

---

## KEM SINGH

**Kem Singh, P Eng, Executive Director, Land and Forestry Policy, Alberta Environment and Sustainable Resource Development**, was born May 9<sup>th</sup>, 1960 in the Punjab in India. His father had emigrated in 1961 and taught in Coleman (he had been a principal in India). In 1965, the family came to Canada to live. He graduated from high school in Edmonton and studied engineering at the University of Alberta from 1978-83 with focus including heavy oil and oil sands. Singh first worked for the federal government regulating oil and gas activities in Canada's north before moving to Alberta Environment in 1990 where he has been involved in the environmental management regulation of a number of sectors, but particularly the oil and gas industry. He has had extensive involvement with oil sands development and regulation initially as an engineer. From 1989 to 1998, he was responsible for facilities such as Syncrude and Suncor with respect to water and wastewater issues, as well as air emissions. Singh became the regional approvals manager for the Northern Region of Alberta Environment in the period of expansion of the oil sands and accompanying regulatory processes. Singh was involved in the review of EIAs and, from 1998-2009, was in charge of the approvals process. At this time, "cumulative effects management" came into being rather than review on an individual project basis. More recently, he has been involved in developing policy recommendations and program development including discussions for setting up the new Alberta Energy Regulator.

**Date and place of birth (if available):** May 9<sup>th</sup>, 1960 in Nazamdipur, Punjab, India

**Date and place of interview:** 1 pm, June 12, 2013 in Kem Singh's office

**Contact Information:**

*Work:*

Alberta Environment  
10<sup>th</sup> Floor, Oxbridge Place  
9820-106 Street  
Edmonton, AB T5K 2J6  
Tel: 780-427-7012  
E-mail: [Kem.Singh@gov.ab.ca](mailto:Kem.Singh@gov.ab.ca)

**Name of interviewer:** Adriana A. Davies, CM, PhD

**Name of videographer:** Jimmy Bustos

**Full names (spelled out) of all others present:** N/A



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

**Consent form signed:** Yes

**Transcript reviewed by subject:** Yes

**Interview Duration:** 2 hours and 33 minutes

**Initials of Interviewer:** AD

**Last name of subject:** Singh

---

AD: Good afternoon, Kem. It's Adriana Davies. I'm the Researcher/Interviewer on the Petroleum History Society Oil Sands Oral History Project, and it is the 12<sup>th</sup> of June 2013 around 1:10 p.m. in Kem Singh's office. Kem, thank you so much for agreeing to be interviewed for the project.

SINGH: My pleasure, glad to assist with the project.

AD: Thanks so much. As you know, these interviews are going to reside in the Glenbow Archives so that they're accessible to historians, researchers, anyone who might want to access that information. So can we begin by you telling me your date, month and year of birth and place of birth and then give me a summary biography including educational background and your career, and then we'll move into the more specific questions after that.

SINGH: Sure; so a little bit about my background. My date of birth is May 9<sup>th</sup>, 1960. I was actually born in Northwest India in a small farming village called Nazamdipur in Northwest India, but I immigrated to Canada, to Alberta, at a very young age. I was four years old when my family moved to Manyberries in the southeast portion of the province. So I went to kindergarten in Manyberries; I spent my elementary years in Stettler in Central Alberta. I grew up here in Edmonton and I studied at the University of Alberta. I graduated in Petroleum Engineering from the U of A and, in my career, the bulk of my career has been spent on regulating the environmental aspects of the oil and gas industry.

I started with the federal government regulating oil and gas activities in Canada's north. I worked in Yellowknife but travelled throughout the north in the early 1980s when there was a lot of oil and gas activity there. Then I worked with Alberta Environment and I've been involved in the environmental management regulation of a number of sectors, but particularly the oil and gas industry, and I had extensive involvement with oil sands development and regulation initially as an engineer. I looked after facilities such as Syncrude and Suncor for water and wastewater type of issues, as well as air emissions. I did that for about eight years during 1989 to 1998.

I was a regulatory decision maker for over a decade from 1998 to 2009. I was the Regional Approvals Manager for the Northern Region of Alberta Environment, and I've covered the oil sands area so I'm very familiar with that time period of expansion of the oil sands and regulatory processes. In more recent times, I've been involved in developing policy recommendations, developing programs, so more our program development, policy development, including discussions



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

for setting up the new Alberta Energy Regulator that is imminent to start its work and the interaction it will have with the provincial government, which will continue to set policies for Environment and other aspects. So that's my background overall and in relation to the oil sands industry.

AD: Thanks so much. I mean it's clear that, you know, you have firsthand knowledge of a number of elements important to do with not only the oil sands but the petroleum industry generally. Now, you mentioned that your father had come to Canada as a young man searching for adventure, I guess, and ...

SINGH: Yeah, my Dad was a teacher. He actually came to Alberta in 1961 and he first taught in Coleman in the Crowsnest Pass area. He planned to stay for a couple of years but he loved Alberta, loved Canada and decided to move our family here, and as I mentioned, I was four years old when the rest of our family moved to Alberta and joined my Dad and at that time he had moved to, to Manyberries. So again, that's our family background and my Dad's background where he hadn't planned Alberta as being his long-term home but it eventually became his home and that's an important part as well that in my work I do get a chance to effect outcomes as far as Alberta's development and the well-being of Albertans, and that's a really pleasurable portion of my job.

AD: Now, what drew you to engineering?

SINGH: Like a lot of persons who chose engineering as a profession, I was good at math and science as well as other subjects, but those were ones that I particularly enjoyed. I do have a practical background as well. I'm very much a handyman and so engineering being an applied science was very attractive. My older brother chose engineering; I'm sure that was a factor as well. So there were a lot of things where I thought engineering would be an area that I would enjoy and excel at and I'm glad I did choose it as an area to work in. It's an area that I do enjoy.

AD: You purposely chose petroleum engineering. Why was that?

SINGH: Well, my first exposure to the oil and gas industry is I had worked in Fort McMurray for one summer in 1979. I had initially planned to go into civil engineering and actually after my second year I transferred into petroleum engineering. In the late 1970s the petroleum industry was growing rapidly within the province so I thought it would be an exciting sector to be involved in. So yeah, some exposure to the industry in Fort McMurray, it being a growing sector, that was quite attractive to me as a student in university.

AD: So what did that summer job involve?

SINGH: I was actually working for the Transportation Department at that time because I had planned to specialize in civil engineering, so it was road construction, actually the road to Gregoire Lake Provincial Park, and my brother-in-law coincidentally worked at Syncrude as an electrician, so I got a tour of the Syncrude plant in 1979 when it was still essentially in start-up mode and that was my first exposure also to the community of Fort MacKay and to the community of Anzac. I did get



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

a chance to travel to both of those communities while I was working in road construction in the Fort McMurray area.

AD: So what did you think of the Syncrude plant? I mean you were among the first visitors as it were, to see it in that late start-up mode.

SINGH: A few things. From an engineering standpoint, Syncrude and Suncor are complex undertakings. They're very large plants; there's many different kinds of processes at the facilities, so from an engineering standpoint, quite remarkable in terms of the complexity of the facilities, of constructing them, starting them up and getting them to operate in an optimal kind of a manner. So from an engineering standpoint those were some of my observations.

Fort McMurray at that time was still fairly remote. It had grown as a community during the construction of the Syncrude plant but it was a ways off the beaten path and so I do recall that, as well, after having left out of Fort McMurray going north, the Peter Lougheed Bridge was under construction at that time; it was called "The Bridge to Nowhere" because after the Syncrude plant, after Fort McKay, that region was quite remote still in 1979, so those were the few of the observations that I had from visiting Syncrude at that time.

AD: So, you know, it helped you to shape, to change your major as it were within engineering, and can you tell me about any of the profs that you feel inspired you at that point?

SINGH: There were a couple that do come to mind. One was Professor Jacob Masliyah. In petroleum engineering, we did take courses in thermodynamics and in other chemical engineering disciplines. I do remember the passion that Dr. Masliyah brought to his work. Coincidentally, he did work on oil sands research as well, but he's one of the professors that I recall for his passion as an educator but also his depth of knowledge and expertise as an engineer related to chemical engineering, related to oil sands. So he's one of the ones that comes to mind.

Another is Peter Dranchuk. Peter had worked at the university for a long time as a professor in petroleum engineering. He was one of the first graduates in an early class in the petroleum engineering program. Again, he was an immigrant from the Ukraine. He grew up, if I recall correctly, east of Edmonton towards the Cold Lake area. So again, a long-term Albertan, one of the early graduates in the petroleum engineering program, and he was a real fixture in the petroleum engineering department for a long time.

AD: Now, you graduated in 1983, if I'm correct.

SINGH: That's correct.

AD: And of course it wasn't a great time in terms of the petroleum sector, was it?

SINGH: No, that was right after the severe downturn in the oil and gas industry, so it was a dramatic change in Alberta at that time in terms of the economic climate. When I was in high



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

school and started university, Alberta was booming; it truly was the boom times and a lot of jobs for engineers. In 1983, that was the -- a time period of a severe downturn; so much less opportunities for new graduates in all areas, including engineering at that time. That's one of the reasons I did end up joining the federal government. One of the areas that was still very active was frontier oil and gas exploration ...

AD: Okay.

SINGH: ... including the Beaufort Sea, the High Arctic, Northwest Territories; Norman Wells was under expansion. So that was a good opportunity to apply my skill set and that was one of the attractions for joining the federal government in regulating oil and gas activity in Canada's north.

AD: So when did you join the federal government?

SINGH: That was 1983, so very shortly after graduation.

AD: And so what was your title and what was your first assignment?

SINGH: So my first job was as a drilling engineer -- the federal government is a regulator for frontier areas and the group I worked with is now part of the National Energy Board. At that time, it was called the Canada Oil and Gas Lands Administration. So my first job was reviewing drilling programs for on-shore and offshore operations. I also was involved in surveillance of the Norman Wells oilfield expansion because that was ongoing at that time. So my first job was applying the technical skills in the field -- inspecting oil and gas, facilities, drilling operations, reviewing drilling programs.

After that I took on a supervisory role and the title was Conservation Engineer, so it was still applying some of the drilling engineering. It included some environmental engineering aspects and I supervised a group of inspectors so I organized and supervised our inspection of all of the oil and gas activities in the Beaufort Sea, Northwest Territories, Yukon.

AD: Well, as you know, I was a Science and Technology Editor of *The Canadian Encyclopaedia* and started work in September of 1980 and commissioned all of the entries on the energy sector, and of course I mean this was the time, you mention the Beaufort Sea and of course you had the MacKenzie Pipeline hearings. Can you recall anything, your sense of that at the time?

