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# TOSHIYUKI HIRATA

Date and place of birth (if available): Kagoshima, Japan in January 5, 1958

Date and place of interview: October 24th, 2012 at the Japan Canada Oil Sands Limited Offices in Downtown, Calgary.

Name of interviewer: Peter McKenzie-Brown

Name of videographer: Peter Tombrowski

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

Consent form signed: Yes

Transcript reviewed by subject:

Interview Duration: 1 hour and 3 minutes

Initials of Interviewer: PMB

Last name of subject: HIRATA

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PMB: It is October 24th, 2012. I am meeting with Toshi Hirata who is the President of Japan Canada Oil Sands Limited which is also called JACOS. We are meeting in the JACOS offices in downtown Calgary. Thank you for agreeing to meet with us today.

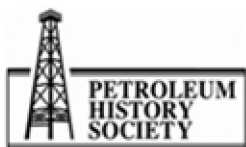
HIRATA: You are welcome.

PMB: You have been and this has been a great surprise to me, that your company became a partner involved in the oil sands back in the 1970s, '78 or something like that. No other country outside of North America and Europe showed any interest in the oil sands that long ago. Can you tell me a little bit about that, please?

HIRATA: Okay. It started with oil shock in 1973. As you know, the oil price suddenly increased probably three or four times at that time because OPEC countries, they stopped exporting oil to the world.

PMB: This was because of the Oil Embargo related to the Israeli/Arab War?

HIRATA: Arab, yes.



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PMB: The Yom Kippur War, I think it was called.

HIRATA: That is true, yes. At that time, the Japanese economy suffered greatly. And, all of Japan recognized the importance of energy security for the future. Also, Japan recognized the importance of diversifying oil source more into other world other than just the Middle East. Japan actually, I believe, relied on oil about 78% or 80% on its energy. Also, they imported a lot of those from Middle East. That is why they were strongly concerned. They had to look for new oil source from out of the world. Then at the same time, Petro-Canada, Canadian National Oil Corporation at that time...

PMB: At that time, it was fully owned by the Canadian Government.

HIRATA: That is true, yes. Petro-Canada and Esso and Canadian Occidental, those three had an oil sand research consortium in Canada. Then, Petro-Canada offered an opportunity to Japanese Government to join that Canadian consortium. So, Japan took it very seriously and the Japanese Government and a team of 61 industry companies, they established JACOS for the..

PMB: 61 companies in Japan?

HIRATA: In Japan, yes. So, it is kind of a Japanese National Oil Project for securing future energy for Japanese industry. So, it may be surprising to hear, those 61 companies include Toyota, Nissan automobile companies and Mitsubishi, those trading houses and all Japanese big banks. So, basically it is an all-Japan company.

PMB: What was the percentage of government ownership at that time?

HIRATA: I believe 72% owned.

PMB: By the government?

HIRATA: By the government, yes.

PMB: How has that changed in the last 40 years?

HIRATA: Since, '78. So, for most of the part Japanese Government financially supported this project by over 70%. So, it had been very helpful because many companies, private companies were struggling with low oil prices. So, the government's help was actually progressive to this project.

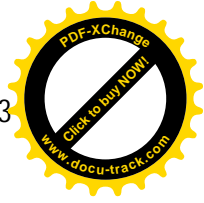
PMB: Sorry, I thought I heard you say they were struggling with low oil prices? Were they struggling because of higher oil prices?

HIRATA: I mean because of the low oil prices in the 80s and 90s.

PMB: Oh, I see. I understand.



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HIRATA: Not really companies made good money. All of the oil companies were struggling to spend money on research project.

PMB: I understand. Thank you very much. Now, we will be coming back to this discussion as it is extremely important. But, could I trouble you to tell me a little bit about yourself and your own background? Where were you born? Where did you go to university? What was your experience before you first came to Canada?

HIRATA: I was born in Japan, the southernmost part of Japan. My hometown is called Kagoshima. I went to university in Kyoto, Kyoto University. I studied mineral science and technology. That university did not have oil course, so instead I took like a mineral science and technology.

PMB: Because there was no oil in Japan?

HIRATA: That is right, in Japan, there is very little oil, yes.

PMB: And, no expertise?

HIRATA: Mm-hmm. Then, after graduation I joined JAPEX, Japan Petroleum Exploration Company which is also owned by the Japanese Government by 70% at that time. So, it was basically a national company. Then I spent about seven years as a production engineer and also reservoir engineer in the domestic field of Japan. Then in '88, I came to Canada.

PMB: Now, did I hear you say in a domestic oil field in Japan?

HIRATA: Yes.

PMB: Where is that, please?

