
BILL MCAFFREY

Date and place of birth (if available):

Date and place of interview: December 22, 2011; 15th Floor boardroom in offices of MEG Energy, Calgary Alberta

Name of interviewer: Peter McKenzie-Brown

Name of videographer: Peter Tombrowski

Full names (spelled out) of all others present: Brad Bellows, Corporate Communications/MEG Energy

Consent form signed: Yes

Initials of Interviewer: PMB

Last name of subject: MCAFFREY

PMB: I'm talking to Bill McAffrey who is the President/Chairman/CEO of MEG Energy. MEG Energy if I'm not mistaken stands for McAffrey Energy Group.

MCAFFREY: That's correct.

PMB: Just briefly give you a summary of the specific things I want to ask you about. One is how your career developed the early part of course with Amoco. I do want to ask you about Sir John Brown and the BP takeover and his really notorious dislike of the oil sands, and kind of just heavy oil resources. And then most importantly I believe you and, what was the other one KS Energy?

MCAFFREY: Oh CS?

PMB: CS Energy was really the first two companies that said we will develop that resource, the first two small companies that said we will develop that resource. And in terms of the history of the oil sands I believe that is one of your greatest strengths and most interesting story. So briefly speaking and that's what I want to talk about.

MCAFFREY: Okay.

PMB: So today is the 22nd of December and we are on the 15th floor of the boardroom of MEG Energy downtown. The other people here include Peter Tombrowski, our videographer and Brad



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.

Bellows who is with corporate communications. So with that can you tell me a little bit about your education and your career and how it all began?

MCAFFREY: Sure, I have an engineering degree from the University of Alberta and it's in the area of civil engineering. So even though I was educated in civil engineering I really didn't pursue that career very much. I actually went out and started with Amoco in 1982 and then stayed with Amoco until 1998 just at the end of '98, so basically pushing seventeen years with Amoco. During that time I spent a considerable amount of time, the majority of my career in the oil sands. And that was an unusual thing at the time, most people would be in and out of oil sands and it wasn't the popular thing to do at the time.

But it gave me an opportunity to chase something that I thought would be big one day. In university I had the opportunity to do a research paper on oil sands and I couldn't believe on how large it was. So I thought from a career point of view that would be the way to go. So even though I was in civil engineering I did get the opportunity to go with Amoco at the time and they did have oil sands development. So within the first year I managed to get into the oil sands and I stayed there, and have stayed there for my whole career.

At Amoco I had a great opportunity to go into various areas, I started off as a facility engineer then a production engineer then an operations engineer. I became a reservoir engineer over time. I was involved with developing technologies that would advance the oil sands specifically Primrose at the time. It had been using cyclic steam in those areas before and my job as a reservoir engineer was to find something that would work, that would be economic. After developing that technology I was put in charge of actually developing the fields with those technologies, so exciting opportunities for me over my career.

PMB: Now when did you... you mentioned writing a paper on the oil sands in university? Do you remember the name of the chorus and what year that might have been?

MCAFFREY: It was part of program, it was a fourth year course that we were taking and we had to do some research on programs. So I went to I think it was AOSTRA at the time in Edmonton, and dug up what I could find. The information was pretty limited at the time but I was intrigued by the sheer size of the resource. And at the time I thought, you know, the world needs energy and it will be critical over time for something the size of this to be part of that picture on a world basis. But it wasn't there at that time, in those days that would have been in the early 80s, they were largely just mining projects out in the area. There was some work going on, it was actually late 70s I guess. But there was some work going on in Cold Lake with Imperial Oil but everything else was still undeveloped. So it was more of a paper that we were doing as part of a course than anything but it was probably about two months long and a lot of work to go into it to understand what was there.

PMB: And you were at the university of?

MCAFFREY: University of Alberta.



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.

PMB: In Edmonton?

MCAFFREY: Yeah, I was originally going to be a doctor and then I went astray and became an engineer.

PMB: Just think you could be examining people's tongues this very day.

MCAFFREY: I still am intrigued by that.

PMB: Now when you joined Amoco in '82 you were involved in some of the oil sands projects then which were fairly preliminary and probably fifty percent funded by AOSTRA.

MCAFFREY: Yes, I was actually involved with the development of and understanding of the cold production. At the time it was in Elk Point and part of my job as a production engineer was to figure out how to optimize wells but also, and that's what later evolved into the reservoir end is to determine why those wells could do what they could do. So I had a joint opportunity between making an understanding of how coal production wells actually worked in the province for the oil sands and what you could do to optimize that performance and then switching later to the formula as I mentioned earlier there.

PMB: Now you of course were also there during "D-Day" when Amoco took over Dome in 1988, how did that affect the oil sands business or did it at all?

MCAFFREY: Well I think it was a pivotal point for Amoco at the time because Amoco was interested in the oil sands. Dome was a company that had been pursuing the oil sands and Dome had a portfolio of companies that was truly great. A portfolio of projects I should say that were truly great. Specifically Primrose was a major project. So at the time of the merger between Dome and Amoco all of those properties came into Amoco. And at one point I was responsible for the commercial development of up to eighty billion barrels of resource. So with Amoco that's a massive number on any scale, but it as a prize that came to Amoco as a result of that merger. And I don't think that at the time of the merger they really had an appreciation for the sheer magnitude of what they had acquired with Dome.

Dome had some high, high quality properties; Primrose is class property today and it's owned by CNRL. But that's one that I was responsible for that I mentioned a few minutes ago, I was responsible for developing that technology in that project and then advancing its development. But there were other properties like we acquired Wolf Lake for a dollar deal from Petro Canada and BP. And Wolf Lake was critical because it allowed us to have a facility that had been built for Wolf Lake Property which wasn't the same quality as Primrose but it was in the proximity and uses that facility to tie into Primrose. It spawned development of the property that CNRL has today.

PMB: I'm trying to remember Amoco paid, and this is the number that sticks in my mind, it was \$5.8 billion dollars for Dome wasn't it?



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.

MCAFFREY: Right.

PMB: So it was a huge deal, well into the 1990s it was the biggest cash deal ever done in Canada if I'm not mistaken.

MCAFFREY: That's correct and if the deal fell through the concession was Primrose. So Amoco would have got Primrose if that deal had of fallen through and because they knew that Primrose was good, they didn't have an appreciation for the rest of the size. Some of those other properties that are interesting because they are related to the oil sands of major projects of today are a property called Mic Mac which is now Horizon owned by CNRL. Kirby and that's a project that is now in partnership between BP and Devon. Gregoire Lake and that's where some of the long lake stuff is on the side, it's not the same basic property but that's still there as well. And these properties, as I say... and Burnt Lake which is in the Air Weapons Range and it was owned by Suncor and it's now CNRL as well. These are high quality properties in general and there is some tremendous opportunity for the province. And it was just one of those unique points in time where you had that kind of size of resource being identified and Amoco had control of it all, they had a hundred percent in that, with the exception of the Burnt Lake stuff.