SINGH: It was very interesting that actually the Berger Report I believe was issued while I was still in university, but in working in the north there were some topical items at that time that were emerging in the north. Some of them were First Nations and engagement of First Nations, so the Berger Commission did interview a number of First Nations' persons. It actually recommended a hiatus in approving a pipeline so that First Nations could complete their treaties and other organizational things that they wished to complete, and working in the north, that was my first exposure to working a lot with Aboriginal communities. The community of Tuktoyaktuk near Norman Wells, there are Aboriginal communities at Fort Good Hope and at Fort Norman. So that



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

was my first exposure to Aboriginal persons, engagement of Aboriginal persons and planning, and in regulatory processes.

So the north led in that, as compared to the rest of the country, and in hindsight, personally I think it was a very good idea, that hiatus in time period to allow First Nations to become organized. And it's quite interesting, there has been lots of natural gas discovered in the High Arctic, in the Mackenzie Valley, but part of development is when things are economic and really that area hasn't developed so far that Norman Wells has as far as oil production, but the Beaufort Sea area, the Mackenzie Valley, Mackenzie Delta has an abundance of natural gas but it hasn't been developed to date because, in the past, there have been some important social and support kind of issues, and there have been economic challenges with those remote sources of natural gas.

AD: And when you think about where your career is going to lead you, where you are in it, a senior position in Alberta Environment with responsibilities for the regulatory framework and also environmental monitoring -- all of those things -- for you to have been involved as a very junior staff person up in the north and to experience those range of issues, it was incredibly good training for what you would do later.

SINGH: Yes, that actually was very helpful since I have done all of the roles from field inspection to being a technical reviewer, to being a person responsible for technical aspects related to water and to air. Those were very good foundational items for later on when I became a decision maker. They were also extremely helpful in working with the staff because I had done many of the roles of staff I was working with. So I think that was very helpful in terms of interaction with the staff and my understanding of some of the challenges that they were working with. So, foundationally, it was a very good training for later aspects; similarly, now as I get the opportunity to work on programs and policy recommendations. Again, having a foundation of having delivered regulatory programs is very helpful as a background.

Also progression-wise within my career, there have always then been challenges; there's areas I'm familiar with but I'm always excited about opportunities where I get a chance to learn new things, continue to expand my own knowledge of some of these subject areas.

AD: Can you tell me any particular memories that you have of that period, you know, whether it's relationships with the Aboriginal community because, you know, today of course, so much of development in the oil sands has a very strong relationship with the Aboriginal peoples of that region. And so going back in time you were experiencing the Aboriginal activism around resource development. Can you think of any, anything that you'd like to share?

SINGH: Very much so that again, that was an important aspect of the work that myself and others did was the interaction with Aboriginal communities as well as other communities -- some of the Aboriginal communities that I recall working with, Fort McKay. Fort McKay is in the midst of a lot of oil sands development with the geographic location of the community. Also over the course of my career I've seen time periods of -- I recall in 1992 if I recall the year correctly -- Syncrude had an



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

ERCB [Energy Resources Conservation Board] hearing where it was quite an adversarial hearing. Fort McKay was an intervener in that hearing and it matured from that relationship to where Syncrude and Fort McKay worked much more closely together. Fort McKay became very well organized with their industry relations corporation and they very much worked with regulatory agencies. So we worked very closely with them in reviewing oil sands applications where the community had their own technical reviewers. We interacted with those reviewers. We shared draft approvals with representatives from the community.

Fort MacKay was a very involved community with regards to some of our regional forums. We have a regional air shed group, which is now called WBEA -- Wood Buffalo Environmental Association. It originally started in the late 1980s to address concerns that the community of Fort McKay had with air quality, so it was very much an important interaction that we had through forums like that. Fort McKay has seen a lot of growth within the vicinity of the community initially with Suncor and Syncrude, but since then additional oil sands mines, additional in situ oil sands development. So there have been changes in the traditional land use areas of the community of Fort McKay.

Personally I'm very pleased that they have had participation in the developments as well that I appreciate the communities in that area, including Aboriginal communities. They want to see the benefit of development that the rest of Albertans and Canadians enjoy, but they also have an important relationship to the land and so retention of the culture of the community, things that are valued within the community. So a very important aspect was that relationship with Fort McKay and representatives from the community and representatives who did technical reviews for the community. That was an important part of the job; that was an enjoyable part of the job.

AD: And do you think that, you know, it was the Berger Report and the consultation processes that led up to that report that sensitized Aboriginal People to their rights with respect to resource development, specifically energy projects, petroleum projects.

SINGH: I think it was a factor. Even in the Fort McMurray area there have been a variety of approaches that communities have taken. As I recall, at times, Fort McKay has had to express in an adversarial way concerns about development. In other cases, they have very much engaged the regulatory processes, engaged the companies in direct discussions. I similarly saw that type of approach with the First Nations in Fort Chipewyan that we did have interactions with the Mikisew Cree First Nation, particularly around the year 2000 and shortly after the Mikisew Cree became very involved in regulatory processes because they felt they needed to express their concerns, and particularly related to water, that water is a very important issue in Fort Chipewyan to the Mikisew Cree, as well as the Athabasca Chipewyan First Nation, and both of those First Nations have become engaged in regulatory processes at times in a cooperative way; at times they felt that they had to use other means to express their concerns. But I believe the Aboriginal communities have seen that they need to express their concerns through regulatory processes or to become actively involved to express their concerns so that those concerns are addressed in relation to resource development.



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

AD: And so would you say that this work in the Northwest Territories with the federal government really sensitized you to issues of Aboriginal rights and government's responsibility to consult with Aboriginal People about resource development?

SINGH: In my case, very much so that when I had started with the federal government, in 1983, it was largely an administrative process that we ran, largely with the regulatory agency doing the reviews. At the end of my time period with the federal government, which was the late 1980s, then we did have much more organization with the Inuvialuit in the Tuktoyaktuk area and they had their own reviews as well. So in the Northwest Territories with a larger percentage of the population being Aboriginal, particularly in communities such as Tuktoyaktuk, I saw that at an earlier age. I saw the need for that to be addressed; I saw that evolve over time. So in my career path I saw that earlier with my work with the federal government, and then I saw a lot of similarities in that, in my work in Alberta in the oil sands at a later stage in my career.

AD: So you worked for the federal government for about six or seven years, correct?

SINGH: That's correct.

AD: And, you know, what motivated you at that point to leave the federal civil service?

SINGH: It's coincidental: I really wasn't looking for another opportunity but an opportunity did arise with Alberta Environment in 1989. As I mentioned, I did have exposure to the technical aspects of petroleum engineering, but I had gotten some exposure to environmental engineering as well, and I got to a point in my career path where environmental engineering -- environmental considerations -- were becoming much more prominent. It was an area that was rapidly expanding in the 19 -- late 1980s -- so an opportunity arose. I really wasn't looking for an opportunity but Alberta Environment was advertising for an engineer with an oil and gas background to be involved in regulation of energy activities in the province, so was a very good fit with my existing background. It was also a point in my career I had an opportunity to make a choice of -- did I want to focus more on environmental engineering aspects of energy development and long-term as a regulator and those were aspects that I was enjoying -- so I chose to do that and that was the start for me with Alberta Environment -- 1989 here in Edmonton.

AD: So you moved to Edmonton then.

SINGH: At that time. I was actually on a secondment to Petro-Canada in Calgary at that time. Again, I had entered back into the drilling engineering aspects to complete a few things such as the economic aspects of well design and things like that, but I didn't fully get in my regulatory role. So I was working in Calgary and the opportunity arose to join the provincial government with Alberta Environment and that was the decision that I made at that time.

AD: So how long were you seconded to Petro-Canada?



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.



SINGH: It was supposed to be for a year or two but it was six months into that secondment that this opportunity arose and that I decided to take it.

AD: So what was your title in terms of your first job at Alberta Environment?

SINGH: So my first job title, I believe at that time it was Industrial Approvals Engineer in the Water Quality branch, and it was really dealing with the industrial wastewater aspects of energy facilities such as the Imperial Strathcona Refinery, Syncrude .... I also dealt with natural gas processing plants including addressing groundwater contamination at those facilities. So I dealt with all of the large natural gas processing plants in the province. I got very familiar with those and I also became familiar with other energy facilities such as Syncrude, such as Imperial Strathcona, and I did that for four years. And then I switched into the Air Emissions Branch, similar title, Industrial Approvals Engineer, but now focusing on the air emission aspects. And again, I worked a lot with Suncor and Syncrude at that time, and so that was the progression in the industrial or environmental engineering aspects of my initial work with Alberta Environment.

AD: Now, in terms of the environment, Alberta was the first jurisdiction, I believe, in the Commonwealth to have a ministry of the environment established around '72, '73; and as the megaprojects of the seventies and early eighties ramped up, the province, through the Department of the Environment, had to develop not only the regulatory frameworks but the monitoring, and also the staff to take on those kinds of activities. Can you give me an idea of what Alberta Environment looked like in that era; you know, the nature of the staff, the nature of the responsibilities, not only in your area of water, but other areas.

SINGH: I can -- in a couple of ways I can. One, when I joined the department in 1989 there were still a large number of staff who had started with the department when it was initially formed, so those were many of my mentors when I joined the department, so I do know about our organizational history in my work with those individuals. I also did have a need to look back to those early years of the Department when Syncrude was first reviewed for regulatory approvals. So I look back through all of our files, right back to day one for both Syncrude and Suncor.

It must've been a very exciting time in Alberta Environment. There was a tremendous volume of work that was produced for natural gas processing plants. That's where our water management requirements were developed in those early years. Our air emission requirements -- air monitoring was developed at that time. There was actually a tremendous amount of work done on oil sands in the early 1970s that, when Syncrude was proposed, even back at that time people were anticipating that there might be eight plants the size that Syncrude was proposed; eight plants of a 100,000 barrels a day in fairly close proximity. So, even in the early 1970s people were thinking about cumulative effects. In fact, even the way Syncrude was permitted for air emissions; it was to allow for an additional six or seven plants to be built, and yet still achieve acceptable air quality outcomes.

So in early 1970s setting up a new department, Alberta being a busy place with anticipated oil sands development at that time, there was a tremendous amount of work done and I've had a need to



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

access that when I was a technical staff member as an engineer. I also look back at that material as we updated some of those requirements over time, but it must've been a very exciting time in the province -- of a lot of economic activity; a new Environment Department; setting up a new organization; setting up new environmental requirements. It must have been an exciting time.