HIRATA: There is some oil and gas field in the north part of Japan, in Hokkaido, Akita and Niigata prefectures.

PMB: Are they on-shore or are they off-shore?

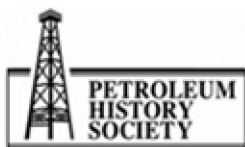
HIRATA: Yes, one is off-shore and some of them are on-shore. But, I worked on-shore and studied.

PMB: That is a big surprise to me. I thought there was no oil in Japan.

HIRATA: Yes, about 1% of Japanese consumption of oil is actually produced in Japan. So, there is some.

PMB: Natural gas as well?

HIRATA: Yes. Natural gas is much bigger than oil.



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PMB: Good. Well, thank you for that. That is quite interesting. So, I have you to the point where you were doing some oil and gas operations work in Japan. Would you continue from there, please?

HIRATA: Yes. In 1988, just after the Calgary Olympics, I came to Canada to work for Petro-Canada for two years at the Oil Sands Research Centre. As I explained we had a consortium with JACOS and three Canadian companies including Petro-Canada, Esso and Canadian Occidental. The operator of the consortium was Petro-Canada. That is why I was seconded to Petro-Canada as a research engineer. It was from 1988 to 1990. So, during that time we were working on cyclic steam stimulation. That was a major process for oil sands development and research in those days.

PMB: That was about the time the UTF (Underground Test Facility) was constructed, wasn't it?

HIRATA: Yes. At the same time, UTF was doing a research project utilizing I believe 50-metre length horizontal wells. Then, of course, we had some interesting in other projects as well. But until '91, we focused on CSS process. We had been working on it since '84 on CSS project with those consortiums. But, as many industry partners had the same challenges, we had so much difficulty in making CSS successful because of the technical challenges.

But, when we looked at SAGD process at the UTF project we thought, "Oh, this has to be a technical breakthrough." SAGD process to me solved many issues we had with CSS. So, we actually showed a strong interest in joining the UTF project and actually, JAPEX, our parent company in Japan joined UTF project in 1992. So, at that time, I was still working for JACOS here but also I worked for JAPEX as well because they are my parent company.

So, for the next several years from '92 to '96 we compared those two processes, CSS versus SAGD, which is better for our future development. Then after four years study, we decide we should pick SAGD for our future development. Then in '97, actually, we started this current Hangingstone SAGD project. That was the start of that project.

PMB: Now, when you were using CSS what lands were you using? It is my understanding, that CSS is only successful really in the Cold Lake area. Did you have your land holdings in Cold Lake?

HIRATA: We don't. Our land holdings are only in the Athabasca area.

PMB: So, you were using CSS in an area where really it has never worked?

HIRATA: That's right, yes. That is true. The challenge in Athabasca is actually the fracturing issues.

PMB: I'm sorry? The "what" issues?

HIRATA: The fracturing.

PMB: Oh, fracturing.



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HIRATA: You have to fracture the reservoir to push the steam into the reservoir. So, in the Athabasca Reservoir it is very difficult to control those fracturing. My understanding is, in Cold Lake area you can make a pretty uniform horizontal kind of fracture. So, you can confine heat within the reservoir, very well. But, when you fracture the Athabasca Reservoir, the fractures cannot be confined within the reservoir. So, we lost a lot of steam other than the reservoir area. So, some of our efficiency was not good. That is why in Athabasca area we could not develop oil sands economically because we lost too much heat. Then also, CSS had other technical challenges. We used just one vertical well and the productivity from one well was much lower than the horizontal well. Also, because cyclic steam stimulation just repeats: injection period and the production period. So, basically you produce only half a year and half a year you have to inject steam.

PMB: So, for six months you inject steam and for six months you draw out the oil?

HIRATA: That's right. So, it's not a continuous production. But, SAGD you can continuously produce oil while injecting at the same time. When we did CSS, another technical issue was sand trouble.

PMB: Difficulties with sand?

HIRATA: That's right. While you are producing from the vertical well, with time temperature will gradually drop. Then, viscosity of bitumen or oil is getting higher which brings sand into the well. Then, the well is...

PMB: Clogged up?

HIRATA: Yes. Then we had to always clean up the well by workover. So, it cost us a lot of money and also we lose a lot of time for production. But, SAGD sand trouble is not happening very often. So, it helps the project economically very much. So, from those points, SAGD was much more attractive compared to CSS.

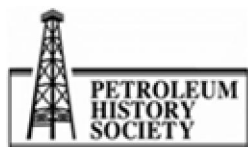
PMB: You started using SAGD around, did you say 1994?

HIRATA: We started using SAGD actually, in 1999.