PMB: Wow okay. Actually I'm glad I asked that question because I didn't know that. What happened to the size of the oil sands and the combined organization? Because of course, it really was a case of the mouse swallowing the elephant.

MCAFFREY: Absolutely. In the case of the company I think there were two Dome employees for every Amoco person, so it was a change in culture that was occurring. Amoco had been a fairly rigid company; Dome was more of an entrepreneurial company. When they came together it was very interesting depending on which side you had come from. From the Amoco side it was like a breath of fresh air, in the entrepreneurial spirit that was injected into that company, I think if you came from the Dome side you would have felt it somewhat restrictive in the sense of a lot of controls that weren't in place before. As a total package it was a quite a quality company at the end.

PMB: Okay we're now back in 1988 and then about that time the Underground Test Facility was about to come on, I forget whether it came on in '87 or '88, it was something like that. Were you involved in that in any way on behalf of Amoco or the combined organization?

MCAFFREY: Yeah, I certainly was I was heavily involved. I was on both the technical and the management committees in those areas, so actively involved. And it's where I got a good appreciation for the SAGD aspect. And there was others involved like Chi-Tak Yee and Brian Rottenfusser, from it was a geologist. And some of those people have worked for MEG and do work for MEG today.

PMB: I'm sorry that was Chi-Tak Yee and Brian?

MCAFFREY: Rottenfusser.



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.

PMB: R-O-T-T-E-N-F-U-S-S-E-R.

MCAFFREY: Yes. And Brian's an early on geologist in the oil sands and he's spent quite bit of time in the oil sands as well so he may be an interesting individual for you to talk to as well.

PMB: Do you know where he's working now?

MCAFFREY: Well he's in Calgary and just retired recently but easy to get a hold of.

PMB: Thank you.

MCAFFREY: AOSTRA's project the Underground Test Facility, the UTF was really a critical/pivotal point in the history of the oil sands in the sense that there was consortium of eight companies that came together and worked shoulder to shoulder to advance a technology that had been developed by Roger Butler. And this technology is a great technology and it forms the basis of the majority of the in-situ technology used in the province today. It has demonstrated itself in numerous fields, very high quality recovery factors that are virtually double what you would see with conventional fields. And it's opened the province and the revenue streams for this province and for Canada in a lot of ways.

So that was a pivotal point because at first it was thought you had to drill from underground, in other words do tunnels and that was the Underground Test Facility was all about. And that you would actually drill these wells upside down into the reservoir and that was the only way to drain it down. But as people started thinking about it more they started realizing that with the horizontal well technology that was there and the pumping equipment that wasn't necessary. And breaking through that took a little bit but as soon as that happened it opened the door for many people to try it in many different fields and it just works great as a technology, very efficient.

PMB: Now Jerry Stephenson who designed the shafts and tunnels for the UTF argues that really there would still be a lot of advantages to using shafts and tunnels today. Some of the advantages being you could have a lot of your equipment down hole; you would have them in the shafts. You would have a pleasant working environment; you wouldn't be waiting for the winter drilling season to drill. And a lot of other, he talks about there being a lot of possible advantages of using the UTF type of approach even today. And it would add a fairly small amount to the cost of oil production; he says maybe fifty cents a barrel. Do you have any thoughts on that?

MCAFFREY: I don't think there is ever one technology, one approach that has to be right for everything. So if you had a base, you have to have a base formation that would strong enough underneath those reservoirs to be able to put those tunnels in. In the Underground Test Facility they had an excellent location for that. I think that there are safety features that you have to manage a little more with mines just because of where you have people and that. But I wouldn't dismiss the idea that you could still do the tunnels. It's not because they were ever displaced, people just found easier more cost effective ways with the technology to do it from surface. And surface, you know, when you think about the surface you basically do very small pads. They're about the size of 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.

office building on a footprint level, yet they could drain ninety-six football fields worth of oil from one pad and then you pick the equipment up and move it to another location and reclaim it. So it's very user-friendly from a land point of view. When we're doing our horizontal wells and our producing wells we don't have to wait for summer or winter those are all season. So we've got the ability to go all year round on those areas and Albertans are used to working in varying conditions. So I would think if you had a choice between working in a mine or working on surface a lot of people would pick the surface. But that doesn't dismiss the mining aspect of it.

PMB: Now we've gone to the UTF. Did you affect you? You were on the management committees and you were on the technical committees. When you saw the first two SAGD pairs drilled, how did you respond to that?

MCAFFREY: It was exciting. It was something that you could see. At first they drilled the horizontal pairs and they weren't sure that they didn't have a layer of clay in between them. So they were a little worried about whether they were going to get continuity of flow between the injector and the producer. But actually it turned out very well. And then the recovery factors were very, very intriguing that you could actually see.

In today's world we kind of sand-bag it a lot in terms of we're inching our way up in terms of our understanding of what those recovery factors could be. But the truth is that for the Underground Test Facility we actually produce those wells to the end of their lives and we had really good feel for what those recoveries are and they are much higher than what we will traditionally look at today as we start to continue to move through the technology. And so in some sense what was learned with recovery factors has gone backwards in time in terms of just being very conservative in developing these fields. That has huge implications because there's billions of dollars in place and every time you add ten percent recovery to a billion barrels, you know you're adding a hundred million barrels there and that's a bonus once you've developed those fields. So recovery factors are important.

PMB: Now of course we were both there in 1988-'89 when BP took over, but before I ask you about there are some famous stories in the Canadian oil industry about Sir John Browne. You know he was recognized as one of the great business leaders in the world at the time and yet he absolutely despised the very notion of the Canadian oil sands. Do you have any recollection of that or do you have any thoughts on that specifically? And then we'll come back to how that affected Amoco BP later on.

MCAFFREY: Sure well Sir John Browne was by background was a reservoir engineer at Wolf Lake originally and then he had moved up because BP had owned Wolf Lake.

PMB: But of course he was a Brit.

MCAFFREY: Yeah.

PMB: And so he was moved here 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.

MCAFFREY: Be a reservoir engineer.

PMB: Oh I didn't know that.

MCAFFREY: Yeah not a lot of people actually did know that. And Wolf Lake wasn't a very high quality reservoir and so his experience had gone into that and from that he just disliked the oil sands and that's and that's correct. So he believed that it wasn't something that you should have in your business. His experience on it, and we all make our decision off of our experiences, came from old technology and a lower quality reservoir and that shaped his thinking. When it came time to the BP/Amoco merger it was almost the first thing he decided to divest and you know what it didn't fit into his strategic model. So that's not necessarily wrong if people feel that it doesn't fit into their strategic model then they should divest of it. I always believed that property should go to people that are going to develop them because there is tremendous prize in that. But there are different thoughts and different strategies and at that time for Sir John Browne that didn't fit into their portfolio.