AD: So you would've also looked at the AOSERP [Alberta Oil Sands Environmental Research Program] reports that were done.

SINGH: Yeah, so in anticipation of oil sands development in the 1970s it had been anticipated that we would get a wave of development that actually didn't occur until the 1990s, but in preparation for that there were baseline studies that were being done through the AOSERP program. As I mention, government was already starting to think about cumulative effects. Syncrude, when it was initially proposed, did have an environmental impact assessment report. Syncrude also did some baseline studies as their plant was being constructed. So, again, I did have a chance to look at that information and there is a body of information that not everyone is aware of -- but it does exist and especially for baseline kind of information it can be very useful -- because it was prior to developments having occurred ... at that time Suncor was operating; Syncrude was proposed and under construction; and there was a lot of work that was ongoing in anticipation of further development.

AD: Now, when we talked previously, you indicated to me that you've viewed this research that you did into the permitting for Syncrude as a kind of template for permitting of these large-scales resource development projects. Do you want to talk a bit about that, the nature of the permitting? I mean the hurdles that the companies had to go over and also the relationship of government, i.e., the regulator, with the industry in this era where you became involved.

SINGH: Okay, so I'll first start off with what I understand in the 1970s kind of time period and then I'll talk about when the developments actually occurred in the 1990s. So, in the 1970s, literally as the Syncrude approval was written, there were guidance documents that were developed. Well, for the next plants that come forward, "Here's some of the things that should be included as information requirements and as design requirements." So there was a set of standards for air emissions from oil sands processing plants. There also was for water and the desire for recycling of water, and maximizing recycle from tailings ponds. So those were done.

There would be application requirements as far as an environmental impact assessment report, a formal application. Even back at that time, people were looking at the triple bottom line that very much the Alberta government was looking for what would maximize the benefit for Albertans from a social standpoint, and persons did anticipate if there was a rapid pace of development, what would be some of the infrastructure implications? What would be some of the environmental implications? So people had started to project ahead for what those issues would be that would need to be managed, and also how to maximize the benefit for the public at large.



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

So that was considered in the 1970s but then there was a slowdown during the 1980s. When the developments actually did come in a vigorous way in the 1990s, there were several things further in place that were helpful to us. In my view, one of the things that was really important was the Environmental Protection and Enhancement Act – EPEA -- which was promulgated in 1993. It took the Acts from our early 1970s, our Clean Air Act, our Clean Water Act, and it put them into a comprehensive Environmental Protection Act.

Other things that were quite forward-looking in 1993, and have been very helpful too, as EPEA did build in participation for the public, inter-regulatory processes, so the shared stewardship concept. It did build in aspects of formalizing further the environmental impact assessment process, even though we had been using environmental impact assessment processes since the early 1970s, the 1993 Environmental Protection and Enhancement Act provided a more formal approach on how those should be carried out, including opportunities for public input in setting the terms of reference for an environmental impact assessment report. So that was very helpful to us, those cornerstones of EPEA -- of public participation, a more defined and formal process -- were very helpful to us.

When we did see the expansion of the oil sands in the 1990s, we were able to apply those in the regulation of the project: so, formal EIA processes, the comprehensive nature of the environmental approvals that we issued to the facilities, so we were able to take those concepts, many of them that were forward-looking in EPEA and we were able to apply them in the mid-1990s when we started to see increased oil sands development, largely as the result of the National Oil Sands Task Force ...

AD: Yeah.

SINGH: ... that had set forward ideas for how to encourage further development of the industry and how it should be managed.

AD: So you basically entered the ministry at this point when there was relatively little activity in terms of building of new plants. But then, of course, the Oil Sands Task Force and the agreement with the federal government and the new royalty regimes made it economically feasible for the new generation of plants to be built. The environmental monitor -- approvals and monitoring frameworks that were in place -- can you describe those with respect to water and air both, which were considerations in terms of the development of not only Syncrude but the plants that have come after?

SINGH: Certainly. So in the mid-1990s as we reviewed individual projects, we had a very comprehensive environmental assessment and approval process for individual projects, so we did fully engage that on a project-by-project review. Quite quickly some of the issues that had been anticipated in the past, such as cumulative effects, the total of a number of projects started to become prominent. Environmental impact assessment reports started to address cumulative effects, so that was an important element -- started to become more prominent in the regulatory reviews including the environmental impact assessment report.



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

Also our regional efforts that, as you describe, there had been the AOSERP project that from about 1975 to 1985 collected baseline information. We did have a regional air shed approach starting in about 1989 with the Wood Buffalo Environmental Association, so that network of air monitoring stations was expanded over time that as new projects came online we required those projects to fund additional air monitoring. They could choose to do that on their own, or they could work through WBEA. Exclusively, companies chose to work through WBEA, so we were able to expand the air monitoring network at the same time that projects were expanding.

We also needed to further address water aspects so there was monitoring that Suncor and Syncrude were doing, but there was collaboration amongst the industry. There had also been a lot of work done on the Athabasca River in relation to pulp mill development in the late 1980s, early 1990s, so we had the benefit of the Northern River Basin Study.

Then in 1999, if I recall correctly, we had done work on a Regional Sustainable Development Strategy that was led by Alberta Environment and it identified a number of areas related to the environment that we needed to focus upon; and that work of the Regional Sustainable Development Strategy I think was very good. It informed us of some of the items that we knew about from previous years, but it did engage persons from the area, including Aboriginal groups; the broader community at large; industry; government departments; and we did and it was within a fairly short period of time -- in about six months' time -- we prepared the Regional Sustainable Development Strategy, identifying the issues and how those should be addressed.

That was actually the start of the Cumulative Effects Management Association, CEMA. CEMA came into place to really address those things that had been developed in the Regional Sustainable Development Strategy, or had been identified in that strategy. Since that time, government has recognized that there's a need to augment further the monitoring that's done within the area. There was collaboration between the federal government and our provincial government and that had led to a further expansion of some of the monitoring plan for the area. We're in the process right now of developing a monitoring agency for the province -- in the past we've done some of that monitoring as a department; some of it's been done through regional air shed groups and other groups; but now to set up a monitoring agency to focus on that monitoring for the long term.

So those are all outcomes that have occurred as there's been an expansion of oil sands development, and particularly looking at the cumulative effect of those projects we've needed to develop additional policies. We have a Water Management Framework for the Athabasca River in relation to water withdrawals from the river, again taking into account we now have several large projects withdrawing from the river whereas in the early years there was just Suncor and Syncrude. So as the industry has expanded, so to have our monitoring efforts and we continue to need to develop programs policies to address the cumulative effect of the projects.

AD: Well, it's -- interviews with people within Alberta Environment are significant because, if you listen to environmental critics, basically, they lead the ignorant to believe that there's never been any environmental monitoring and -- or if it was, it was totally inadequate -- that there was no



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

stewardship of the resource with respect to government's dealings with the industry. Now your career has been spent doing exactly those kinds of activities and so how do you react to those sentiments?

SINGH: We do work a lot with environmental groups we have in cooperative processes. Sometimes things have become adversarial. On the one hand, personally I appreciate that we do have persons advocate on behalf of the environment because that advocacy is important. But it isn't correct in my view that it's been a lack of oversight. There have been regulatory systems in place, even prior to Alberta Environment. In my review of the history of permitting of Suncor's facility, prior to Alberta Environment, the Department of Health looked at things like air emission, so Suncor was reviewed in terms of acceptability of air emissions from the facility. So we have had an ongoing oversight.

At times we've had a great deal of good cooperation from environmental groups; that was a very enjoyable part. I would say from about 1995 to 2006 we had very much a cooperative approach from, especially our Alberta environmental groups, groups like the Pembina Institute, the Fort McMurray Environmental Association, ToxicsWatch [Alliance]. They've actually very much been our partners in cooperative processes. But we have had adversarial processes and sometimes there is misinformation that can cause misunderstandings for laypersons. That, I believe, is unfortunate because we can have differing opinions but we should all be putting forward useful information for members of the public, so in my opinion, having worked in the area and having looked at the history prior to my involvement in all of the oil sands development from the time of even Suncor, there has been regulatory oversight. That has evolved over time and it'll need to continue to evolve as our understanding of the environment evolves over time; as we get greater population growth and industrial growth within Alberta, our regulatory systems will need to evolve as we get maturing industrial sectors ... Alberta is still a very young jurisdiction, but we will end up with maturing industrial sectors including oil and gas. Our regulatory system and policies will need to evolve. So the regulatory oversight has always been there. It has evolved over time and will continue to evolve over time.

AD: Now, in terms of the development of, of the petroleum industry in Alberta, and certainly the oil sands, there's been a very close relationship between the government and the companies. You know, going back to early oil sands history, the federal government through the Mines Branch -- Geological Survey -- drilled the first three test wells up there in the 1890s. And then we saw the University of Alberta, Henry Marshall Tory, the first president, really seeing the university as in partnership with government in resource development. So we've seen government involved in 30 years of oil sands research and development initially as a source for road paving materials, you know, roofing, all of those things, but then Karl Clark proved that it was a source of synthetic crude, I mean, and developed the extraction process.

So government has worked very closely with industry and the Government of Alberta was even a stakeholder in Syncrude. Do you think that, in terms of the public, that the feeling is that perhaps



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

government has been too close to the industry, and that it hasn't had the appropriate distance from the industry to regulate appropriately? I throw that out as a question.

SINGH: So I can appreciate there can be a variety of views ...

AD: Yes. Yeah.

SINGH: ... on these kinds of topics; so, from my perspective, a few things come to mind. Government has a number of interests related to natural resource development including the oil sands development. At times, government has done the base research for, particularly oil sands that as you described, Dr. Karl Clark had done some of the initial work on the hot-water extraction process, but then that was actually operationalized by Suncor and, then, later on, both Suncor and Syncrude optimized that process. Similarly with in situ oil sands development, government had collaborated with industry on the AOSTRA project and that was really where the SAGD process was developed. So, again, on that base research for the resource in the province and how could it be developed, government was involved, and that is an aspect that government is involved in is the resources in the province, and especially the base research.

But, again, with SAGD, then, government hasn't been involved afterwards – it is industry then [that] operationalized that and optimized it. So within government there are branches of government that do look at the resources within the province, and sometimes do assist with things like research on “how might those resources be developed.” There's other portions of government that are more on the regulatory side, and that has largely been the case with Alberta Environment that we don't directly fund research on the development portion. Our role is much more from a regulatory standpoint and from an environmental management standpoint.