PMB: Oh, that is when you made it your major production technology?

HIRATA: Yes. Of course, we utilized SAGD process which was invented by Dr. (Roger) Butler and it was improved during the UTF project. Then we were the participants of the UTF project. We had the right to use that technology. We applied SAGD process into our own land holdings, in the Athabasca area.

PMB: Sorry, I need to check something here. You were operating a pilot test – the PCEJ Joint Venture. You were involved with that for a while and then you began the phase three, multi-well test...



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HIRATA: Finished in '94.

PMB: ...which finished in? It started in 1990 and finished in 1994.

HIRATA: 1994, yes.

PMB: Can you tell me a little bit about that please? I have a very confused understanding of that based on these notes.

HIRATA: PCEJ consortium, we have spent a...

PMB: That is Petro-Canada...

HIRATA: C stands for Canadian Occidental.

PMB: Canadian Occidental?

HIRATA: Yes. E is Esso and the J is JACOS.

PMB: Esso and JACOS, okay.

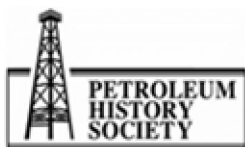
HIRATA: So, this four companies consortium spent eight years together on cyclic steam stimulation from '84 to '92. But, most of the time in the first four years we spent time on just a single well to test CSS process.

PMB: Vertical wells?

HIRATA: Yes, just vertical. We drilled actually three vertical wells in different locations and we tested those three wells independently. We had some encouraging results and we decided let's go to a multi-well pilot test, which consisted of 13 vertical wells in the one same area. So, those 13 wells behaved together basically as one heated area collectively between wells. So, we did that kind of a multi-well CSS process test from 1990 to 1992, only two years. But, because of the poor performance, those three companies, Canadian companies, PCE, they actually said let's stop the research at that moment. But, because Japanese government wanted to conclude the experiment so we continued another two years from 1992 to 1994, so independently JACOS continued that multi-well pilot test just to conclude how feasible CSS process is.

PMB: Now, according to my notes it was later and in Hangingstone you became involved in SAGD in 1999. Can you bring me up to date on that, please?

HIRATA: So, in '94 we basically stopped and concluded CSS is not good for Athabasca oil sands development. So, at the same time we were concurrently studying the SAGD process utilizing the UTF project data. Then from '94 to '97 in Japan, -(I actually went back to Tokyo in '93) Then in the Tokyo office I was working on the comparison study between CSS and SAGD. And, our conclusion



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in Tokyo was we should pick SAGD for future research and technology. So, then we decided to go with a small pilot test utilizing SAGD process. Then in '97, we talked to those PCEJ partners, "Why don't we start SAGD pilot test instead of CSS." But, those three companies were very reluctant to go to the SAGD pilot test because of the very low oil price circumstances. So, then Japanese Government and Japanese industry, JACOS, we decided to go ahead with an independent pilot test utilizing SAGD. Then we had construction of the facility from '98 to '99 and we started the first SAGD process operation in April, 1999. That was the start of the Hangingstone SAGD Demonstration Project.

PMB: Now at that time, how many companies were testing SAGD? I know that there were a couple, two or three, that were testing it at that time. But, you would have been one of the pioneers in that wouldn't you?

HIRATA: Yes. I think of course, UTF was still continuing their SAGD test and also, EnCana. They were doing their pilot test as well. I forgot a few names, but a...

PMB: It is now Cenovus.

HIRATA: Yes, Cenovus. Yes, that is right. At that time, they had a different name. Alberta Energy, AEC Company?

PMB: AEC, that is right. It is now part of Cenovus.

HIRATA: Yes, that is true. Basically, JACOS and Cenovus were the two companies who were doing the small SAGD pilot test.

PMB: Oh, really? There were only the two?

HIRATA: Yes.

PMB: Oh, isn't that interesting.

HIRATA: At that time, as you know, oil prices were very, very low. It was \$10.00 plus/minus. So, most of the Canadian companies were taking a kind of an "exit strategy" from oil sands research, because they didn't see any economics from oil sand development. Conventional oil was very low priced. So, bitumen price was much, much lower than that. So, there was very little hope about the future commercialization of oil sands business in those days.

PMB: I think that has given us a pretty good grasp. Now, I have a few specific questions. A lot of them are based on what we talked about for a few minutes before this interview began. Japanese Energy Security, one of the interesting things to me is that you have been for almost 35 years involved in Canada to develop security of oil supply for Japan. Although, there is no way right now to get Canadian oil to Japan. Of course, then the question becomes, even when a pipeline is developed, how would your project and developments provide Japan with energy security?