PMB: So he had Amoco, BP/Amoco had the best portfolio of oil sands properties in the world and shortly after he took after the company, which if I remember was January 1, 1999 that the formal merger took place. So the first thing he did after taking over was to get rid of the world's greatest collection of oil sands properties.

MCAFFREY: Yeah there could be a business case here that when you had the upstream quality that you had, you had the infrastructure, you had a lot of the LNGs and you had the downstream refining that you had quite a business strategic advantage on it. But if it doesn't fit into your portfolio I guess you divested it, but for me I wouldn't.

PMB: And of course that was the period when oil was, you remember the Economist, when the Economist came out and said that oil was going to be five dollars a barrel into the foreseeable future. That was '98 I think.

MCAFFREY: Yeah.

PMB: And so it was an extremely low price energy environment at that time.

MCAFFREY: That's right and we make our decisions for the moment in time that we're in and based on our vision and our strategies. And so it wouldn't be right to pass judgement on those decisions of the time when we look at it today because it's a very different world than that. That is the same period of time though that started MEG. And so in that world it was ten dollars a barrel and the world did believe it was going to be flat oil prices for a very long time. I didn't believe that and so I was out buying oil sands in that time personally after leaving Amoco.

PMB: Okay now I want to come to that because that's the key part of this interview. First I'd like to go back in your experience with Amoco over let's say the last five years. So this was at Amoco after the merger with Dome. What experiences did you have there with developing production



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.

technology that influenced your thinking and made you believe that this was an important opportunity?

MCAFFREY: It was a great opportunity for me. Amoco was committed to the oil sands in those days and they having developed technologies, patented even technologies on the oil sands aspect of it. You could see it was an opportunity to study what the reservoir could do given the technologies. And the by implementing horizontal drilling in Primrose, it was really the first commercial project on horizontal wells in the province. And so the technology had... there had been horizontal wells drilled that in terms of thermal technology using horizontal wells, it was the first on a commercial basis. And for a period of about three years we were drilling horizontal wells day in, day out, non-stop, in the trees, in the Air Weapons Range, with two rigs and we had I think, memory fades a bit on it but possibly two hundred horizontal wells that we had drilled. What that taught us is that you could drill wells horizontally from surface in a commercially viable way and in a way that you could count on the production from it.

Prior to that that wasn't a well-known or understood fact but that project demonstrated that horizontal wells could be drilled from surface. So if you go back and look at the development of the oil sands, prior to that we'd been working on the Underground Test Facility and the SAGD technology but the key components you needed to put it together was could you drill these horizontal wells reliably from surface on a commercial basis and link it to that technology and make it worthwhile. So it was a key component in terms of being able to put the commercial picture together.

PMB: Now in terms of the Primrose development, am I right in thinking that Primrose is not bitumen so much as a kind of a heavy oil or am I mistaken on that?

MCAFFREY: No I think, Primrose is bitumen on it. There is confusion in the industry. Not in our industry but in terms of the media and what you hear. So the word "tar sands" and "bitumen" get played depending on what your viewpoints of the projects are. But the word bitumen is really something that is too viscous to flow. But there isn't a black and white to this game because some of these properties including Primrose they can flow production. We actually produce coal production out of Primrose, briefly. It wasn't on an economic scale that's why we converted it to the thermal but it would be classified as bitumen much as the stuff in our areas.

PMB: Oh okay.

MCAFFREY: Its viscosity in Primrose was... let's see somewhere around a hundred or two hundred thousand centipoise so it wasn't...

PMB: Wells what's that in API?

MCAFFREY: It will be about a ten API, ten or eleven; just sitting right on the line there.



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.

PMB: Okay thank you. Now, we get to the part that I find most interesting. So you left Amoco shortly, around the time Sir John was selling off the planet's greatest collection of oil sands properties and then what happened? Please try to go through this chronologically but I will also be asking you some questions.

MCAFFREY: Well at that time I saw it as an opportunity for me because at the time I had been trained very well. The company was a quality, Amoco's a quality company that trained people very well. I had gotten tremendous experience and I was intrigued with the idea of starting my own company. So in 1998 I left at the very end of the year and by March of '99 and oil prices were about ten bucks a barrel. I think I started the company on St. Patrick's Day; I'm Irish so that's a good thing. But I bought the first property and it was I, my brother-in-law and another individual named Dave Lizinsky and Dave was just a friend of Steve Turner who is my brother-in-law. I basically called up Steve one day and said, I've got a crazy idea I'm going to start an oil company. I don't have the money to do it all I've got a package that I got from Amoco because Amoco had shut down that business so everybody was able to get packages on it so that was fortunate for me. My brother-in-law said if you're in, I'm in and he's not in the oil business he's in Vancouver as Dave Lizinsky is.

Half an hour later Dave Lizinsky calls up and says I'm in and I go why are you in? He tells it a little different, he says we met before. But it's a story of three friends really that have gotten together and pooled whatever dollars we personally had to go pursue an oil sands opportunity. It was an open bid at the time and with the small dollars that we had we were able to buy nine sections at Christina Lake. There was about a billion barrels in place at the time and we were able to compete with industry because industry believed that the oil price was going to stay down in the ten dollar range for a long time so who cares about oil sands.

PMB: So what did you pay for those nine sections?

MCAFFREY: I think we paid about a penny a barrel.

PMB: So it was a billion barrels so you paid a hundred thousand dollars?

MCAFFREY: Yeah, a hundred and fifty, something like that, so a penny and a half.

PMB: So you put everything. You threw all the dice on one property.

MCAFFREY: We used a fair amount of our money and yes this was a big roll. I told my wife before; I said I'm going something crazy are you okay with this? I told her I was going to buy swampland because it's very muskegy in the oil sands. She says go for it so she was supportive so yeah, we put a fair amount into it. And it was high risk because at the time people are making their bets. So we talked about what the right decision was for BP and what they believed the world was going to do. For other people such as myself I believed it was the opportunity of a lifetime. All I had to really bet on was that oil would be worth something at some time, because if you tangibly own those resources you have tremendous option value. When you bid on it it's a blind bid and you don't know you're going to get it. I remember going over to the government building and picking up the



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.

sheet at the time because it wasn't all computerized and seeing that I'd won this and I know oh-oh that means they've drained the bank account today because it gets paid right away. And then I thought oh boy now I've got to go start an oil company because we didn't really have an oil company oil sands company.

PMB: In order to own the property the leases you have to have at very minimum a shell company?

MCAFFREY: Yes so I had to start a company the day before to put it on the record of that part.

PMB: Really? So it was just a numbered company?

MCAFFREY: Yes.

PMB: Isn't that funny.

MCAFFREY: Originally it was called McAffrey Energy Group. I converted it from a numbered company to McAffrey Energy Group and then we converted it later to MEG Energy.

PMB: So we're back in 1999 right now is that correct?

MCAFFREY: Yes that's correct.

PMB: So that hundred and fifty thousand dollars according to this Globe and Mail article from last June 17th, at that time MEG Energy had market capital of around ten billion dollars. So you've leveraged it quite nicely over the last twelve years I would say. Can you tell us a little bit about how you did that?