I can appreciate for members of the public, at times, there can be confusion and there can be opinions on those various aspects that government does have an economic aspect -- an economic interest in development of the resources within the province -- but it also has an environmental outcome and an environmental regulatory role, which is done by departments like ours and regulators like the Energy Resources Conservation Board. Government also has a social aspect as far as social benefits that go with development such as jobs, things like that, but also quality of life, health of Albertans, those kinds of social aspects. So government ends up with many different considerations related to resource development, but I appreciate there can be differing views. Some persons do see those variety of interests and variety of roles that government departments and regulators play. Others may wonder at times about government's interest overall or may have opinions as far as the government's interest. I respect that but, as I say, I truly see from my viewpoint as having been a regulator -- as being an environmental manager -- that there truly is that aspect of what government does as well.

AD: Now, we've talked about the evolution in terms of the monitoring technology, regulatory frameworks and you've also spoken to me about the evolution in terms of people's perceptions with respect to the environment, and the need to protect the environment and how to protect it, and



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

you've talked to me prior to the interview about different eras. I mean, do you want to get into that -- I mean the whole philosophy of environmental protection and then how that was implemented by Alberta Environment in the areas in which you worked.

SINGH: So, a few different aspects. Again, over the course of even my lifetime, I can remember in elementary school in Alberta I would say the first wave of environmental awareness, environmental regulation was the late 1960s, early 1970s. That's when our environment department was formed; that's when agencies like the US Environmental Protection Agency were formed. So I would say the first wave of environmental awareness, environmental regulation, was the 1970s. In Alberta, I also saw a resurgence of that in the late 1980s when I joined the Environment Department. The Environment Department was expanding at that time. There was an interest in increasing the enforceability of some of our environmental regulations, and that was also a cornerstone of the Environmental Protection and Enhancement Act. There was a desire to formally incorporate in processes [the opportunity] for public participation so, again, I saw that in that era of the late 1980s, early 1990s.

In oil sands it was quite interesting in the time period I was involved. I would say in the beginning of the rapid expansion of the oil sands in the early mid-1990s, we had a time period of ten years where it was very much a cooperative approach between ourselves, environmental groups, Aboriginal groups, because we had built processes for input by those groups. We were all working together in regulatory processes. All of those parties had opportunities for involvement in the Regional Sustainable Development Strategy and CEMA.

In my view, 2006 was an interesting year -- that was the year where, for a variety of factors, we did end up with strains in the cooperative approach. We had three oil sands mine hearings back-to-back-to-back in that year, in 2006. We had the Regional Municipality of Wood Buffalo intervene in those hearings -- concerns about the pace of development and the ability of the community to keep up with infrastructure and with quality of life types of issues; also, with environmental groups and Aboriginal groups, some of them I think were starting to express frustrations with the amount of time it was taking to develop some of the things through CEMA, and the cooperative forums. So, we did end up with more adversarial processes that occurred at that time.

We did have a very high-profile incident with the Syncrude ducks incident in approximately 2008, 2009. I can't remember which of those two years it was but that became a very high-profile international-level awareness of the oil sands and it has been a more polarized discussion since that time. I would say in our Alberta context since 2006 that with the pace of development and with some frustration with the processes that we were cooperatively developing, and I would say in about approximately 2008, 2009 where the oil sands became very much an international kind of a conversation. So, those are some of the changes that I've seen on environmental awareness approaches that have been taken by a variety of parties in relation to the environment overall and oil sands specifically.



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

AD: Now, in terms of your responsibilities, you dealt with water and air issues for -- basically from 1989 to 1998 -- and were there any issues, I mean not just in terms of the oil sands, but other -- natural gas processing plants, whatever, that you could tell me a little bit about. Give me some examples of the responsibilities -- of your responsibilities -- in those areas.

SINGH: So certainly with natural gas processing plants, as you described, air and water we've had an awareness for some time, and we have made efforts over a number of years. Groundwater protection and clean-up of sites, remediation started to become much more prominent when I joined the department. So that's when we started groundwater monitoring at a lot of natural gas processing plants, and practices that were acceptable in their day, they were common practices such as on-site landfills, flare pits, those kinds of things. We became collectively much more aware that those could impact groundwater; they could impact soil. So we started a lot of our remediation efforts at that time.

On oil sands, and particularly the mines, a couple of other issues beyond the air and the water -- oil sands mines, tailings have always been an important issue. It's been a very challenging technical item for the industry. Also, it's one that's in play right now with our regulatory system that we have been closely overseeing oil sands development, management of tailings but we needed to start developing some specific rules related to the tailings. The first of those was a directive -- D74 -- that was issued by the ERCB but did have involvement of some of our Alberta Environment staff. We ourselves are working on a tailings management framework at this time. So with the oil sands mines, tailings has been an important aspect that we continue to work on.

With the in situ projects -- an important aspect are the land disturbances that go with them -- that the in situ projects don't have the same intensity of disturbance, obviously, that the mines do. But it's over a much larger area; so, again, the cumulative effects of the roads, well pad, seismic lines do start to become an important consideration.

So in my current role I have been involved in a lot on land issues, in fact, much of my focus right now is on those land topics of tailings, reclamation, remediation and some of the cumulative effects. So, at this point in my career, I'm actually focusing on those items much more. I have truly had an opportunity to be involved in all three of the media -- air, water and land -- and, again, the understanding, the issues related to those have evolved over time but all three of the media do have issues that we are managing, and they all have cumulative issues that we are managing over time.

AD: Now, you experienced the whole rejigging of government; I mean under Premier Klein and Steve West, Minister Steve West, the whole downsizing in regionalization. Can you talk about that with respect to your own career and your responsibilities within the ministry?

SINGH: Certainly; so when I joined the ministry in 1989 we were very much a centralized organization -- we issued all of the environmental approvals out of the building that I work in right now -- so we were very much a centralized organization. Governments do end up with policies overall, including related to the public service. Some of the important ones that did influence my



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.



career and the career of others, the approach to regionalization that the philosophy is to get persons closer to where the activities are occurring because there can be place-based considerations. So that's when I moved to our Northern Region, in my case still located in a different part of Edmonton, but my responsibility was then related to the Edmonton area and points north, including the oil sands, and some of my colleagues worked in our Central region as well as Southern region. That philosophy continues with our land-use planning. In the province, we have seven regions and we're developing land-use plans because there are regional differences in the province, and yet we have some province-wide kind of requirements as well.

We did have a downsizing of the public service in the 1990s and that was personally difficult for individuals in the organization; I think we did lose some of our capacity at that time. Planning was one of the things that was not in favour at that time, so we did re-deploy a lot of staff out of planning kind of approaches, more into direct regulatory approaches. Later on, 15 years later, we've embraced planning again and so now we are going to great lengths to build up our capacity within that specific area, because we do need plans to guide development, and also to help government make choices that as we get population growth, as we get industrial growth, sometimes choices have to be made between different kinds of activities, or we have to change expectations on how activities can be carried out.

So certainly regionalization -- the cutback years -- did make a difference to the public service and it was also a philosophy in the mid-1990s of less direct government involvement. That was quite a change from the Peter Lougheed years of the 1970s because, when oil sands development was first envisioned to expand rapidly, there was actually a great deal of control envisioned by the government, even to the stage of perhaps staging how much development could occur at one time. So those differing overall policies, philosophies do make a difference but that's what governments are elected to do -- they put forward a platform of policies. But I have seen that in relation to oil sands -- in the 1970s very much anticipated that government would actively manage and intervene in the pace of development.

In later years, it was much more of a philosophy for government not to intervene on that portion; still be involved as a regulator and in other things that government does, but a philosophy of less involvement by government on things like pace of development, and less government involvement overall on many of those economic types of activities.

AD: Now that regionalization philosophy of elected officials impacted directly on your career. I mean you became the Regional Approvals Manager for the Northern Region of Alberta Environment and of course the big developments were oil sands developments. Can you ... and of course you did that for 11 years.

SINGH: Mmhm.

AD: So can you -- I mean, so you were really in the hot seat because the pace of development just ramped up outside of anyone's expectations and you refer to that -- the Lougheed era, which



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

embraced planning. Now we've got this massive scale of development and all of these projects and environmental impact assessments, social impact assessment, land use studies, all of those things -- can you tell me what it was like dealing with that?

SINGH: It was a -- it was an exciting time; it was a very busy time, so as you describe, prior to 1995 the oil sands, and generally, economic development in Alberta was very slow. In the first few years after the National Oil Sands Task Force, we weren't sure how much development we were going to get but the pace certainly picked up. So it was a very busy time and it was quite interesting. On the one hand, at times strains that ... for our own staff, so we did have to staff up at that time. We were extremely busy during those years of increased oil sands development. Also a very exciting time; many new developments, many challenges. Some of the really positive things that I saw was especially in the public service -- the nature of our work is many of the persons do develop a real passion for the work. So seeing the staff, who really wanted to do the best job they could, went the extra mile because they felt they were doing work that was important for the public, the greater public good. I certainly sense that in my work as well.

Pace of development -- that did start to become an issue for us of just keeping pace with those. In my own case, and I voluntarily and gladly did it, it became a five-and-a-half-day-a-week job for ten years straight in my case. But I was glad to do that -- that my staff were working extremely hard on these issues. We really did want to manage them well. We did end up having to adjust some of our processes because, after a certain point, there's only so much that we can ask of our staff, but some of it, in the very first developments related to oil sands mines in situ, there were many new topics for us. Afterwards, we did start to see many of the same topics over and over again, so the need of what we needed to manage changed, that individual project reviews, oversight of the projects, is still very important, but the sum total of those, the cumulative effect, became much more important to manage.

Therefore, developing new policies to keep pace with that became much more important; that's why we had to re-embrace planning because we really did, I think, see why people had embraced planning in the 1970s is when it becomes a very fast pace, government needs to provide that direction. You need things beyond individual processes. So, then, the time period that I was involved as the Regional Approvals Manager, tremendously busy time in Northern Alberta; that did end up resulting in large workloads for those of us within the public service, but many of us got a great deal of satisfaction out of that -- that training that I had done formally through my education and through my earlier years of work. I certainly had the opportunity to apply all of that.

And, so, on the one hand, challenges that occur with a very rapid pace of development; on the other hand, a great deal of fulfillment of an exciting time, of an area of the province, and area of North America that was probably the busiest of almost anywhere, and we were right in the midst of it. And, particularly, those years when the staff were extremely enthusiastic; I was extremely enthusiastic; extremely fulfilling, but very demanding as well on persons within the public service. Sometimes that isn't recognized and, particularly in my case, I sincerely appreciate all the great staff that I've had work for me over the years, the persons who put their heart into it and particularly



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

persons who choose to work in the public service in areas like the environment. It's very conducive to that, and a number of our staff, what really motivates them is the passion for the work, and I believe it's because they do feel that they can impact outcomes for the greater public good. So we do end up with very motivated staff and those are the kind of things that I find most fulfilling in my work is -- especially those staff members who are very passionate about their work and go the extra mile.

