It's very important. I've talked to instructors and the head of the program here at the U of A, and this will be an invaluable resource for the class. What we started to see here over the last few years is the young people coming out, it doesn't matter what school they come from, aren't familiar with how things evolved. They're back starting at, think you have to start at square one. You don't.

AD: And so you're talking about the educational user. But, of course, the general public doesn't know about this.

LB: Oh, I know. But I don't know that any book will help that [laughter].



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AD: Now, I'd like you to put on your futurist hat to look at the whole issue of land reclamation and the oil sands. Where do you think we're going to go with this?

LB: Well, it will keep evolving, as more research is being done. All the companies do research too, you know. Not just ... you know, there's government stuff and whatnot going on, but all the companies do too. That will tell new stories, and it will continue to evolve, I believe, particularly in the oil sands area related to the wetlands aspect and dealing with the tailings. Dry land, upland—it's pretty well known, I think. But it'll be those areas, the wetland and the tailings, where things will continue to evolve and improve.

AD: And so, you know, you were involved at the front end of giving regulatory approvals for projects. But you then talk about the time span of reclamation, where we're talking about tree species of 75 to 80 years, you know, until you get peak, that that's going to be happening and that in terms ...

LB: Well, no, like I said earlier, you can't wait 80 years. So, what the forestry folks, professional foresters tell me, is when those seedlings are in a free-to-grow state, however they define that, but that's then okay. Then you can say we're prepared to sign off.

AD: Now we're thinking of say GCOS/Suncor officially opened in 1967. So when is there going to be closure on those leases that were approved?

LB: Many moons. Who knows? They probably don't know. It depends on the operation, how it keeps going, how integrated it is. They have areas that probably could be certified now. But if they're inside their area when they're operating all around it, they're not going to release it.

AD: So that then in terms of certification of the whole, it has to wait until they've ceased to mine, and so, again, putting on your thinking cap, when do you think that could be.

LB: Oh, I have no idea.

AD: So it's beyond our lifetime, is it?

LB: Oh, I would say yes.

AD: Now, in terms of the environment and the environmental protest movement, do you want to give me some of your thoughts on that?

LB: I think it's always good to have ... You've got to have the discussion. But that means getting together in the same room and having it and not just out there with one goal in mind, which is terminate this thing. It seems to be pretty much what you hear from the NGOs, at least a lot of them, that's all you hear: stop this. And I don't, you know, I don't think that's reasonable or practical. In that I don't know if they've considered what would happen if that did happen. I suspect they haven't. And maybe they don't want to or don't have to because they know it won't happen



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anyway. I don't know. But I don't know what their rationale is for carrying on. I guess it's ... Well, I guess you could say it's developed another industry, hasn't it. They're not doing this all for free, that's for sure. They're getting money from various and sundry places.

AD: Foundations and others. Do you think it's in the cards that there will be a return to traditional environmental ministries with a range, you know, of activities and controls? What do you think about the new provincial/federal monitoring regime that's being talked about? Do you have any sense of that?

LB: Well, I think it's good. It's part of the evolution. Firstly, the monitoring. I mean, I think what people have to remember is this isn't the initiation of monitoring. There's been monitoring going on for years. This is the next step. It's a continual evolution, that's part of it, so it should be good. It'll be more and better information. And that's part of the evolutionary process.

AD: And maybe it's going to emerge that, you know, these new fields like your own, intellectual endeavour and application, have been evolving with industry and that are part of that whole preservation, monitoring, all of those aspects of environmental protection.

LB: Certainly.

AD: Because in essence, land reclamation is really about protecting the environment, isn't it?

LB: Ya, I think you can put that there. You have to, you have to, what do you call it, free up your definition of protection a bit. Protection or providing the ability to get back. Because if you look at these things, and look at it in terms of the land use end, if you've got a land use going on there now—it's forestry or out here it's agriculture—and they're gonna come in and drill some wells or mine, that's a temporary land use in the long scheme of things. You have to keep that in mind, okay? This is temporary. We've got to provide all the means we can to get back after this temporary land use is done. That's what everybody's got to keep in their head. It's not permanent. It might be beyond yours and my lifetime, but it's still going to be temporary.

AD: Because these are finite resources.

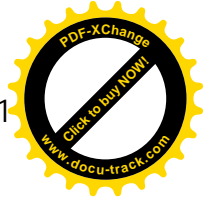
LB: Sure.

AD: Now the question I had asked about 1963 was that, of course, in terms of contemporary environmentalism, I mean it got kick-started by, you know, the Love Canal and pollution of industrial sites in the United States. The failed reclamation, where they actually built neighbourhoods over places that were contaminated with heavy metals, you name it, the whole range of pollutants. And then, you know, Rachel Carson's *The Silent Spring*, where she talks about, again, this stuff getting into streams and rivers and the implications for wildlife.