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HIRATA: Yes. Our project size is relatively small. Our kind of production is only 8,000 barrels a day and our current expansion project is targeting up to 35,000 barrels a day.

PMB: Sorry, 35,000?

HIRATA: 35,000 barrels a day.

PMB: Sorry, the 35,000 barrels will be reached by when? What year?

HIRATA: About 2016. We are planning to start our expansion project in that timeframe. So, the volume is so low that we will not contribute too much to Japanese market. But, combining with other companies' development, other companies like a trading house, they are looking for some opportunities in oil sands development as well as sharing with us development in Canada. So, from an energy supply point of view to the Japanese market, those companies collaboratively can contribute to energy security for Japanese industry. So as you know, we had a big earthquake two years ago and since then, there is a big discussion, "What energy structure should be for the future of Japan."

PMB: What the energy structure should be?

HIRATA: Yes. Until that time, our Japanese Power relied on nuclear power generation by 30%. At that time, the Japanese Government was targeting to increase that percentage to 50% over the next 20 years. But, since that earthquake the Japanese opinion has changed dramatically. Now, they are looking at much less dependence on nuclear energy. So, currently out of 54 nuclear power plants, only two are working.

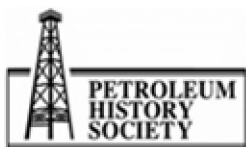
PMB: Oh, my Lord.

HIRATA: Yes, because of the possible issue of the nuclear power plants. So, to compensate that loss of energy many companies are importing more oil and energy from overseas. Canada has a huge potential for the future shale oil development as well as the oil sands development. So, it is very important from Japanese point of view to diversify their source from new areas including Canada. We still depend on 90% of our import from the Middle East. We have to diversify the source.

PMB: What is your concern about the Middle East? You talked about that before, I suppose, the Oil Embargo of 1973.

HIRATA: Because of the instability of the countries, anytime an Oil Embargo can happen then if you depend on oil import on that area by 90% it is a big crisis if something happens. That is why Japanese companies have been looking for other sources for other areas. But, it has not been very successful.

PMB: In addition to Canada and the oil sands, what are your brightest prospects in terms of international oil? Where outside of Canada do you think you might have some success?



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HIRATA: Not our company but other Japanese companies invested in Venezuela. Venezuela has a big Orinoco tar sands as well as the conventional oil. So, that is one area. Also, Brazil they have a deep water oil development. Even in the Middle East, they have some - well, North Africa they are investing some new money into those areas too to diversify their resource.

PMB: And, Nigeria?

HIRATA: Nigeria and Sakhalin in Russia.

PMB: So, the Canadian strategy is just part of a global strategy?

HIRATA: Yes.

PMB: The pipeline, the Northern Gateway Pipeline. What is your thinking about that? Of course, unless something like that is built there are no supplies that will come from Canada.

HIRATA: From not only Japan but also Asian countries need more oil because they are growing very much, as you know Thailand, Singapore and Vietnam. All those new economies are growing very fast, so they need more energy. So, in order to import Canadian oil they definitely need such kind of pipeline like Gateway. From the Canadian point of view, I think it is very important to diversify Canadian oil market to other part of the world. Currently, Alberta oil is exported only to the United States mainly by 90%. So, Canada also needs to diversify this market. Gateway Pipeline is a key. But as you know, whenever industry does something new we have to have a very good communication with the stakeholders. Then after getting their support, then we should go with the project. Those are always important steps to make it happen.

PMB: Would you please go back to the UTF? In this oral history project, we have talked a lot about the Underground Test Facility or the UTF and it was basically a system of tunnels and shafts that went right into the Athabasca Oil Sands. I believe that it was first officially opened in 1987, I have forgotten the year. Can you tell me what the significance of that test facility was to your company but to the oil sands industry as a whole?

HIRATA: In those days, in mid-80s, basically nobody showed interest in oil sands itself. Some companies, Esso, Shell they were doing small scales of pilot tests. Of course in the Cold Lake Area Imperial Oil was developing their resource. But, in Athabasca there was not much happening. In that kind of circumstance, no industries wanted to do any pilot tests or research projects in Athabasca Area. But, the Alberta Government they invested big money and they drilled a big hole and they did started horizontal well SAGD test. That was impressive. Because of that very strong initiative by the Alberta Government now we were here enjoying this bitumen industry, and now the Alberta Government is also making some good income by the tax and royalty because of oil sands development.

PMB: And of course, one of the most important developments of the last 25 years was the development of horizontal drilling?



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HIRATA: Yes, yes.

PMB: There were some tests that went back to the 1970s but really it was the UTF that proved the value of the horizontal wells.