AD: Now, you know, in terms of that period, name some of the projects that you had oversight for and, you know, reviewed with your staff; their Environmental Impact Assessments, and saw to the permitting. Do you want to talk a bit about that process, but give specific examples and name names of the projects?

SINGH: Sure. So maybe I'll start off with one of the first ones and it was while I was in the Air Emissions Branch still working as an environmental engineer. Suncor -- we required them to do a major reduction in their SO<sub>2</sub> emissions, so they installed a flue-gas desulphurization plant. In 1995 that was in the order of about \$200 million, so a large investment for Suncor. I very much was involved in the review of that, and that was a very satisfying project, because we had this opportunity for a major-step change in sulphur dioxide emissions, so that's one that I vividly remember. And also at that time period -- Suncor had major odour issues in the early 1990s that caused concerns in Fort MacKay and Fort McMurray, so that was a very exciting project.

The first of the major new projects, after the Oil Sands Task Force, Suncor Steepbank was a very important project because that's when Suncor went to the east side of the Athabasca River, a large new mining area; also, that was when regulators were very much looking to do thorough processes but efficient processes. So that was the first big project and we had many experienced staff. I led the Air Review of that for air emissions, air outcomes -- that was an exciting project.

AD: We've had some sound issues and I'll just ask you to backtrack a little; and you were talking about the desulphurization plant that Syncrude established and that you were involved with that. So do you want to reprise some of that?

SINGH: Sure. So, again, actually that was Suncor, it was Suncor's ...

AD: Oh, Suncor.

SINGH: ... flue-gas desulphurization plant ...

AD: Okay.

SINGH: ... in 1995 -- approximately -- was the time period I recall, and it was a major opportunity to reduce SO<sub>2</sub> emissions, which are an important air pollutant because they can lead to things like acidification of soils and water, so that was a great opportunity for a major improvement at Suncor. Similarly, Suncor had odour issues in the early 1990s so we'd required them to make plant modifications to prevent those issues; that is something I very much recall. Similar time period is



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

Syncrude Aurora had been proposed, again in the mid-1990s, and it was Syncrude's first satellite mine away from their Mildred Lake Mine; quite an interesting project of Syncrude going to a lower temperature extraction, taking water from their Mildred Lake upgrader to that site, so quite environmentally a commendable type of effort.

At the same time, or very shortly thereafter, Shell had expressed an interest in the oil sands again, so the Albion Project, and Albion, one of the things we really did look at carefully was the location of their tailings pond, that the tailings pond for the Shell Albion Muskeg River project is located across the river from Fort MacKay. So we did put our mind very carefully to environmental outcomes and, to date, there haven't been issues as far as odours and things like that, but we were trying to be very careful with regards to environmental outcomes. That was the suite of projects that come to mind after the National Oil Sands Task Force -- those projects in the mid-to-late 1990s in the oil sands mining area.

Similarly, at the same time that the Muskeg River project was proposed by Shell Albion, they also proposed their upgrader at the Scotford location in the Fort Saskatchewan area east of Edmonton. I was very much involved in that, as well as the regional air shed group that was developed in the Fort Saskatchewan area, the Fort Air Partnership. I was involved for three years when that air shed group was set up involving members of the public. Two members of the public I very much remember -- Keith Purves and Warren Sarchuk were a couple of persons from Fort Saskatchewan who were very interested in air quality.

At that time, I was also involved in Fort McMurray with the Wood Buffalo Environmental Association, and we very much had involvement from Fort McKay. Fort McKay was a very important community that led to actually our air shed approach within that area. Persons I remember, Bertha Ganter was a person from Fort McKay. She attended our meetings, advocated on behalf of the community. That was tremendously helpful to hear from a member of the community in addition to the industry people and government people who were involved on that committee, as well as the late Pat McGinnis, who was an environmentalist in Fort McMurray. Again, tremendously important person advocating on behalf of air quality and later she was followed by Ann Dort-MacLean. So my involvement in the late 1990s, and I served on would be for eight years was extremely memorable in my view.

After that we ended up with a second wave of oil sands mines. I remember the Shell Jackpine project; I remember CNRL Horizon; and Suncor Millennium. So that was a wave of projects that followed in approximately 2003 and, at that time, a very important First Nation concern that was brought forward was the Mikisew Cree First Nation. They had chosen to become involved in the regulatory processes. Water was a very key issue for them, so with three new oil sands mines they were concerned about quantity of water, water quality. So I did get a chance to travel to Fort Chipewyan; we had met with Chief Archie Waquan, his Band Council, and we were able to discuss with him the things that we were doing to manage water quantity, water quality. At that time, we even seconded a staff member to work with the Mikisew Cree so that they could get their industry



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

relations corporation up and running to fully participate in environmental impact assessment reports, regulatory processes, the same way that Fort McKay had been.

The next wave related to oil sands mines that I recall after that was in 2006 when we had three projects following one another with expansions at Suncor; expansions at the Shell Albian Mine; and at that time the Imperial Kearn Mine was proposed. So it was the next wave of mine developments in the Fort McMurray area. There I do recall again Fort Chipewyan that we had travelled to the community to attend meetings with the Athabasca Chipewyan First Nation, particularly related to the Kearn project, as well as Mikisew Cree and we had assisted the Fort McKay IRC. So those are ones I recall in the oil sands mine area.

At the same time, we started to get in situ projects. Ones that I vividly recall, Petro-Canada McKay River, which became Suncor McKay River was one of the first to use SAGD as a technology. Similarly, Alberta Energy Company at Foster Creek, as well as Encana at Christina Lake, and those were the first projects using SAGD. So we did need to understand the water management related to those projects, whether there would be any groundwater concerns, and similarly groundwater was an important component related to expansion of the Imperial Cold Lake Project as well as supply of water for that in situ project. So that was a great opportunity for me to work with my staff.

Some of the things we did with in situ oil sands projects is we deliberately put in additional monitoring requirements related to wildlife that, as soon as we started to get at the SAGD projects, even before we fully had policies and plans in place, we could anticipate that the footprint of those projects would become an issue as far as cumulative effects. So we required additional wildlife monitoring. We did require additional assessment of soils, vegetation prior to each stage of the in situ projects going forward. Those were exciting projects that I got to work on with our staff and really, at that stage, when I was the Regional Approvals Manager, it was actually an extremely enjoyable time period for me because I could assist the staff with some of the technical items when they needed that input, when they needed direction. But I could also focus on the decision making portion that staff brought forward a number of very good ideas on regulation. I could help shape those as ultimately the decision maker.

An important element was relationships; we very much valued working with Aboriginal communities, environmental groups in a positive way, but we also had a very professional relationship with the persons we worked with at the facilities that we wanted our technical staff to work very closely with their counterparts at those facilities so that, again, we could make informed decisions; we could manage environmental issues in a responsible kind of a manner. So those are the things that I recall as far as some of the projects, some of the external stakeholders that we dealt with during that time period.

AD: So would you say that in terms of Alberta Environment that it has really worked to give Aboriginal People and others a voice in the process?



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

SINGH: Very much so; that's been the desire. It has been in our legislation that that was a very important cornerstone of EPEA, that concept of allowing for input of members of the public and the regulatory processes; the concept of shared stewardship. The need and the duty that we have to engage First Nation communities to consider their concerns, that was an evolving topic over that time period. But, in north-eastern Alberta, those are the Albertans that in many cases are the most impacted by activities. It is communities like Fort McKay; those are Albertans that are in the closest proximity to the projects. So very much we wanted to engage those persons because they do have very important topics that they want to have addressed properly. That was an important part of what I tried to do and I think, overall with Alberta Environment with our Environmental Protection and Enhancement Act, and really embracing public input into a regulatory processes; that was an important element and, frankly, it was a very helpful element so that we could get a variety of views and take those into consideration in formulating recommendations and in making decisions.

AD: Can you give me some examples of how the input of Aboriginal People and others then was taken on board and changes made?

SINGH: Sure. So one aspect that I can recall is, as I'd mentioned, with the Mikisew Cree, an important item to them is the water flows and the Peace Athabasca Delta, so, even though from a technical standpoint in the early 2000s, we had thought water quantity would not be as pressing an issue as some other environmental topics, we did accelerate the work that we did in developing the Athabasca River Water Management Framework, even in how we issued the water licenses. We staged them for various stages of development and that truly was to try and address the concerns that were being brought forward by that community.

For Fort McKay an important consideration as long as I've been involved in oil sands development regulation has been air quality. So we did require additional air emissions control for boilers and heaters beyond what we had required in the rest of the province. WBEA has a very comprehensive air monitoring network. A lot of that was in response to the local community, again, in response to the community of Fort McKay, but we also have an air monitoring station in Fort Chipewyan, so it was in response to those communities.

More recent times, when we renewed the environmental approvals for Suncor, Syncrude Albian in approximately 2005, because our peer approvals are issued for a ten-year time period, we did involve Aboriginal groups in the review of those draft approvals. We'd also made a site visit. An important concern to those communities is Syncrude had planned to test some underground storage of sulphur in case the sulphur needed to stay for a long period of time. That was a concern to persons representing Aboriginal groups. We expressed that to Syncrude; they did remove that as part of their proposal. So we did try to take into consideration, and where we could we did try to make accommodation for concerns that were being expressed because, genuinely, that was the reason to engage the communities -- to find out their concerns, in addition to the scientific technical concerns that our own staff may identify, and that was an aspect that we were able to do in many of the regulatory processes related to the Water Act and the Environmental Protection and Enhancement Act.



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

AD: Now, did you, did the Ministry resort to outsourcing of certain research and other activities with respect to this approvals process?

SINGH: No; one that we did have to adjust, and as I described earlier, it was a very busy time period. Initially with environmental impact assessment reports we used to do all of the technical review by our own staff. Many of them were staff that worked in my approvals group. But in 2006 we got to a point where we couldn't do all of that and also do our approval work, so what we did do is the technical review to advise our decision maker with regards to adequacy of the Environmental Impact Assessment Report; we discontinued most of our own review and we relied on third-party reviewers.

AD: Okay.

SINGH: The decision would still be made by an official in the department. It would need to fulfill the terms of reference but the technical review we did outsource to those persons to do. Some of the other changes that were made, and they were deliberate, is I described the approach of shared stewardship, and that occurred on air that, when I started with the department, we did our own air monitoring and industry did some of their own, but we very much embraced and deliberately wanted to have air shed groups. So we no longer did the monitoring.