MCAFFREY: Sure. Well the first goal for the first four years or so was to continue to acquire oil sands leases and we would put these all in different broker's names so nobody really knew who owned all these different lands out there. But to develop an oil sands company originally it was thought out that you needed to be a major. So I was intrigued by the idea of what it would take to build one. To me it was really three things you needed to have quality assets, you needed to have people with the experience that knew what to do and then you needed to have quality investors. And if you could put those three legs of the still together you could compete very favourably with the majors. And that story is that is the basis of MEG.

So at that time we had the expertise and knowledge of what to do in these areas and we'd been trained by majors but majors weren't in it anymore. These were public properties so there were no issues or anything on it we were just out bidding on lands. But we needed to find the investors so we didn't have that. And then the earliest days of MEG felt a little bit like I was walking around hat in hand in the streets of Calgary trying to find anybody that would put in the money. And there were a number of people that were believers in the oil sands that had been former CEOs of companies that had retired. And they'd put in twenty-five and fifty-thousand dollars. But it takes a lot of people to be actually able to move a project. But they were instrumental to helping the project go at the time.



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.

And over time in 2004 we came upon a company that was an investment group called Warburg Pincus and Warburg Pincus is a class, class organization. They're private equity, they have a long-term value focused orientation to them and they bet on the people. So when they invest they go through every detail about you, they dig up information about you but because they're going to count on you and I think that's fair to do it.

PMB: And that's a Calgary based company?

MCAFFREY: No they're out in New York.

PMB: Oh.

MCAFFREY: Yeah New York. And then there are companies like Wellington and then Chinese and other pension and endowments and sovereign wealth funds. And so over this period of the next four years, so this would have been from 2004 to maybe even to end of 2009 I guess, so a little more than five years I guess. The company was able to bring in thirty blue chip investors, very high quality, very diverse backgrounds as I say. I think from sovereign wealth funds to organizations like Warburg Pincus, Chinese insurance companies. And we were able to raise more money privately than any other company in any industry in the world ever. That's a huge statement but that is a statement that has been backed by five different banks as they have done research they cannot find another one like that.

PMB: And the total amount that you've raised so far before you went public?

MCAFFREY: Was 3.2 billion.

PMB: 3.2 billion Dollars.

MCAFFREY: Yeah. You know it's rewarding in the sense that for the first four years I was lucky if we could raise two hundred thousand dollars because we didn't know anybody. But when we were able to bring in quality investors like the Warburgs and the Wellingtons of the world, Wellington was just ahead of Warburg. When you were able to bring those in then that attracted others and it became one of the secrets in the investment community that people really wanted to come in. But the key on it was to do the right alignment. It wasn't, all money is not equal in this and we could only deliver a product that we thought would have enormous value over time but it did take time. And so the key is like a marriage you needed to make sure that the dollars that you were going to bring in were well aligned with what you could deliver.

So that's where the long-term value focus came in. The prize for the oil sands is quite large and enormous value for all involved but it takes time and commitment. It's not something you can do in quarters it has to be done over years and you need to have that support of those investors. And all of our investors are coming into the public part were extremely high quality, all aligned with the long-term value focus. So you could go from a Chinese company, to sovereign wealth company 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.

if you think about it they will have all the same horizons of long-term money that they like to keep in advancing in things. And I think that's served MEG well over the years.

PMB: Now you mentioned the Chinese. That means CNOOC.

MCAFFREY: CNOOC yeah.

PMB: And you mentioned a couple of sovereign wealth funds, can you name a couple?

MCAFFREY: Tamesik out of Singapore. And then there's some more Chinese, there is money out of Brunei, Indonesia, just different funds that it came in. So we found ourselves in those years doing enormous amounts of travelling. Because in the private equity in the world you do one-on-ones, and so you sit down in meetings of three or four people and you just tell your story and you work with them to understand it. We were through the Middle East; we were doing laps of earth. This isn't necessarily a badge of honour but it's a funny story. We've got it down where you could go around the earth in five days. Three nights sleep, two in airplanes, on top of that you get three continents and you say go out east of Calgary and you can back from the west five days later. As I say that's not necessarily proud of it's just something that you do.

PMB: How many times did you do that?

MCAFFREY: Oh we probably did it two or three times like that. But we would do many other trips in between where we'd be over to. It was very rare we were in the same country for more than a day.

PMB: Do you collect air miles?

MCAFFREY: Ah yeah.

PMB: Can I borrow some?

MCAFFREY: I have a lot, I have a lot.

PMB: Wow incredible story.

MCAFFREY: But it took a, you know, and that's where it's not for the feigned of heart. You have to be committed in these areas and there are a lot of good quality people out there. My story is just an example of the spirit of Albertans and the opportunity that anybody can do because we're not unique in any way. We're just people from Alberta that had an idea that chased it and it has worked out very well.

PMB: Now in terms of, the period that we're talking about now. This takes us up to about when? 2008?

MCAFFREY: Yeah we went public in August of 2010.



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.

PMB: Okay now, going back to let's say 2008. By that time how much property did you have? How many leases?

MCAFFREY: We were probably close to nine hundred square miles of oil sands leases. And so we own it all a hundred percent. We're over nine hundred now, so the majority of that we had done privately. And I think that was the right word for it. There's a time to be public and there's a time to be private and there's more patience in the private markets. In the public markets it is harder to get that true alignment. So I think you need to grow privately to start with in this field and then move over. But to answer your question it was about nine hundred square miles, so from nine to nine hundred. And that gives us a very large land position in all of the southern part of the Athabasca deposit, which I think is the highest quality area, centered around Christina Lake largely.

PMB: Okay and now let's go to the point where you became public and then I'd like to go back a step to where you began to develop Christina Lake. So you have nine... did you say nine hundred square miles?

MCAFFREY: Yes.

PMB: Of oil sands leases, you've raised a whole lot of money from private individuals and investment organizations and now you decide to take the company public. What was your decision making process as you did that?

MCAFFREY: Well we had raised money very successfully private, on a private basis but money does need an opportunity for liquidity. It doesn't necessarily mean that people will sell their shares and in our case they haven't. Well some do because they need to turn the money around. But in general it was an opportunity to provide liquidity to our shareholders should they want it. It was at a stage where MEG was already very strong though. You want to when you're building these projects you want to be well funded and you want to be funded to completion of your next phase. You can always take a break on a phase, after a phase, it's not so easy to take a break in the middle of the phase. And so we needed to make sure in the decision of going public that we were in a situation that we really didn't need a lot of money. And that's a little unique because a lot of people think you go public to raise the money to go do this. But on the oil sands I think you kind of almost have to stand on your head a little bit there because you need to know that you have a phase cured or you can get your head handed to you in the public markets.

PMB: You need to have a what?