HIRATA: Yes. As you know, first of all we drilled horizontal wells from the tunnel because we could not drill those horizontal wells from the surface because oil sands is too shallow to bend the well to horizontal from vertical. That is why we had to drill from the tunnel. But over several years since we had started that tunnel and the drill, drilling companies invented those horizontal well drilling technologies from the surface. So, that was another invention, very good invention. Then, combined with that, drilling two horizontal wells very precisely, five metres apart parallel these pair wells go down 1,000 metre. So, that technology, we call it MGT, Magnetic Guidance Tool Technology. It was a very big invention too. So, combining those MGT technology and horizontal well technology and of course, the SAGD process, those three combined, and we have now enjoyed the success of those technologies.

PMB: Very interesting. When the UTF was built in 1986, '87 and it was drilled and originally created by AOSTRA, after it proved the value of SAGD experimentally then your company and I think there were 17 or 18 companies essentially bought in. I think \$15 or \$20 million or something to own an interest in the experiments on that site. I believe those experiments went on for another ten or fifteen years. Now how much of what I just said is accurate because I am not very clear on that?

HIRATA: I am not sure how much we spent. But, about \$1 to \$2 million each company paid to the UTF project consortium. So, by paying that we get experimental data from the test as well as the right to use that technology. So, SAGD process technology.

PMB: So, it was only \$1 to \$2 million?

HIRATA: I thought so.

PMB: Isn't that interesting.

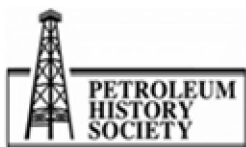
HIRATA: Yes, each company. So, overall we had about 15 companies. So, the Alberta Government must have invested a lot of money into this project, first of all.

PMB: I think that the cost of construction was around \$50 Million.

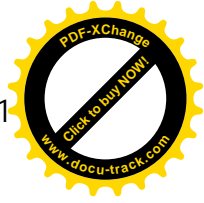
HIRATA: Okay, yes.

PMB: Then there were the costs of experimentation.

HIRATA: Because JAPEX joined in 1992 (for Phase B) that is why our fee was much lower than the other companies. We did not start from the original UTF project.



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PMB: That covers many of the questions that I have so far. When we were talking earlier on, we talked about growing Asian needs. In terms of land holdings, is the Hangingstone the only land that you own now?

HIRATA: We do own other areas too, in Corner and the Chard area. So, in total we are holding 460 square kilometres of lease holdings. So, our current estimate is 1.7 billion barrels recoverable resources from those leases.

PMB: That's an enormous amount of oil.

HIRATA: That's right. If we develop all those leases we should be able to sustain 100,000 barrels a day of production from those leases.

PMB: Obviously, you are in the oil sands for the long-term. Do you have any projections about your future and how much you might be, for example, producing in about ten year or fifteen years?

HIRATA: Yes. For now, the immediate target is to bring our current production to 30,000 barrels a day, or 30,000 to 40,000 barrels a day, including a demonstration proposition and the new expansion project in Hangingstone area. That is the immediate target. Then after that, currently we are now starting the delineation work, evaluation work of the geology in the Corner and the Chard area. So, once we complete those geological studies and the feasibility studies, we will seriously start considering the development in those two areas. But, at this moment I have no specific timeframe.

PMB: Now, I want to change the conversation just a little bit. Only three or four years ago, many people talked about the idea of Peak Oil – that oil was reaching a peak and then no matter how long it stayed at that level it would eventually decline. But, in the meantime, as demand kept growing, there would come a time when the amount of oil producible and the amount of oil in demand will not fit very well together. And, there will be a sense of shortage.

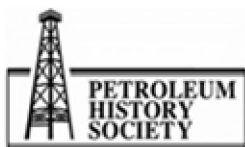
HIRATA: Yes.

PMB: What is your thinking about that now? In the oil industry, that idea seems to be losing favour.

HIRATA: Of course, fossil fuels are a limited resource. So, sometime it will be gone basically. But, because of the new technology we can recover oil from the difficult reservoirs, which before we couldn't recover but now we can recover by new technology. And, the oil sand is becoming conventional, now we can recover bitumen from oil sand resource economically. In the future, now we are talking about the shale oil too. Oil sand is a sand formation that contains some bitumen. But, the shale contains some oil too which is more difficult to recover. So, by technology improvement we can increase the recovery factor than before which means we can increase the reserve itself.

PMB: Shale oil is essentially lighter oil, isn't it?

HIRATA: Yes.



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PMB: But, it needs to be fractured in the same way that shale gas is developed?

HIRATA: Yes.

PMB: Can you talk a little bit about that, please?