We would have a contractor who ran the air monitoring stations but there would be a committee of persons. As I mentioned, I had served on Wood Buffalo Environmental Association for eight years, Fort Air Partnership for three years. So there we were more guiding the work. It was a contractor who was physically doing the monitoring. So, as time has gone on, government has engaged more parties, particularly on delivery of the programs and delivery of monitoring. Government has focused more on policy, on programs, decision making, coordinating the overall system, but over time we have engaged more persons within the system and much of that has been by design; it has been deliberate.

AD: Now, we, you talked about 2006 being a pivotal year in terms of the industry receiving much more scrutiny on the part of, of environmental groups -- international environmental groups; and the -- I think some of the opinions that have been expressed are that government hasn't managed effectively; not only, you know, the scale in appropriate development of projects, but also on the environment side that not enough monitoring has been done, you know, a whole range of things and I'm then referring specifically Dr. David Schindler's report and which then was countered, to a certain extent, by the Royal Society Steve Hruddy Report. Do you want to talk a bit about that, and your perception as a senior civil servant charged with those responsibilities?

SINGH: Certainly. So a few things come to mind; as you described, in my view, 2006 was a watershed year in terms of relationship with some of the environmental groups and other groups, some of whom felt they needed to take a more adversarial, more critical review as compared to the cooperative processes that we have had in the past. So I very much observe that having occurred and that's what I believe did occur is that we did end up with [that in this] time period. So I think a



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

few things: one, I think the pace of development and government's response to an approach to it. It did show the need for, particularly the planning, planning for things such as growth of the city of Fort McMurray because very much a telling sign when we've got the community representatives in the Regional Municipality of Wood Buffalo, who are elected by the local community, objecting and saying they can't keep pace with the pace of development.

That is very telling and government did respond to that afterwards. There was a report that was led by Doug Radke actually; he was a former deputy minister with Alberta Environment. So, then, there were a number of things that we did in response to that but it was reactive that government, in that case, did react after there was a concern that was expressed.

A couple of things in my view and these are my opinions. We did identify a number of things in the Regional Sustainable Development Strategy that needed to be addressed as far as cumulative effects, but those are complex issues and I think persons involved with that -- it may have been somewhat surprising and somewhat disappointing to persons that they are complex issues; they do require a great deal of review so that informed decisions can be made on policies and on new requirements; and I think some persons did find that frustrating.

I think the cooperative processes -- they need to fulfill the needs of all of the individuals that are involved. My experience has been those cooperative processes, multi-stakeholder processes, they're quite fragile. They take a long time to put in place, but they can be undone quite quickly, especially if some of the parties feel it's not meeting their need anymore; it's understandable then that persons may look to other forums to address and advocate on behalf of their concerns.

With regards to the technical aspects, personally, that's one that I'm not entirely comfortable commenting to a great degree because there are differing views. There are some scientists such as Dr. Schindler who have expressed concerns and they are advocating for an outcome and it's not my place to criticize them in any way. There are other scientists like Dr. Hruday, who I think wanted to very much put forward what they felt was a very scientific and credible approach that we should keep separate these items of advocacy and science. So I think there are differing views in the scientific community on that.

We were somewhat in the middle that, as government, we have a somewhat more challenging role than other parties within the system. They can always defer. Dr. Schindler, at the end of the day, can rightfully say he is a researcher; he is an academic; he's not a regulator and isn't expected to have that role, so he can point out items but it comes back to regulatory agencies. Industry can say that as well. They can say they participate within a system but they don't set the rules; they're not ultimately responsible.

So government ends up with a more challenging role. It not only has to participate in those conversations, but then government has a different role -- it ultimately does make decisions, sometimes designated regulatory decisions as the role that I fulfill -- fulfilled; or sometimes elected representatives, who are ultimately responsible for public policy, and they do hear from many



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.



different persons. They do hear many different views advocated, but ultimately then government has to make some decisions. It has to make some choices, especially when there isn't consensus on some items.

Government has a different role than everyone else within the process and sometimes it's a more challenging role because others can offer an opinion but they're not ultimately accountable for making decisions. Government is, but that's then part of the package of when one is a regulator, when persons are environmental managers, and, certainly, with elected representatives that comes with the package -- that there will be a variety of views and ultimately those persons are tasked with making certain decisions, whether they're regulatory decisions or whether they're public policy decisions.

AD: Now, it's interesting that in -- you've indicated that environmental groups and Aboriginal People have sought other ways of expressing their agendas and concerns about the oil sands -- that a process that had worked, say, for about 25 to 30 years because those frameworks were in place, regional consultations were in place; but now we also have a younger generation ...

SINGH: Mmhm.

AD: ... and claiming that "Oh, consultation never happened ... you know, they never monitored this or, you know, were concerned about our health," and I'm thinking specifically of the Radford documentary shown ... on *The Nature of Things*, you know, where it's the current era of Aboriginal leadership and environmental leadership making certain claims that imply that there has never been adequate regulation, or any regulation at all, and that there wasn't consultation with Aboriginal People. Do you want to comment a bit about that?

SINGH: Sure. So a few comments I can offer. One is that collective memory -- that it's not exclusive to even those groups; even within our own organization, many times there aren't persons aware of work that we have done in the past, so even in our own organization with a newer persons ...

[*Interruption.*]

AD: Well, you know, we have generational shifts and we also have international interest in the oil sands, and so you have the younger generation of Aboriginal people, and environmentalists claiming ... there's never been any consultation with us. I'm thinking specifically of the Tom Radford documentary shown on *The Nature of Things*, which is really the new generation of advocacy around the oil sands. Do you want to talk a bit about that?

SINGH: Sure. So a couple of things come to mind. One is our collective memory that even within our own organization sometimes there's a lack of awareness of things that we've done in the past, so persons like myself do end up sharing with others things that we have done in the past because there can be a lack of awareness. The other thing is times are changing; that, again, during my lifetime, persons aren't as inclined to defer to just government or persons in a position of authority. Now



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

persons do much more want to see information themselves. There is an explosion of information that it out there as well. Much of it is very good; some of it is not that reliable. So that does change things for government as well.

One of the things government has wanted to do is to have greater transparency but I think we need to accelerate that because on a lot of this information much of it was collected in the past for regulatory purposes.

*[Interruption – Tornado warnings that require shutdown of the interview and move to a safer area of the building.]*

AD: So we -- it's been an exciting afternoon. After sitting out the tornado watch alert, we're going to continue with your interview, and you were talking about the generational shift and also new realities for governments, eh?

SINGH: Yeah, so with a younger generation of persons, sometimes there isn't an awareness of the things that have been done in the past, so communicating that so persons are aware of the things we have done in the past is important, but also access to information -- that there is much more access to information readily available to persons. Some of it is very good; some of it may be of limited accuracy. And that changes things for government, that persons are no longer willing to just defer to the opinion of government, there's much more information out there. So that is changing things for government. We've embraced now an approach towards transparency and making more of our information readily available. We started doing that with things like air sheds. One of the intents of that was to start sharing information and they do post things on a website as far as real time data. But, within government, even our policies -- there is a need to make those more transparent, more accessible, because persons do want to see why do we do certain things; where is that written down and those kinds of things.

So, on both program delivery and policy development, that is rapidly changing for government, and government is needing to make adjustments because of this access to information and, I think, persons having the desire to challenge and at times critically review things rather than defer to an opinion that persons may offer.

AD: So, I mean, in terms of your years in working for the Government of Alberta, you came in where government was still basically respected and viewed as an authority to now government being viewed as self-interested, and not even necessarily representing the interests of citizens. That's a very different shift, isn't it?

SINGH: It is, particularly in the environmental field ...

AD: Yes.

SINGH: ... because within the environmental field a few observations I have. One is we need to be doing the right things from a technical, scientific standpoint, but, in environmental management, in regulatory systems, public trust and credibility is also very important. So government and regulators



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

have to look for both of those. We should be doing the right things, in fact, but we should also be looking at public trust and credibility because that is an important factor on whether persons will accept the views that are being put forward is -- do they trust us? Do they feel that it's credible information that we are putting forward? So that is very much a rapidly-changing area for government and adjusting our government processes for that because the pace of information, the way that information is used, has changed. It certainly has in the time period I've been within government and I would say it's rapidly changing within even the last decade that now there is a tremendous access to information, so the relevance of information that's put out by government now is different than what it was in the past. Sometimes, government had exclusive access to certain information. That's no longer the case, so that is a changing environment for government, both on the policy side as well as regulatory programs.

AD: And, you know, we got used to the super ministries of energy and resources, health care, education, and that, in those rankings, environment was lower on the totem pole; whereas today, in terms of resource development, the Ministry of the Environment is really the lightning rod, isn't it; and under much, much closer scrutiny.

SINGH: So that has become an important element, even ...

AD: Yeah.

SINGH: ... related to other aspects such as the desire that the province has to access other markets. Many times questions that are arising are with regards to our environmental stewardship ...

AD: Yes.

SINGH: ... so we're having to tell persons -- we're having to demonstrate the regulatory systems, the environmental management systems that we have in place. So it is a ministry that is much more under the spotlight. It has been in the past as well, but now that linkage to broader aspirations that the government has as far as market access, the environment becomes an important consideration. Also, we are still in the process -- we've been together for a year -- we have combined our Environment and Sustainable Resource Development ministry, so even though I'm still used to using the term Alberta Environment, it is a legacy term now. We are Alberta Environment and Sustainable Resource Development, so we are one of the larger ministries by size. We're an organization of about 3000 persons, but then we have a great diversity of issues that we are managing -- everything from forest management, forestry management to fish and wildlife to air, water, land -- than we did in the former Environment Department.

We're also going through things like results-based budgeting of reviewing the relevancy of our programs, and that is understandable that government has multiple demands of public services and, with ones that we deliver and every other ministry, those are being reviewed -- of the value of those to Albertans; the relevancy of them; the efficiency with which we deliver those and that is part of the setting that we're working within right now.



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

AD: Now, water has become a particular area of concern and I'm thinking of former Lethbridge [University] President Howard Tennant and those, that particular initiative. Do you want to talk about that and, then, I think we'll move on to a discussion of provincial/federal discussions around tailings and other oil sands issues, and then finally the single regulator; you know, if you can work your way through those ...

SINGH: Certainly.

AD: ... series of questions.

SINGH: So water is a very important element of the environment for a variety of reasons. Ever since European settlement of Alberta in the southern portion of the province, things like irrigation were very important for the land being useful. So water has been a passionate issue over time; as I expressed earlier in our conversation, it has been and is a very important issues for Aboriginal communities such as those in Fort Chipewyan. So with water we have long-standing kinds of approaches. Our approaches to water allocation, they're older than the province; those were initially set up by the federal government and some elements of that we continue to use. But we are evolving our management of water.