MCAFFREY: A phase of development secured. So you need to know that you're not starting into a development of a given phase. We call them phases, you know, stages of development if you want. You need to know that you've got that well-funded or if you're in the middle of it and you needed money it would be very expensive money to have. So we were very careful to make sure that we were comfortable that we were in a good place prior to going public.

PMB: So when did you start thinking about going public?



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.

MCAFFREY: We wanted to make sure that we demonstrated our first commercial project and that it was up and running and generating commercial volumes. So that was really the trigger. So that was for us phase 2, our phase 1 was a three thousand barrel a day pilot if you want. That just helped us as a team come together to form and say do we have this right, it was lower dollars, we knew the technology worked but we were a new company and we just needed to do that.

PMB: When did you accomplish that?

MCAFFREY: That came on 2007. And then our second phase was phase 2 and we started construction in 2007 as well and it was on stream in August I think it was of 2009. And so we did have the fastest ramp up and still have the fastest ramp up in the industry for SAGD and we have exceeded our plant capacity. And it was that ramp up and where we were headed and where we got our costs in line that gave us the confidence that we were where we needed to be to go public. So we were careful not to do that until we had enough information to see where we were headed with the production.

PMB: And so you finally went public in 2010?

MCAFFREY: Yeah.

PMB: Now as I recall, about the time, I have this from this Globe and Mail article. That just months before you went public the Athabasca Oil Sands went public and their price as soon as it was listed, the price tanked. How did that effect your decisions?

MCAFFREY: Yeah that was a pivotal conversation that we had in almost all of our meetings because it was the last example of the oil sands as a company going public. And the real question that people had to get comfortable with is would MEG be similar to Athabasca. Athabasca had a fairly high sell of right after the public so the price went down. So the question we would be asked very frequently was, is that going to happen to MEG. But there was a difference in that story in that MEG was a producing company and MEG had gone around and focused very hard for years on getting investors that were long-term value focused. And it took a lot of conversation with people to help them see that there was a difference and some got comfortable with it and some didn't get comfortable but it did actually impact us. And there was a lot of industry that was cheering for us actually in this, because it's important in our business to be able to point to successes. And it was an unknown really at that time.

I mean management and a majority of the shareholder were locked up for six months but what would happen after that and it wasn't known. We felt pretty good because we knew our shareholders very well but others needed to go through that. And as I said some got comfortable and some didn't, later on the ones that didn't regretted it but I mean they made the choice that they thought was right at the time.

PMB: Now also referring back to this Globe and Mail article from last June, at that time you had two billion dollars in the bank. Do you still?



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.

MCAFFREY: I think as of the end of the fourth or third quarter we had 1.8 billion.

PMB: You've been a spendthrift for the last few months.

MCAFFREY: Well we're focused on our next phase of development and our next phase is phase 2B and that adds another thirty-five thousand barrels to our development. So our first two phases combined have a design capacity of twenty-five thousands. At the end of, we've been averaging this year somewhere around twenty-six, twenty-seven thousand on barrels of a day so we've been producing above main plate. And this next phase brings us up another thirty-five so takes us over sixty thousand and it's on-stream in 2013.

PMB: And we're still talking here about Christina Lake.

MCAFFREY: Yeah.

PMB: Okay now I want to go back about well however many years are necessary and talk about the development of your production. So you spent several years just buying properties. And at some point, and I think it was 2003 or '04 if I remember from my interview with Chi-Tak. You brought Chi-Tak on as I think the same job he has now, Vice President of Resource Production or something or other. And I'd like you to explain to me how you developed your assets and what you're thinking was around the development. You told me a little bit about this. Part of the package here was that the need to keep bringing money in, of course that was one of your needs. So you needed to justify that. How did you develop that, it sounds as though you did everything pretty systematically?

MCAFFREY: On terms of development of the properties?

PMB: Yeah.

MCAFFREY: Yeah no it's true. What you do when you develop these properties is you have to first de-risk them. So it's an exercise where you first of all you have properties but you have to go and define the quality that's there. So over those years, since probably about 2003 onward we have systematically been de-risking the reservoir by drilling core holes which are wells' physical samples that you take out of the ground and you assess it. So in Christina Lake I think we've drilled over five hundred of those over the last few years. So you're de-risking it because you've got to know the true quality of your reservoirs.

Geology changes, rivers cut into rivers in the past and they form these reservoirs but you got to know what you're dealing with. So in the early stages we were de-risking. We've always used proven technology. We know the technology that works from our experience from the past. We have people that have worked on every thermal project built in Alberta over the last twenty years. We have enough scars on our backs to know what works and doesn't work. And in the end of commercial we're very calculated in terms of commercial projects we're very calculated in what we do. So we use proven technologies and we pull that together systematically. As I said earlier that first



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.

phase was important that we made sure we had it right. So our first phase was wildly successful, we were producing three thousand barrels a day in very short order. It was a three thousand barrel a day pilot. We had six well cars but we were only using three to get there and that gave us the confidence to do the next piece. We do very systematically de-risk and develop phases and look for synergies of the different phases. So all of our operations are in one general area, it's the south Athabasca area.

PMB: Sorry which area?

MCAFFREY: South Athabasca.

PMB: South Athabasca.

MCAFFREY: And we look for opportunities to get synergies between those properties. We also built a pipeline in 2006 and it was a pipeline that would carry our production from Christina Lake to Edmonton. It was the largest pipeline project built in 2006. It shows it a little bit of, its joint venture between Devon and ourselves fifty-fifty on that. But it shows how we were thinking at the time is that 2006 we didn't really have a lot of barrels and yet we built this pipeline four hundred kilometers. But it was to set the stage for where we were going. Devon's a great partner, I've got a lot of respect for the company we're very aligned. They have a property called Jack Fish to the south of us in the Christina Lake area and they tend to find if it's good for us it's good for them and vice versa, so we have a good relationship with them.

PMB: Now you obviously understand the oil sands technology and development personally and quite in-depth. To what extent do you get involved and to what extent do you leave it to Chi-Tak and other people?

MCAFFREY: For our company it's a little bit of roll up your sleeves kind of approach. I believe if you're going to make the business decisions you have to have good understanding of all the metrics. You have to have good people, those people have to have the responsibility to drive things forward but the language of your company needs to be one around the business, and the technology and how you're advancing things. There can't be a gap between how you speak about the technology and the operations and how your bottom line performance goes. And I think in some companies if they get big that there can be this grouping between technical and the management and don't think it helps the managing end of it because it means that you don't necessarily have the background sometimes to do that.

So at least this is just my belief it's different than everybody's maybe in some ways. But I think having people that speak the same language in terms of the performance and the things that are important and knowing what the drivers are is a major piece of our success in the company. And these people have to be quality, knowledgeable people with those backgrounds and you have to work together as a team but they have to be given the responsibility to do their parts too.

PMB: Now you have five floors in this building. How many employees do you have?



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.

MCAFFREY: I have about three hundred and forty right now.

PMB: Three hundred and forty, how many of them are office and how many are field?