HIRATA: Shale is a much tighter reservoir. So, the permeability is very, very low. So, within its natural state, oil cannot flow very easily. So, we cannot expect an economical production rate from those reservoirs. That is why you need to fracture the reservoir and increase the permeability of the reservoir itself.

PMB: Essentially, what you are doing with shale oil is developing it in exactly the same way that shale gas is being developed?

HIRATA: I believe so. I am not an expert on shale oil or shale gas.

PMB: Are you doing much of this now?

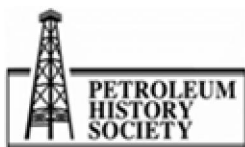
HIRATA: Not JACOS, but the JAPEX, our parent company is doing some shale oil project in the United States, not in Canada.

PMB: Oh, okay. I had hoped that you were doing a little bit of that here in Canada because that is a pretty important development. Of course, one of the interesting things about it is that essentially you are taking oil out of the source rock rather than out of the reservoir. Because, usually oil is formed in shale and then it migrates to sand or some other kind of reservoir.

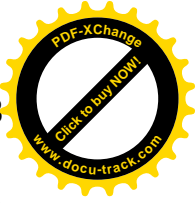
HIRATA: Always we are targeting the reservoir. Reservoir means the rock which contains the product, oil. So, shale formation is also looked at as a reservoir too. I am not a geologist and I am not an expert in shale oil, so I am not confident to share this information.

PMB: I met with a couple of oil companies last week and I don't need to name them. But, the people who were at the top had a very clear perspective on how they wanted to operate their business. They did not care how much their company grew, how much it increased its production. What they cared about was that they were able to develop the oil that could be produced most inexpensively. Now, obviously when you went to Hangingstone you said, "This will produce in an economic way." But, their perception and I think it's a very common perception in the private sector of oil companies in Canada, is to produce the least expensive oil and if you cannot make a good return on it you don't bother to produce it. Now, in terms of what JACOS is doing obviously you can find cheaper oil. But, to what extent is having the business bottom line drive the business? To what extent is that the case?

HIRATA: JACOS is also a private company and our parent company is listed at the Tokyo Stock Exchange. So, we have to return our income to the shareholders. That is, of course, a relatively important mission of the company. But, at the same time our company motto is to secure the long



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term and the stable energy supply to the market. Especially our parent company has been in business for over 50 years in Japan and the main mission was to provide natural gas to the Japanese market. So, one of the very important missions is to provide them a very long term and stable supply to those customers.

PMB: In terms of these two business models, so your model is really directed to long term supply while the fellows that I was talking to a couple of weeks ago, they were really very near-sighted. Very short term focused. What are your comments on those two very different business models?

HIRATA: Our company originally started from the Japanese Government and this oil sands business, they started as a national project for future energy security of Japanese industry. That is why we have been always having the long term perspective of this project. That is why we could continue our research project when the oil price was very low in the 80s and 90s. So, that has been the strong mission of this company. But now, a private company (JAPEX) actually bought out all the Japanese Government's share of JACOS. Now we have to make a profit from this business. But, at the same time, still as a Japanese company and because our parent company (JAPEX) is supported by the Japanese Government, -34% is still owned by the Japanese Government-, we believe one of our important missions is to have a long term and stable hydrocarbon supply to the market.

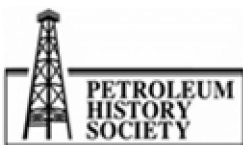
PMB: As you know, I lived in Asia for four years. Is it possible that there is a different perspective? One of the common Asian perspectives is a longer term view, whereas what we have in especially North America is the need for immediate gratification or short-term gratification. Is that a correct idea or is that just a western bias?

HIRATA: I agree with your observation. My analysis is probably that shareholders' expectation in North America and Japan is different. Of course, it depends on the shareholders. But, in Japanese market, shareholders (they) have some tendency to support industry or the company from a longer term of view. They support the company to grow. So, they may be more patient in their investment. Of course, it's better to get the quicker return but at the same time, they try to support the industry to grow.

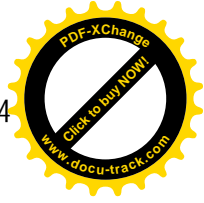
PMB: That is excellent. That is a really interesting...

HIRATA: That is my personal observation.

PMB: It is absolutely consistent with what I observed as well. I am looking over the information that I have here and I am not seeing anything else that you have not.... I do want to ask you this question. The PCEJ Joint Venture, what was your experience working with Canadian companies? And, in a way, this maybe follows from what I was just saying. Now, did you find that JACOS or JAPEX, either of those companies, changed its business model through having worked with them? Obviously, you probably learned a lot technically from that experience. But, did it affect the way you actually operated the business in this country?