In the north area, particularly in the Fort McMurray area, we do have some opportunity -- that area hasn't had the level of development and the level of population as other parts of the province, so we do have a choice with things such as the Athabasca River. What are the outcomes that we want to achieve from a societal standpoint, as well as from a scientific standpoint; so water is very much in play as far as issues in specific parts of the province and the overall management of water -- in some areas of the province, scarcity of water, particularly in the southern part of the province.

Historically, in the north, it was water quality in relation to development such as pulp mills and the oil sands, but even in Northern Alberta, water quantity with regards to the opportunity, the choice that we have societally on how much water to use, how much to leave in the river for ecological type of outcomes. So very much an issue that is under review and, I believe, it'll be a series of policies over time that government will need to develop, and will need to decide whether to put into place on choices that are available to us.

AD: Now, in terms of provincial/federal discussions around creating a credible and perhaps even arm's length system for monitoring and making recommendations with respect to regulations, do you want to talk about those federal/provincial discussions?

SINGH: I'm not directly involved in many of those but I have observed the discussion, and I am familiar with the topic area. So in the Fort McMurray area, there has been ongoing discussions between the federal and provincial governments with regards to monitoring in the Athabasca oil sands region. And there are agreements that have been reached, and we were in the process of putting additional monitoring in place.



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

With regards to the monitoring agency, that was somewhat related to that topic but it was also related generally to feedback government was receiving --more of an arm's length reporting of information related to monitoring. So that is a direction that government has embarked on. There are discussions that are ongoing but it is changing a large system that is in place -- that our current system has evolved over time. As I mentioned earlier, we used to directly do a lot of the monitoring; industry's done a lot of monitoring and we've embraced approaches like the air shed societies and water shed groups that are involved in some areas of the province.

Now, to change that system to a completely new one, it is a large undertaking. The other thing, when it becomes province-wide and all three of the media -- air, water and land -- there can be many different opinions; there can be many different aspirations on what we should monitor, how we should monitor it. But then there are practical realities on the cost associated with the total cost, the apportionment of the cost between various parties that are involved in the system.

In my opinion, for monitoring, it needs to, in many cases, be long-term monitoring to fully understand water flows in the Athabasca River with some of the decisions that were needed for projects that we approved. We did need to look back at the monitoring data on flows over 70, 80 years to fully understand what are natural changes; what are changes due to human activity; and even there, there are still some areas where there can be differing views. So to do monitoring properly, and to properly understand trends, many times we need to do that for a time period of many decades. That is challenging when government and others often budget on a yearly basis or a three-year basis.

So there has been this direction set, but putting that into place and changing a large system that already exists, establishing priorities and making choices on what to monitor, how to monitor the funding for that, those are then complex issues and that's where the discussion is occurring now. But, definitely, that direction towards arm's length, making information accessible to a number of parties that need to use it, including those of us within government, but putting that into place is a complex task that is underway right now.

AD: It appears to me that government's now saying that this industrial development is happening for the economic benefit of the province, which used to be a primary good -- you know, jobs, all of those things -- now is ... there's a counter-balancing point of view that this activity has to happen in a way that does not impact negatively on the environment and that those are -- they're held up as absolute goods but they're not, they can be competing goods.

SINGH: They can be competing, or they can be several different considerations that have to be balanced, and integrated decisions made. So it's interesting now there is a very public discussion that is occurring, at times a polarized discussion, but I have seen back, as I mentioned, as far back as 1972 in the documents I've seen on strategic planning for oil sands development. Always there's been the recognition that there's the economic; there's the environmental; and the social ...

AD: The social.



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

SINGH: ... and how to balance those. But now it's a very public conversation and there are differing views. There are persons who are wanting to make sure that it's more fully understood -- the economic benefit that goes with the oil sands development. There are others who are wanting to make it clear the impacts that go with large-scale projects and the cumulative impact and why those need to be managed, and both of those relate to social issues on things that Albertans value.

Most persons do want the prosperity that goes with economic activity but most persons also want a good quality of life, including a good-quality environment -- to enjoy a safe environment, a healthy environment. So it's that conversation that is occurring and, at this point, there are persons who are advocating to make sure that each of those points are understood, and the elements that they are advocating for that are fully understood.

Within government, there is a lot of desire to integrate policy because those policy decisions that are made by government, decisions we make related to environmental policy, will affect resource development; they will influence the economics of those decisions that are made, related to encouraging resource development, do have implications for environmental outcomes. So very much a desire within government -- is how to integrate policies but that, itself, is challenging. Most persons embrace that approach but, then, in practice to put that in place is an area that's being emphasized, but to truly do it is what we are living right now.

But that is something that's very topical -- as of today -- is that conversation that's occurring on those various interests that individual participants have within the system, and that government has, and how should those be balanced? How should those decisions be integrated? That is a very relevant, very topical item.

AD: And, you see, we're now shifting to acknowledge that, you know the downsizing of government; if you downsize, then, you don't have the capacity to do the kinds of things that need to be done. For example, speaking solely about the department of the environment that your work is going to continue to escalate unless you create an arm's length entity -- a Crown agency -- that does this, or universities that do this, but the monies still have to be found to do this level of monitoring to ensure that the desired outcomes of environmental protection and quality of life protection, all of those things happen.

SINGH: Very much so because those are all elements of a proper environmental management system ...

AD: Yeah.

SINGH: ... so we do need good monitoring and persons have talked about world class monitoring within ...

AD: Yeah.

SINGH: ... the oil sands. That does take resources ...



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

AD: Yeah.

SINGH: ... including financial resources.

AD: Yeah.

SINGH: Also regulatory delivery. It does take knowledgeable persons on various aspects. It does require staff in the field to inspect, investigate issues that arise. It does require capacity in terms of good policy analysis to make recommendations to government to consider and make decisions. It does require resources related to planning and, again, putting forward plans where choices need to be made, or where approaches need to be adjusted in order to accommodate the mix of activities and outcomes that government would desire.

But, then, putting it into a broader context, it's there with all of those things that government does on behalf of the public; so then it does come down to government considering what it can apportion as far as a very important environmental stewardship role and the various elements of that, along with other things that the public values from government services, public services -- infrastructure, education, health care in a sustainable kind of a manner. So that is a very real issue for government. Some of the things government has been doing, and governments elsewhere doing, is embracing a variety of mechanisms for delivery, but a lot of those on running the system overall and on the policies and the planning, those are very key to what government does and those are areas of emphasis.

But [a] very topical item because there are limitations on what can be done because of the resources that can be applied. But then there is an important consideration around apportionment of those resources because the important things we do, from an environmental stewardship management standpoint, they are there as a subset of the many things that government does for the public.

AD: Now, your current job is around those issues of policy and planning with respect to, you know, air, water, land; do these things are very much top of mind for you.

SINGH: Very much so, and that's a real opportunity within government and actually my interest in this kind of role is -- that is a place where we can make a big difference within government. But even there, there are important considerations on prioritizing which policies do we wish to work on. A very topical item right now is consultation. What level of consultation for what kind of policy? We are actively working right now on making our policies more accessible for the public at large for when we set up a single regulator for upstream oil and gas, oil sands and coal; the Alberta Energy Regulator will need access -- and will need to work within our government policies -- so we are actively in the process of documenting all of those policies, making them accessible. There is an ever-greening of those policies, and we also need to update what types of policies need to be signed off -- at what levels that broad government policy does need to be signed off at the elected level of government because it does involve a weighing of various considerations, and those elected representatives do have a mandate for making those decisions, and they are accountable for those through an elected process.



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

Other kinds of operational policies, other kinds of regulatory rules, are often deferred to either a regulatory delivery agency or, at times, persons who are appointed certain roles. Those are very topical items because, for policy recommendations decisions, that is an area that is key for government, and yet it is changing. It's changing because of the need for transparency and the need for others to be able to see that; it's changing because of the desire to involve members of the public, more so in policy development, and it is also influenced by resourcing of how many of those policies we can do at one time, based on both technical capacity -- but even more so on which ones need to be consulted upon, and then what the priority is for that public consultation.

AD: Certainly 2013 is going to go down as a pivotal year with respect to government -- governments; I mean, both provincial and federal governments, and industry around oil sands environmental issues. As you've noted, in terms of future developments, some credible way of dealing with these issues and balancing these goods, you know, strong economy, jobs versus protecting the environment and quality of life. What is your take on this; I mean, in a sense, I'm asking you to put on a futurist's cap and anticipate ... what the next 10 or 15 years, etc., is going to look like because the economic projections for oil sands development did that. But was there a parallel process in terms of what needed to be addressed on the environmental side?

SINGH: Sure; so a few things come to mind. There were some assessments of this done earlier, even in the National Oil Sands Task Force when it talked about economic development. It did also touch upon the need for government to develop various kinds of policies, regulatory systems, but the pace of development has actually been faster than even what was envisioned in the National Oil Sands Task Force.

We had, through the Regional Sustainable Development Strategy, identified a number of issues that needed to be addressed. Those have proven to be challenging. So it is a fair comment that it can become a limitation to development -- is the public acceptability. A term that's being used quite often right now is "social license," "social license to operate" but also "social license to regulate." So it is something that we are very cognizant of.

Challenges that exist is making informed policy decisions and recommendations. That can be challenging because some of these are complex systems that we are dealing with from a scientific, technical standpoint. It also becomes challenging because there are many different views on what persons feel should be done; practically, to achieve some of the outcomes is changing expectations. So, where persons are used to being able to do certain things and do them in a particular way, those may need to be adjusted if we want to get more things in a particular landscape, and as we get industrial and population growth. So it is a very topical item -- this need for additional policies -- and yet the complexity associated with those, and yet it becomes very important from a social license standpoint, and it could become an important factor on pace of development and how it is supported or not supported.

So an important element, how it will play out, will be interesting over the next ten years. But I think this whole topic of policy needs will continue to evolve over time because it's not static. We are



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.



seeing those needs now in 2013 but I personally believe ten years from now there will be some of those same policy needs, and there may be some new ones; 20 years from now, same thing; 30 years from now as well. So, related to oil sands development alone, we will need good monitoring systems for 50 or a 100 years' time because, for many of the things we are managing, that's the time period that these activities will play out, and for us to understand and manage the environmental outcomes.