MCAFFREY: There are about a hundred and twenty I think in the field, the rest are in Calgary.

PMB: So far I haven't asked you any of the questions that I came here to ask you. Let me just quickly go through these things and see what I missed. Oh yeah, you said earlier on that you had expected oil prices to rise when the rest of the world was sort of sunk in glue. Why was that?

MCAFFREY: Well I didn't really say, I wasn't saying that I was smarter than anyone else. I was saying that I think there was always optioned value in the oil sands. To me ten dollars a barrel was too low and not sustainable from a world basis and the world economy still needs fossil fuels to grow. You know economies count on that. So the bet was really one of did I think this would be worth something someday; and to me that is the way you looked at investment, you know, buy low and sell high kind of thing. You see an opportunity when the world is looking at things differently. But wherever that is, whatever field that is and if you actually believe that at some point in time that's different you should do those things.

PMB: Now the usual model in developing until recently and I think you and CS were the first two exceptions. Usual model would be for me and entrepreneur to go buy an oil sands property with the notion that at some point I would flip it over to somebody with a lot of money. Now was your idea from the beginning that you would not follow that model?

MCAFFREY: Yes yeah. And that's where I came to the three legs on the stool is if we could find the quality investors. The investors that had the same profile what they're needs were and our needs of our deliverables and we already had the people and we could access to the resource. Then we felt we could compete with the majors in this particular area and I think that's shown over time to be a success. So from day one if you went back in time, back into 1999 it would have had a spreadsheet of showing our development plans and the different aspects of it. While over time it has gotten larger it is still directly on course for what was planned at that time.

PMB: Wow.

MCAFFREY: There was planned and always been to build an oil sands company and make it as competitive as we can in the world in terms of costs and the Calgary factors and economic profitability. And so it's definitely my belief and vision to continue to grow this. We've announced plans of growing to two hundred and sixty thousand barrels a day by 2020. That's a ten-fold increase of where we are today and we're on track to do that.

PMB: You know when I first started working in the oil industry I was working for Gulf, this was in the late 70s which was I think the third biggest oil company in Canada. And its total production was ninety thousand barrels a day. Wow.



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.

MCAFFREY: Yeah.

PMB: Let me come to some of the social and environmental issues which were not very, really that prominent fifteen years ago. But they've become very important now. I'm thinking here of aboriginal relations, the supply of reliable labour especially in the field and public concern about greenhouse gas emissions and other environmental concerns; water, air and habitat and so on. So looking at those three issues: (1) aboriginal relations, (2) supply of reliable labour, (3) public concern about greenhouse gas emissions and other green questions; how would you rank these in order of importance? And are there others that you would add to the list?

MCAFFREY: Yeah I wouldn't actually rank them. I would say those are the ones that we have to deal with. We have to have a social licence if you want to produce. We have to be good in all of those areas. We have to be good neighbors with the communities and in this area that's aboriginal people. And we have good relationships with these people. They're typical needs is that they want to have employment for their people and they want to be able to enjoy prosperity in their communities and obviously they don't want to be negatively impacted. And I think as a neighbor and we are neighbors and we're going to be neighbors for many years we have do our part there and help them to increase their education, help them to get jobs, help them be part of what we're doing in.

In the sense of how they can contribute and they can't contribute in every way but they can contribute in a lot of ways. I typically find they're very good down-to-earth people, we find them to be a very genuine type of people. As far as the environmental aspects and the labour components go. I'll start on the labour. We built our phase 2 in probably the highest the demand market that was there, it was in 2007 and that's when...

PMB: In terms of labour demand?

MCAFFREY: Labour demand. And so labour demand is something you have to pay close attention to. When you're building these projects the way you have to ensure that you are on time, on budget and we were with phase 1 and 2, you have to be exceptionally careful with the labour demand. You have to make sure you get people and that you can retain people. But you also have to focus very hard on the productivity of those people. And when there's a demand in the province for a people demand because of the number of projects going, which you typically find in any industry and its no exception in oil sands is you've got to pay close attention to productivity because productivity will slip. The greener, less experienced people are the more there is a fueling of entitlement through the labour force, the less productive people can become.

The way you do that is you make sure you have your people close to the ground where the activity is occurring that you're getting immediate control and cost control and then you've got the feedback loops to get that work done properly and effectively. And the good parts about the in-situ projects are that they're done in bite size pieces. So thirty-five thousand barrels would be a bite size piece in this business. And that allows you to manage a smaller labour population in the field. So you'll pre-build a lot of the equipment, bring it out to site and assemble it. Almost like a labour project in some



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.

ways, which really helps you out a lot because you're in harsh conditions and being able to assemble it there as opposed to building it from scratch is a big deal. Some of the mining projects that have the upgraders and that, they could have ten times the number of people out there and it doesn't make in-situ guys smarter than mining guys it just means that our job is simpler because it's smaller in scale. And then you do repeatability in that particular area. When it comes to environment I think that's an area where we're incredibly proud of what we've accomplished over the last few years and we have to do a better job to get out and educate the population in it. Specifically there are really three areas. There's land disturbance, there's water and then there's air emissions. On the land disturbance as I indicated earlier we had drilled, we drilled wells from pads we could recover these pads quickly.

The footprint on a per barrel basis I would argue is the smallest in the industrialized world because they took conventional wells that would be drilled from individual sites or even if they were drilled from pads they wouldn't have the same access to the same volume of barrels. So you have an opportunity for very little land disturbance and very easy to reclaim because you're only just setting equipment on piles which you can cut off and reclaim and replace the soil that you've stored on the side. You have a very quick ability to turn that around. That's different than the mining projects. But the images that has been out there and that has been so negative with dirty oil, those types of things.

First of all they're from activists and they're focused on other initiatives of basically weaning the world off fossil fuel but besides that point they're picking on the mining projects and those are very different projects and we don't do those. But that's not to say those people aren't doing a good job too. They do a stellar job. But they too don't get that credit for their particular area. Ours is simple though. We just take the equipment and use it over another site and reclaim the earth. Water we use brackish, non-potable water from deep reservoirs. We use ninety plus percent and we recycle the rest back to the reservoir. So you've got to close the loop in this thing as you can. We use no potable water, no surface water and no ground waters or anything like that. And so there's a story there is if you were to pour this water on the ground it would kill plants. So it's not a usable, consumable product by human beings or vegetation or animals.

In the greenhouse gas area I think we're really quite proud of the progress we're making in these areas. We can always do better but some of the things that we're doing are we're working on our efficiencies and that's where a lot of technologies going, energy efficiency. So MEG is fortunate to have a very good steam/oil ratio which means we use less energy to get a barrel of oil out which means we have less emissions associated with that. And then we also use pro-generation which means you get two benefits for every gas molecule that you use. So you'll get power and you get oil from the steam that's generated from the steam that's generated from the exhaust that is pro-gen.

PMB: And the other power goes into the grid?