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HIRATA: Yes, I believe so. I worked only for JAPEX all my life. I have been working with that company for 32 years. Out of 32, I spent 20 years in Canada. So, I am more like a Calgarian. I have been here for 20 years. When I worked with Petro-Canada and Imperial Oil, Esso at that time and Canadian Occidental, even those three companies are very different from company to company. So, I cannot just say Canadian companies are like this because everybody is different. Because, Petro-Canada was a national oil corporation they are different from Imperial and Canada Occidental. I see a lot of flexibility of each individual company's work style, flexibility was allowed in this Canadian society. So, that was a big difference.

PMB: So, flexibility was allowed in the Canadian oil companies.

HIRATA: That's right, compared to a Japanese – my company.

PMB: So, will you talk a little bit about the difference in JAPEX or JACOS?

HIRATA: In our company, the relationship between the supervisor and a team member is more unilateral. A supervisor requests something and the subordinate does the work. But here, more communication and more flexible communication are allowed. My English expression is not appropriate. Anyway, I felt more flexibility or freedom to talk to colleagues and bosses if you have any questions or concerns of the work order.

PMB: So, the style of management.

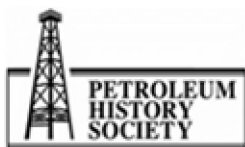
HIRATA: That's right. Style of management is a good expression.

PMB: My experience in the oil industry is that if I had a good idea, very often my boss would just say, "Go with it. Do that. It's great." But, maybe if I were working for JAPEX somebody would say, "Well, yes, we will have somebody up here do that. But, thank you for the idea." Would that be correct?

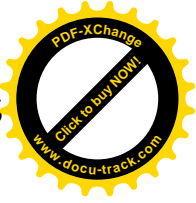
HIRATA: That's right. Of course, it depends on the supervisory department. But, relatively speaking, I feel such a way.

PMB: You have given me some wonderful information that I have not had from anybody else. But, I have in front of me a little Ownership Structure Chart of JACOS and what fits into the system within the Japanese – really, I think it is the Japanese oil company, the whole Japanese structure. Let me ask you this: are there any other oil companies in Japan, significant oil companies, besides JAPEX?

HIRATA: Yes. There are several big companies, actually. INPEX is the largest company now in Japan. They are having a big project in Australia and in Indonesia and also in Middle East and in Canada. They are attending Nexen's shale gas project as well as Total's oil sands project, even though they are not operating a project here. They have big activities all over the world.



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PMB: So, INPEX stands for?

HIRATA: International...

PMB: Petroleum Exploration?

HIRATA: I think so, yes.

PMB: So, that would be one company that you say is larger than JAPEX?

HIRATA: That is right, yes. There is JX Company.

PMB: That would be Japan Exploration?

HIRATA: I don't know what they stand for but it's not the full name of the company, JX something, sorry. There are of course, several oil and gas exploration companies in Japan.

PMB: Your company originated as a venture by the government?

HIRATA: That's right, yes.

PMB: Are these other companies, do they mostly have government ownership as well?

HIRATA: INPEX was started by the government, yes. But, that is all, basically. JAPEX was the first and the largest company, when JAPEX started. So, back then JAPEX was the largest oil company. But now, INPEX merged several companies together and then they grew into a bigger company.

PMB: They are also a refining company.

HIRATA: They don't have a refinery.

PMB: Really?

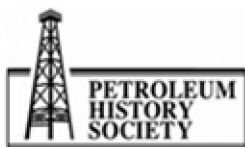
HIRATA: It is just an upstream company. In Japan, there is no upstream to downstream company. JAPEX, INPEX, all those are just exploration companies, exploration and development.

PMB: So, you are either a refiner or you a producer?

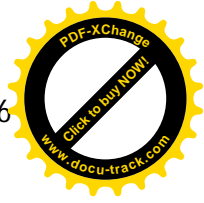
HIRATA: That's right.

PMB: You don't have integrated oil companies?

HIRATA: That's true. That's the current situation.



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PMB: That is a very interesting comment. I have no other questions. Maybe this is consistent with what we've been talking about. One of the questions that I like to ask people and you could give me a very different perspective of this: what do you think about the role of government in oil sands development? But of course, you were the only foreign company that I have asked that question to, so you would have quite a different perspective. In Canada, people would say for the most part, government should stay out of it. But of course, you were founded by government.

HIRATA: Again, I feel more flexibility to some extent in this country. Because, we can have a much frank communication, we can have a frank communication with the government too. We are dealing with ERCB, as well as the Alberta Government, as well as Alberta Environment to deal with our project licence application for the expansion. So, we can have a very frequent, daily basis communication with the government, the people. So, that's the good part.