Similarly policies; they needed to be developed when this was a very young industry; they need to be developed now when it's a robust industry. Those policies will need to continue to evolve as this becomes a mature industry. So none of this will be static; it will all continue to evolve over time and sometimes that's our challenge – is, I think, we tend to look right now at things on a short-term basis, and those short-term imperatives and those do need to be addressed, but, in my view, many of these are long-term issues. The monitoring is; the environmental management is; and the policy development is as well; that these are long-term endeavours that will need to be completed by government and, in the case of things like monitoring by other agencies that are empowered by government.

AD: And, of course, you know, these issues are not going to go away. I mean who would've thought that the New Democratic Party would do so well in the last federal election by espousing a green agenda, in terms of at least capturing some of the vote that would support agendas about green development. Secondly, in terms of the two major pipeline projects that are currently under review, who would've thought that they would've continued for so long? So, it -- that signals that the new type of environmentalism has traction and does need to be addressed by governments and the industry.

SINGH: I would agree that, from what I've seen, environmentalism, it will -- it'll have its peaks; it will end up with declines; but it doesn't go away -- is what I have seen and also with a prosper -- a prosperous society, persons do want jobs and the prosperity but they do want a high quality of life as well. So I have no reason to believe that this will go away. But I'm not a political scientist and it's quite an interesting area in itself that, on the one hand, there are the very important environmental issues that ministries such as the one that I work in are dealing with, but it is also a time period when we've assumed that oil sands development will continue to grow at a very fast pace, but that isn't a universally held view that in some of the ...

AD: That has just changed.

SINGH: ... areas ...

AD: Yeah.

SINGH: ... it is changing. Who would've thought ten years ago that fracking and ...

AD: Yeah.



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

SINGH: ... shale gas development and tight oil would be as viable as they are turning out to be. In some respects, I personally do wonder with regards to oil sands mines and upgraders that we had an assumption that there would be a very rapid pace of development that has actually slowed, particularly for upgraders and even mines. It has continued to grow at a fast pace for in situ oil sands development. So, again, it's very hard to project whether our recent paths will continue in the future or, as has happened before, whether there'll be other sources of oil supply that get developed first, before the oil sands does.

So those are all some unknowns, but I do agree that with the issues that are there from an environmental standpoint, I don't see them going away. I think they need to be addressed in a thoughtful kind of a manner but I think we will be well-served in addressing those issues because they won't go away on their own and, I think, we'll also collectively be well-served if there are informed and good choices made from a policy standpoint because it's not a static system we're in. The system has to adjust over time for additional development, and we do have to demonstrate that we do have good stewardship in place. That becomes important as far as trusting credibility, even beyond our own borders.

AD: Mmhm. And it validates the important, the importance of having solid knowledge within your civil service, you know, that is responsible for these areas. Politicians come and go. In terms of monitoring policies, programs, regulation, they're ongoing.

SINGH: They are, and even the public service is changing -- that I spent most of my career in the federal government and provincial government, 30 years in total. With our younger staff, many of them, they do not stay in organizations or roles for as long a duration; so, our public service is rapidly changing. We're actually going through a demographic shift of many long-term employees in the public service, many of whom stayed decades in a particular role and have a tremendous amount of knowledge; they are being replaced by newer staff. Many of those newer staff may not choose to stay in the roles or with government for the same duration. So even on some of our corporate knowledge of capturing that in different ways, and we would probably need to adjust our delivery that right now we do benefit from, and we do rely a lot on the individual expertise that we have within the public service.

I think we'll need to continue to have expertise but I don't think we will have staff that will stay in the roles for the same duration, so we may need to use other mechanisms of, again, putting more of these things down in writing. It'll not only serve our transparency needs, but some of these things need to be documented for the long term because they, that information, that knowledge, will be needed for a very long period of time, longer than persons are in political roles, longer than public service individuals are in a given role as well. Many of these things will be needed for several decades.

AD: Someone I spoke to talked about, you know, with the forestry development, ALPAC, I mean the big issues in terms of water were pulp mills; and that the industry then acted proactively and basically committed to reducing, you know, to using a non-bleach process, whatever, all of those



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

things that do not have a deleterious impact on aquatic life. But then, of course, the pulp and paper industry became less relevant, I mean in terms of economics, and so those issues were addressed, certainly, but they also became less relevant. If you're not building major pulp-and-paper mills, and one thinks of the Friends of the Peace, I mean you know, when Daishowa, of course, was looking to build. In terms of the oil sands, the question arises to your point about maybe oil sands isn't going to have the central role that has been projected for it, if these other alternatives occur. I mean, the US re-evaluating its petroleum stocks and so on.

So, looking at the pulp-and-paper issue, could this issue of the oil sands, if you don't get ramped up development, then is it going to be stewardship in a more a caretaker mode, improved science, etc. etc.?

SINGH: So a few items come to mind in relation to the analogy to pulp mill development and I do remember that during the early portion of my career.

AD: Yeah.

SINGH: So the first few pulp mills didn't attract a lot of attention, but once we got to the fourth, fifth and sixth one ...

AD: Yeah. Yeah.

SINGH: ... they did; they started to become a public concern because of now the total amount of activity. Actually, for ALPAC in their regulatory approval, we did need to apply more stringent requirements and that was by understanding that there were limited capacities on the Athabasca River. Even as of today, we do need to monitor carefully the Athabasca River in approximately the February time period to make sure there is enough oxygen within the river when it's covered by ice; and there is, but that was well thought out in terms of both the industry and the regulators, but that was a very topical issue in the 1990s. But, then, a very stagnant industry since and now an industry that is very much looking at competitiveness, it's looking at alternate things that it can do to remain viable this day and age.

So, with oil sands, similar things of -- on the one hand, the trajectory that we're planning for is a large amount of development in a fairly rapid timeframe; other things, though, we would need to do is even with the projects that currently exist, we would need to ...

AD: So do you want to continue that thought that in terms of if there is a downturn with respect to the industry and fewer developments, you know, the pulp and paper analogy that I had raised.

SINGH: The mining projects now, they have been around for 40, 45 years so there are topics we need to continue to work on; things like the tailings. Also, the planning and anticipation of further development that that will serve us well if it, even if it isn't oil sands, it will be useful for other kinds of resource development. Obviously, the decisions that are made related to policy, sometimes they are related to urgency of the day, but in the absence of not being certain on pace of development,



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

we have seen a rapid pace of development in the recent past. If economic conditions are correct, that may continue. It's not certain but I think we'll be well served if we do have the planning and policy things in place for that; otherwise, the absence of those may become limitations on social license as far as acceptability of development, or in the absence of policy and planning it does make it more challenging for approval processes because those individual processes end up dealing with more issues, and that can make it more challenging for everyone in those individual approval processes, including decision makers.

So I think we're well served on the trajectory that we're on, but one uncertainty is pace of development, whether it will continue at the pace that we have seen in the past.

AD: And you refer to the tailings issues and of course other areas of reclamation that, you know, when you're working a huge site like that, it isn't a simple thing and that in terms of -- I've been told that in terms of reclamation certificates, they're not going to be issued until the whole range of issues have been dealt with and, if you're still mining a portion of the site, then, you know, reclamation can't be signed off on for individual parts or individual achievements. Is that correct?

SINGH: So, we can issue certificates for portions of sites ...

AD: You can.

SINGH: ... is my understanding, but for a site to be fully certified, and for us to have the confidence, that occurs very late in the process after essentially the mining is done. So intermediate steps become really important to make sure -- are we on a trajectory of certainty that we will get the desired level of reclamation that's desired. So now we are very much focused; those intermediate steps of landforms including the tailings that they are properly managed so that it will enable the desired reclamation to occur.

So we're very much needing to plan and to manage that over time because the ultimate outcome will not be certain until after the mines have closed and, maybe, even a period of monitoring after that, but those intermediate steps, certainty of reclamation and where we can to speed up the timeliness of reclamation, those become very important within the regulatory process; and some of these are challenging complex issues, such as the tailings management that for a long period of time it's proven to be a technically challenging issue. And yet it is an important element because the desired outcome is that we get the resource development but that the land is returned to a useful ecosystem and that provides good uses for the public and for other utilization, whether it's for ecological values or other values. So still a very important element but it has to be managed throughout the entire lifecycle of the project to ensure that we're on a trajectory for success, that we won't finally know about until after the mine is closed.

AD: And I think when people now look at practices, you know, throughout a 150 years, 200 years of the industrial revolution and they look at mines, they look at coal mines in terms of Alberta; they look at the conventional industry and issues around that, and any industrial sites that are polluted to a certain extent. The fear is that, once the industry no longer makes profit, that it's going to be



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.

tempted to walk away and that government has ensure -- has to ensure that that doesn't happen anymore.

SINGH: So that is an important element of the regulatory process is ...

AD: Yes, yeah.

SINGH: ... keeping accountable those parties that are accountable for having done the development. Also, during the life stage, especially of things like oil sands mines are a very large kind of disturbance of the land, managing those throughout the life cycle of the project -- policies. As we get maturing, conventional oil and gas is a mature industry in Alberta, just as during the early years of the industry, peak years of the industry required policies. It will require well-thought-out policies, regulatory approaches when it becomes a mature industry, whether that's upstream oil and gas, whether it's when oil sands mining becomes a mature industry. So those are very relevant items and also not to leave those items too late, so for regulators and for government it's -- is there enough being done by the companies themselves? Does government need to intervene with additional rules, additional things that encourage and require the right behaviour and the right outcome? Very topical item so that we do plan for "What about after the projects close" that, as we're fulfilling the needs of society today, that we don't end up creating issues for future generations to manage. Very important part of oil sands mining regulation and the policies associated with them; also important generally for management of industrial activity within the province.

AD: Gosh, that sounds surprisingly like a summative remark. Is there anything else that you'd like to say in closing?

SINGH: No, it -- the thing I'd like to express is that for myself it's been a great pleasure, it's been an honour to work in the field that I have and to fulfill the roles that I have. Very much enjoyed, particularly the staff that I've worked with, the individuals outside of government I've worked with and I very much hope the persons who follow in these roles get the same level of enjoyment and that they continue on with the responsibility, because it'll outlast the time period that any of us are in these roles, but it is an important role to fulfill for Albertans and for the outcomes all of us would like to achieve.

AD: Thank you very much.

SINGH: Okay, thank you.

[THE INTERVIEW CONCLUDES.]



Sponsors of The Oil Sands Oral History Project include the Alberta Historical Resources Foundation, Athabasca Oil Sands Corp., Canadian Natural Resources Limited, Canadian Oil Sands Limited, Connacher Oil and Gas Limited, Imperial Oil Limited, MEG Energy Corp., Nexen Inc., Suncor Energy and Syncrude Canada.