MCAFFREY: Yeah, we designed these for the heat requirement to build a ladder for the steam for SAGD process but that leaves you long in power. So we do sell extra power to the grid and in 2011 we've covered over eighty percent of our operating costs with the surplus power and that's unheard



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.

of. And so the thing though from the environmental end is quite interesting because if you take wells to wheels analysis. So from the wellhead all the way through the tailpipe of the car, which is the proper way to assess carbon footprints, if you take third party data and if you take what we are doing right now there is a very credible story based on fact that MEG some of the lowest carbon footprint barrels on Earth. And certainly for what the US can get...

PMB: You said on Earth?

MCAFFREY: On Earth. Because if you take the analysis of where barrels are produced, what it takes to do that, what it takes to transport them and refine them and then put them through the tailpipe. First of all the tailpipe is the lion's share of it anyway so everybody's kind of equal in that area. But there is a very credible story that could show that you are very well positioned and certainly for the barrels that the US brings in whether they're local barrels or whether they're bringing in them from the Middle East because of that transportation and everything. But we can compete very favourably among even the conventional barrels throughout the world. And that's a story that we have done a poor job at getting out. And it's not just unique to MEG. Cenovus and others are quality organizations and are doing excellent jobs in these areas and yet we haven't managed to get that story out yet. And I think it's just because we're just sort of coming to grips with the stories we need to talk about. We need to be more proud of the things we're doing. So even though we have got, we've made these huge strides in these areas we can do better. We're looking to and we should always have that hat on that we can do better.

PMB: In terms of the technologies that will (a) reduce environmental and social issues, and (b) increase the efficiency with which you produce oil. What do you see as the future?

MCAFFREY: I think the technologies that we can do that can increase the efficiencies will drive the future. Is that your question?

PMB: That's exactly right.

MCAFFREY: So then the areas we need to look at are ways that we can improve the efficiency that we transport heat to those reservoirs. That we can recover additional heat through the water that we get back that's hot before we reuse that water. We need to have equipment that is more efficient at how it consumes a barrel and transfers that energy to other sources there, or forms I mean. And in doing that we're, you know it's a really positive story because it's really helping the environment but it's also helping our economics. And so you know, you've got economics and environment actually aligned. And I think we need to start thinking that way more as a world is because the oil sands is a growth engine for Canada right now and I think that's recognized, it creates jobs across Canada and we should be proud of it and we can do that in partnership between economics and environment and creating employment for Canadians and doing a better job on the environment.

PMB: And one of the things that is gaining a lot of news is use of condensate as part of the SAGD, are you experimenting with that at all?



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.

MCAFFREY: Yeah you can use solvents that would help to...

PMB: Solvents sorry, I meant solvents.

MCAFFREY: Yeah you can use solvents to help improve the efficiencies. We're focused on, and I believe Cenovus is doing some of that right now we're focused on using non-condensable gasses.

PMB: A non?

MCAFFREY: Non-condensable gas.

PMB: What does that mean, sorry?

MCAFFREY: So a non-condensable gas is something like methane. In other words it doesn't condense under different pressures and temperatures that we would deal with in the reservoir. And so what you do is normally in a SAGD process is you put steam in the ground, you heat the reservoir up. It creates a steam chamber and it drains the oil and condensed water down to that producer and you produce that out. But after a period of time you've put enough heat in that reservoir and you're only doing two things, you're putting the heat in to reduce the viscosity but you've also created a pressure support. After a period of time you've put enough heat in that reservoir that as long as you can create the pressure support for the chamber that you're building. Then you can reduce the amount of gas you are using to create steam and reduce the amount of steam you're putting in the ground. Just by substituting the pressure support that you're getting from the steam with the pressure support that you would get from trace amounts of non-condensable gas.

So just to give you an example, if you took a balloon and it had air in it and you put in your fridge it will all shrink up. If you heat that balloon up it will expand. So by putting a non-condensable gas in and it's just trace, trace amounts, you can actually prop up your chamber and you already have the heat in that reservoir it's in the rock and everything and you can simulate the same effects.

PMB: Can you explain that to me just a bit more. Let's use the example of the non-condensable gas methane. So you would be pumping air and methane into this reservoir, is that correct?

MCAFFREY: No we'd be putting steam in and trace amounts of methane in the steam.

PMB: By trace amount what percent?

MCAFFREY: Half a percent; just small amounts. And you're counting on the physical properties of gas rather than the consumption of the gas. So you're just allowing a gas molecule to expand as they get heated up in the reservoir and you're creating that pressure support. So think what you're doing here. You've reduced, you're allowing yourself to step back on your steaming and that's allowing you to free up equipment that you'd already built so you could put it to more wells. You're reducing your emissions on a per well basis because you're going to get more oil out for then given amount of steam that you had in this method here. You recover that trace amount of gas because it comes back



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 your oil so you can use it as part of your fuel supply that you do need in place. So for us we just think it's a logical way. What others are doing, they're doing different things but that's the exciting part of the business is you can try different things. And in different reservoirs there's different solutions that makes sense. And I think it's a real statement toward the entrepreneurial spirit of Albertans. And it doesn't matter whether it's a big company or a little company, that creativity and "can do" attitude is well ingrained in Albertans and that's why it's a fun place to live.

PMB: One of the things that Brad Bellows told me a while ago is that your attitude to the company is that you want to make it a fun place to work and that yeah he talks about company parties in the summer and that kind of thing. That used to be commonplace in the oil industry. He tells me that it's not so much anymore.

MCAFFREY: What we do there just out of interest we have functions that are company functions that we really try hard to flatten our organization. So the rules of that game are that there's no CEO or VP or anything in those particular areas. You don't treat it like a title thing. You need to be a person that can hang out with all the rest of the people. It creates trust and friendships and camaraderie that I think is incredibly powerful. So I see those as very, very important on the business piece of it actually because what we really try and do, first of all, we realize that people work very hard and we want to reward them and their families. So we make it a family kind of get-together and then we get people interacting that don't normally get a chance to interact.

You can't VPs hanging out with each other. It has got to be guys hanging out with people they haven't met before so that we can continue to keep the advantages that you have when you're a small company. And that's a lot of work but it is fun, but it's something that you can't take lightly. The reason people come to these companies is because they find it passionate and because they see an opportunity to feel like they contribute and they're part of a team. Then you have to continually work hard to drive that kind of attitude into the company. As it gets bigger, it gets tougher but that just means you have to work harder.

PMB: I'm going to ask you only two more questions. This has been a tremendous interview. First of all, role of government: what do you think is and should be the role of government? And I'd like you to back, as you answer this question, do remember that it was AOSTRA which decided against the wishes of the oil industry to fund the UTF, the Underground Test Facility. In other words, it took the initiative on that and it changed everything for everybody. So just keeping that idea somewhere in the back of your mind, what is and should be the role of government in oil sands development?