But instead their process is taking much longer than we expected. We applied for the Hangingstone Expansion Project two years ago, more than two years ago. 2010; I think it was April, 2010. Now, over two years we are still waiting for the final approval. So, the approval process or the evaluation process of our application was much longer than we expected originally. I believe that process could be shorter by the efforts of the government.

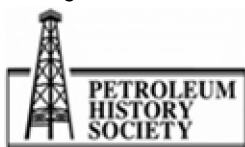
PMB: Now, what Canadians would probably say is that environmental questions are so important we have to make sure that it's technically correct, safety issues are addressed and on and on and on. So, then my question becomes, in that context, does it make sense that the industry has to wait three years rather than two years?

HIRATA: I agree. We have to make sure environmentally and technically our project is a healthy project. I totally agree with that. We have had many questions from the government to our applications. But, some of the questions could have been asked in much earlier stages. So, there is a room to improve that process. By improving efficiency of those questions, the answers to the whole process can be shortened. That's my opinion. We would like to request that to the government too.

PMB: Well, if the government gets hold of this transcript they will have your request directly from you. Actually, that's something that I'd like to cover one day in an article. So, is there anything that we have not covered that you would like to say? It is up to you now. What else would you like to add?

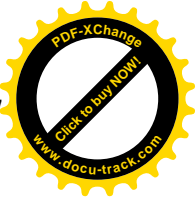
HIRATA: Since I came to Canada I have met some significant people in Canada. So, for example, SAGD process was invented by Dr. Roger Butler. Without his invention, this SAGD is not here. And, I met with Tony Settari and he is a world famous geo-mechanical expert. I was just a young engineer at the time in my early 30s and even though he was a very famous professor, I believe he is a professor of the University of Calgary, he very kindly educated me on some of the projects we worked on together. And, I am impressed by his job itself but also, his personality.

PMB: May I ask you. This is a name that I have not encountered before. And, this surprises me a lot. The geo-mechanical work that he did, was it related to the oil sands?



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HIRATA: Yes. I told you, CSS process required a lot of fracturing. When we studied reservoir flow mechanics and in the reservoir we have to understand how those fractures are created. So, Tony is one of the pioneers of making the software program, a computer program.

PMB: Isn't this interesting. This is a name I did not know. And, this is somebody that we will interview. Great, thank you.

HIRATA: He is a much more important guy to the industry, yes, Tony Settari . He is currently – he could be Dean or just professor of petroleum engineering – chemical engineering at the University of Calgary.

PMB: Great. Thank you very much for that. That's a great idea.

HIRATA: You should meet him before you met me.

PMB: No, no. You have been fantastic.

HIRATA: Also, Farouq Ali. He was a professor of the Penn State University and also the University of Alberta. His contribution to the heavy oil of Canada is huge.

PMB: I wanted to ask you a question on that. Now, I am a little bit confused. I understand that at one point you received the Dr. S. M. Farouq Ali best paper published in the JCPT, Journal of Canadian Petroleum Technology.

HIRATA: That's right, yes.

PMB: I had that completely wrong. You won that award when?

HIRATA: 2001, yes.

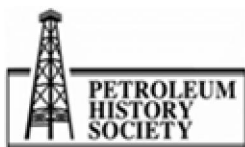
PMB: What was the article about?

HIRATA: We did a SAGD demonstration project in our field, Hangingstone. Then we analyzed our data and then we did the reservoir stimulation to reproduce our performance. Then we made a paper.

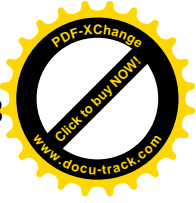
PMB: Who was your co-author?

HIRATA: Yoshi Ito and also, Makoto Ichikawa. Those two were my co-authors and Yoshi was actually the main author, he is still working at the ARC, Alberta Research Council. He is a strong reservoir engineer by birth.

PMB: By birth.



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HIRATA: He is now over 70 years old but he is actively working as a reservoir engineer with the ARC.

PMB: Is his background in oil sands?

HIRATA: Yes.

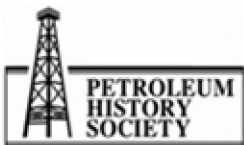
PMB: So, you think he would be a good person also?

HIRATA: That's right. He has also a Japanese background. He has been here over 30 years. He is a good co-worker with Tony and also Farouq. They talk very often too.

PMB: Great. I'm going to write those down as soon as we're done. Is there anything else? You have given me a lot of tremendous information.

HIRATA: Yes, I think that is all.

[END OF RECORDING]



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