LB: Um, um.



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AD: So I think that I like the fact that you rooted that to farmers and others who saw that the conventional industry moving out and leaving this, but of course it's a larger issue and must have been a part of the formation of your field in Alberta, that they would have been aware of other types of industrial pollution.

LB: Well, ya, and it was really just starting here. I mean, coal mines been around a long time.

AD: Exactly.

LB: Power plants been around a long time. So ya, and that's where the focus was initially.

AD: And I mean the coal mines, I mean you think about the ones that are historic sites like the Leitch Collieries and the mines in the Drumheller area. I mean they've sealed them. They haven't really, I mean, addressed the larger [issues]. I mean, some surface reclamation has happened, in terms of some of the contaminants, in terms of the mining process and operating.

LB: Well, we're very fortunate here too, and those are basically mountain mines that you're referring to.

AD: Yes, I am.

LB: We're very fortunate that we, the rocks, the resource, the geology did not result or have within its makeup acid mine drainage. So, we were quite fortunate. You get on the other side, into B.C. and places, ya, they had lots of acid mine drainage and all the stuff that goes with that.

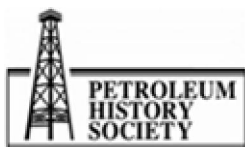
AD: And so they've prettified it. I mean, the old mining towns on the B.C. side are gone, so that, you know, the beautiful British Columbia label and the holier than thou attitude towards [laughter] Alberta and its nasty pipeline.

LB: Ya. Well I think Premier Clark has other motivations. I don't think it has anything to do with environmental issues at all. It's more making it work that way. There's an election coming up over there.

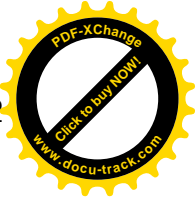
AD: Yup. You know, to go back to the discipline of land reclamation, I mean do you think there's still a philosophical base to the training, to the education of future specialists in this field. I mean, that it is within the environmental movement.

LB: I'm not sure I follow you.

AD: Well, you know, that the applied side of your field is to do these plans for land reclamation. But I think that in terms of training up of new people in the field, it is viewed as part of the environmental movement, isn't it, and conservation and environmental protection and so on? Is it?



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LB: Ya, I would say so within the rationale that you apply your knowledge to do these things in such a way that that temporary use can be, when it's done, you can reclaim and be back where you were. Or get back to where it was. You know ...

AD: To allow for other usages.

LB: Ya. Whereas in terms of the environmental movement itself today, it's stop. That's pretty much what you hear from them. Don't do that anymore. I don't know how you ever rationalize that. I'm not sure what their goal is.

AD: Well, is there anything ... Have I neglected to ask you about any particular area? I know that you did do presentations. I mean, because the ministry was aware that they were doing new things and so and you've given me copies of some of those presentations. Do you want to talk a bit about that?

LB: I think, and that will relate back, and I'll just say one thing about it. And it relates back to another question about, "Was Alberta an innovator here?" And part of it ... And I went to conferences all over North America, and presented those papers or versions thereof as to what the regulatory process was here in Alberta, and especially through the U.S. It never failed; the response I got from folks there they can't believe how you guys work with industry. How you sit down and figure things out. That would never happen here. This kind of reaction, and holy cow, and I said, "Ya, well that's what we do, and that's how we make it work, and that's how things evolve."

AD: So that collaborative aspect ...

LB: Absolutely.

AD: And the hearings process, and the sites visits—all of that. That buy-in rather than policing ...

LB: Absolutely.

AD: Aspect.

LB: Yup, that was my view and, like I said, people elsewhere, "Oh God, we could never make that happen here."

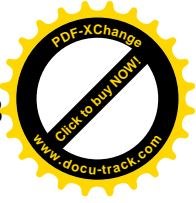
"Why not? Have you tried?"

AD: So how many presentations would you make in a year?

LB: Oh, I don't know if it would be in a year. There'd be select conferences, so there might be one or three a year, kind of thing, depending on where and what their theme was for the conference.



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AD: So, until 1998, I mean because it's a benchmark year. The Government of Alberta took pride in the workings of the Ministry of the Environment and various agencies in that umbrella.

LB: I think so, ya.

AD: And then that, with the whole regionalization and downsizing and everything else, that basically emasculated the ministry.

LB: Well, it certainly changed. That's for sure. Not, at least in my view, not necessarily for the better.

AD: So, we had 14 or 15 years, which to be fair to the young environmentalists, but they haven't had access to reliable government materials or industry materials relating to these various issues.

LB: The access is always there. Whether they choose to do it or not is another thing, if I'm following you.

AD: Well, my sense of it is, is that, you know, as long as you had a Ministry of the Environment that did all these things, a centralized number of civil servants, then you basically had a vehicle for getting this information out to the general public.