MCAFFREY: I think the role of government should be an enabler. So whether it's the example of the Underground Test Facility and really it was eight companies and the government as partners. Everybody was a partner in that world. That was a good thing. The government had the foresight to see that this was something that could work and industry got interested in it and was part of it and they all worked together to find that solution. In today's world I think it's a pivotal time for government in the sense that I'm a firm believer that you let the market drive a lot of things, you



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.

don't need a lot of grants or anything like that. What you need is to be able to conduct a business in a competitive way with the world. So in Alberta you've got the second or third largest resource in the world. That's the oil sands and it's a prize for Canada. So there's a role on the provincial and federal level to me to help this resource be developed in the sense of opening it up. We have challenges in this industry right now from some activists, environmentalists and different things. They're different agendas from different countries. We have foreign investments coming in to try and influence Canadian policy. Canada has to stand tall because this is a prize for all of Canada and it has to act. And I think we're seeing stuff from the Prime Minister now on that and certainly the Premier of the Province and some of the other Provinces are realizing it too. It's going to take that kind of leadership from the governments to roll up its sleeves and realize what's going on. None of this is ever a compromise to the environment.

We always have a duty to do the best job. And I was indicating earlier just as an example of what MEG's doing that this is achievable. This prize is achievable and still setting very high standards. In Alberta we have some of the toughest regulations in the world on the environment and we don't get that credit in the Province and I think it's something the Province needs to stand tall on too. And it's not a defensive thing it is something to be proud of.

We have countries from around the world coming to Alberta to see how the best way to do it is. So we should be proud and talk about that. So the role I would see in government is an enabler, help move these processes along, don't let them get tied up because of other agendas, drive it forward in the interest of Canadians, do the right types of reviews, make sure we're doing the right reviews just make them efficient in how we do it and I don't think you have to put a lot of money into this business.

PMB: You do have organizations like Alberta Innovates which is basically a government owned corporation which I think probably contributes. Before that you had the Alberta Research Council. You're happy with those organizations?

MCAFFREY: Yes I am. I actually, so when I'm talking about not putting money in I'm talking about in terms of the commercial businesses but to the degree that you're reaching out into new technologies and those things. Sometimes that partnership where industry's putting in some and same kind of model that UTF had, there's still a role in that particular part to get through to those breaking new types of technologies. And those are very good organizations. They've come a long ways over the years. They have a business focus. They look at the likelihood of success. They look at the profitability that could be there or the opportunity for the province in these particular things, I think those are very good organizations.

PMB: Another question just came up and I do have one more after this but I just want to slip this in while I think of it. CNOOC, Chinese National Oil Operations Company or whatever it's called. You'd been partners with them for quite a while. I heard from somebody who is very knowledgeable in this area that there are actually more SAGD projects now in China than there are in Alberta but on very, very tiny seams of oil. Now have you heard about that and does that sound credible to you?



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.

MCAFFREY: I sure don't know the numbers, I do know the Chinese fairly well because they have been shareholders of ours. First of all they're shareholders not joint venture partners or anything but they're shareholders. But we have helped teach them about technology over the years and they've taught us about China. So we have a relationship that way where they educate us what they're doing in China, what they're doing for refineries and developments and that. And so it is something that is easy to find out and talk about, I just don't know the actual numbers. I do know they do use this technology over but the quality of their reservoirs isn't nearly as same quality as Alberta. So they're taking technologies that they think are good technologies, they're learning about them and they're taking them back home to develop their own fields. But on a global basis Alberta's reservoirs are very high quality.

PMB: Overwhelmingly yeah. And what I heard just as a matter of information to you, I heard that there is something like seven hundred SAGD projects in China. Isn't that amazing?

MCAFFREY: It wouldn't surprise because Chinese have an incredible ability to take something and manufacture well.

PMB: And adept it yeah.

MCAFFREY: And they can do it in huge, they adapt it very quickly but they can put huge resources, people and dollars towards it. So once they get comfortable they can crank it out very well. But they have such a demand that they're going to need oil from around the world.

PMB: Yeah. Last question to: How do you expect the oil sands industry to evolve? Just looking to the future what do you think?

MCAFFREY: In the areas of?

PMB: However you see this and want to answer that question.

MCAFFREY: I see it as growing in the areas of technology advancement. I think there is a pride of doing better. I think that even though we've made great strides I think you'll see companies just continue to raise the bar because they want to. I think you'll see growth of companies. I think you'll see companies that start from small and grow larger. You'll see some acquisitions and that. But you'll see changing names and that's very normal in the oil patch. You'll see some majors that want to come in and then they get focused in other areas of the world. But you'll see core companies continue to grow in this area. I think we'll get a greater appreciation for the importance of the oil sands as Canadians and I think there will be a pride of the oil sands as a jewel for Canada as we start becoming more familiar.

It's not just something Alberta has it is something that is precious throughout the country. And so I think those are the types of things, I think we want to branch out to more markets. I think you're going to see pipelines going to the world because you can't keep a resource locked in to one customer. I do think the US will come around and we will see pipelines go down to the Gulf Coast.



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.

The US needs the energy and certainly the Gulf Coast is in serious need of crude. So I think you're going to see this becomes very acceptable crude as we improve our standards and hurdles that we go through.

PMB: A great deal of the oil sands assets are being directly and indirectly controlled by Asian, European and American terms. Does that cause you any heartburn?

MCAFFREY: No not really because Alberta always benefits from the royalties of it and Alberta owns those barrels. And so people lease these lands to produce it and the province gets its royalties and the country gets its taxes out of it. And you need investment dollars to come in and these dollars have always come and it's always worked out well. It used to be it was largely US and now it's more international on these investments. But the way the structure is and the taxes and the royalties on these areas. It's doing the right thing. In Alberta the experience I mentioned earlier about raising money and that is just an example of the work you have to do. But it's also an example of where you have to go to raise money.

The money isn't in Canada in that sense for these types of projects. You have to go global. And to develop this resource and for the province and our country to benefit we need investors. We need investors and they need to have the confidence that this is a safe place to invest because they have alternatives; so the thing that is critical for government is to be consistent and reliable in this. Some of the changes that were done with the royalties a few years ago scared a lot of the investors.

PMB: And this was the fair deal of 2007 wasn't it?

MCAFFREY: Yeah the royalties. And we spent a lot of time going around the world helping them realize that Alberta was a safe place to invest. It was amazing we could be in the Middle East and they would be talking about the royalty structure of Alberta. It is so important, it's a fragile thing. You could do it right ten times and once wrong and it's hard that way.

PMB: Is there anything else you want to say?

MCAFFREY: No I just think it's a great initiative. I guess just one thing, I think it's a great initiative that you guys are doing, it's something that is... you have to capture these different experiences in order to really understand the oil sands. And so I've just become familiar with it but I think it's so right on to capture this, it involves a lot of interesting people, about a lot of passion, it's so important and I think it's overdue by decades.

PMB: Thank you very much and thank you for a tremendous interview.

[END OF RECORDING]



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.