LB: It's still there, regionally. They still do it.

AD: But that's regional.

LB: I know.

AD: It isn't provincial.

LB: That's right.

AD: Which means that there's no one voice and no provincial materials that provide that overview. So that, you know, a journalist would have to look at every jurisdiction to find out the permits applied for, permits granted, all of those others, and to get a sense of what land reclamation requirements were like today in the province.

LB: Well yes, basically that's true [except there is a Central Registry for applications].

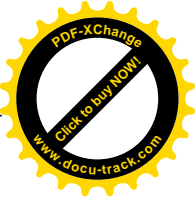
AD: And so, I mean, that's a huge, huge issue, a huge gap.

LB: I think it is. I would certainly like to see it return.

AD: Is there any other, anything else that you would like to share? I mean, that I haven't asked you about. Well, I mean, the whole issue of political interference in the process. I mean, did MLAs beyond the Minister ever get involved in the process? You don't have to name names.



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LB: Oh no. It started to happen in the '90s, early and mid '90s. In my position, I would get calls from MLAs or other department ministers directly to me, which traditionally it was always straight through the deputy down to you, and that's where the political issues were weeded out and the technical stuff came to people like me. That started to change in the '90s. I'd get direct calls, which I guess you could call it ... I don't know if you'd call it interference or not, but it never happened before. And then it started.

AD: But would you say that again within that period that you were actually in control of this area? Were there any examples of undue influence on the part of MLAs? Or was it simply enquiries?

LB: I don't think any of that got through.

AD: Okay.

LB: I was always, you know, we did ... We implement the process, here's what it is. Well, okay, if you don't like it, that's ... I guess you can go to the Environmental Appeal Board and appeal the approval if you want.

AD: Okay, so the vehicle was there to appeal.

LB: Ya.

AD: Now, with the regionalization, ...

LB: All those things are still there.

AD: Yes,

LB: It's just a little closer to the ...

AD: To the MLA. So, again, the whole issue ... I know you don't want to touch it but [laughter] in service to history, I have to ask, I feel I do have to ask those questions.

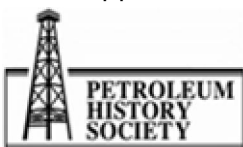
LB: I'm not aware of any particular instances.

AD: But if there isn't a strong centralized control with the hierarchy of responsibility and authority then there is ... It would seem that the process is more susceptible to political interference.

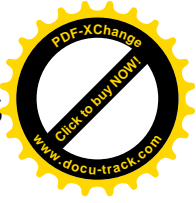
LB: I would agree with that.

AD: And, I mean, you know, I have to ask this question in terms of what is happening in the review of the health care system and, you know, people getting priority treatment and stuff, because it reflects on if this happens in the health care area could it happen in other areas?

LB: I suppose, but I've never heard of it in anything that I ever dealt with.



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AD: Because your processes are so specific and they're not dealing with patient care on a one-to-one basis.

LB: Right.

AD: It's a different kind ...

LB: That's more a reactionary process than a ...

AD: Yes, 'cause you've got environmental impact assessments have their methodologies: land use, land reclamation: I mean, all of these things, monitoring have their own methodologies and stringent processes.

LB: Yup. It's not a reaction.

AD: So, in other words ...

LB: It's planned.

AD: Someone should have said when they restructured the government, you know, ya, come back on the ministries but don't touch the process. Keep your hands off the process.

LB: Ya. That could have been the idea at the time. When you fractionate like that, it opens the door for all kinds of things to happen.

AD: Well, okay, well again, thank you so much for allowing me to interview you and your frankness, in talking about your career and your field.

LB: Thanks for having me.

AD: You're welcome. And incidentally, if you do have any papers and other things that you think you're going to scrap at some point, consider gifting them to the Glenbow Archives because, they've got very large holdings as you know.

LB: Well, all of these things are in the government archive, the Environment library downtown. I mean, if you had a couple hundred square feet of room that you didn't know what to do with I'm sure you could get copies of everything [laughter].

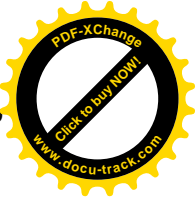
AD: So they are available to the public.

LB: Oh ya.

AD: But if there is anything, you know, that you have and that you feel it would be appropriate to be in a public trust institution, do consider it.



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LB: Well, when we get through the history book that we're doing ...

AD: You might be amassing materials.

LB: then I would expect the reference list, the bibliography, will be just about as big as the book.

AD: And so we need to connect up with Glenbow with respect to that as well and I'll talk to Doug Cass about it for you, okay?

LB: The invitation is still there for you for tomorrow morning's meeting, if you want. [2:19]

[END OF RECORDING]



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