
DAVID KROOK

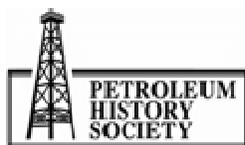
David Krook grew up in Cold Lake, Alberta. He graduated from St. Dominic's High School, Cold Lake in 1972. In 1980 he received a Fourth Class Power Engineering Certificate from Alberta Boiler Branch.

Beginning in 1978, Dave's career spanned 34 years with Imperial Oil Resources in Cold Lake where he held a number of positions with increasing responsibility. He retired in May, 2012. During his tenure with Imperial Oil Resources, Dave was responsible for field and plant facilities, including staff supervision. He safely provided support as a safety advisor for two years, in leading the Leming and Well Servicing operations to injury reduction and the beginning of a zero injury culture. Dave had championed the implementation of the (OIMS) Operations Integrity Management System for Cold Lake, was a field training developer responsible for writing the Field Step of Operation and as a Well Servicing supervisor he managed all rig work in the Leming and May field areas. As a Business Unit Recruitment contact he was responsible for hiring summer students and full time staff, and as the emergency advisor for Cold Lake Operations he was responsible for on-site emergency preparedness. He also held the positions of Opportunity Foreman, and Pipeline and Reliability Foreman responsible for on-site projects, construction work and district utilities.

Dave is an active member of the Cold Lake community. He enjoys outdoor activities, especially sports. He was President of Cold Lake Minor Hockey from 1987 to 2003; he coaches minor hockey and minor ball; and was a volunteer fire fighter for ten years.

Dave and his wife Shelley are enjoying retirement in Cold Lake.

Peter McKenzie-Brown
September 28, 2012



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Date and place of birth: January, 1954 in Cold Lake, Alberta

Date and place of interview: Cold Lake Oil & Gas Galleries at the Cold Lake Museum

Name of interviewer: Peter McKenzie-Brown

Name of videographer: Peter Tombrowski

Full names (spelled out) of all others present: Cal Sikstrom (CS)

Consent form signed: Yes

Transcript reviewed by subject:

Interview Duration: 1 hour and 3 minutes

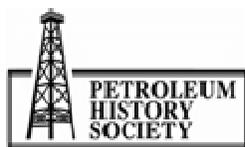
Initials of Interviewer: PMB

Last name of subject: KROOK

PMB: So, once again-- my last interview in Cold Lake and I'm talking to Dave Krook who works in operations with Imperial here at Cold Lake. With us is Cal (Cal Sikstrom), and again and Peter Tombrowski, our videographer. We're going begin by asking you, Dave, to tell us about your career, your education, where you born and how your career has developed?

KROOK: Okay, well I was born in Cold Lake in January of 1954. So, I'm a hometown grown Imperial employee. And, I spent most of my life here. I was away playing hockey as a young guy. I played some junior hockey and that sort of thing. Then I came back and settled in this area. I started with Imperial in April, 1978.

I was 24 when I started with Imperial. I did not attend University or post-secondary school, but graduated from high school and joined Imperial after playing hockey and working at odd jobs. I started in April, '78 in field operations at Cold Lake at May plant and field area. There were two plant and field areas at that time – May and Leming, and Leming was the newest facility. I had a short stint on maintenance - just a few weeks and then moved into an operations role. I was a field operator and at May where I worked, the field operator operated the wells, process, salt water disposal and shipping. So, I gained experience in many field related areas and moved to the Leming Field and became a field operator there. I continued in field related roles becoming a run coordinator or ~~so~~ senior operator, ~~became~~ then a planner, a field supervisor and finally a field foreman I had several other roles through my career including, a well servicing supervisor, a safety advisor a training manager developing field training. I also had a role as an OI's sustainment leader



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for Cold Lake when our OI operations and technical management system was implemented, which was an Exxon/Mobil/Imperial Oil equivalent to an ISO 9000 standard. Then I moved into roles where I was a plant foreman at a couple of the different plants in Cold Lake. Most recently I was the pipeline and utilities foreman. I retired April 30th of this year and took a position as a contractor in the Shutdown manager role for Imperial Oil Cold Lake

I am married to Shelley, a girl from Cold Lake and we live in a house on the lake front and so this is my home. I have two grown children who no longer live with us. I spent my whole 34 year career in Cold Lake, never worked anywhere else for Imperial Oil. Looking back, I feel it may have been good to go somewhere else in the company and diversify a bit. But, I was the president of minor hockey for 18 years, Shelley and I had little businesses at certain times and both our parents were here and it just seemed like the place to be and we stayed here. So, my whole 34-year career with Imperial has been in Cold Lake.

PMB: Well, actually you're the first one that we've interviewed who was born here. I think the only person who spent his whole career in Cold Lake.

KROOK: I think that's probably correct.

PMB: So, good for you, good for you! What can you tell us... you were here when the May Project was going and Ethel was developing and then Leming and then, of course, the later developments. Can you talk to us and give us just sort of the brief story of how those projects developed and how in your view, from your perspective as a worker there, how successful were they?

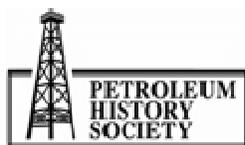
KROOK: Well, the Ethyl Lake project was before my time. This trial or pilot occurred in the 1960s. I remember that I was in high school and Imperial Oil brought in many families and set up modular homes for these employees – I went to school with many children of Imperial employees. Then, they pilot was shut down and I really don't know what happened.

PMB: Let me get the chronology right. You were born in '54, you started working for Imperial when you were 24, did you say?

KROOK: Yeah, I started in April 1978.

PMB: Oh, so '78. Oh! Okay! Sorry, sorry. I did my math wrong.

KROOK: I think Imperial came back in the early 70s, I believe, I'm not exactly sure. So, in '78 ethyl had all been abandoned and the trial and pilot had already been developed. I mean there were still well-heads visible that are abandoned now but when I started at May. So, May was the small area, single well and Leming was the newest development ... they were just started; building a "water re-use facility" when I started. In fact, a fellow I went to school with, we both started on the exact same day and we both were put in that area the first thing that morning and then one of the foreman came and said, "Well, you're field you come with me." The other fellow ended up being a plant operator for his career and I went over to the field. So, it's evolved to where at Leming, it started to



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expand. The pads were like seven well pads in those days; one vertical well and seven directional drilled wells around them. One pad at that time, there were 18 wells and then we started to get bigger. And, gosh, P-Pad, I think had over 30 wells in a horseshoe-type landmark at surface. And, then we just started to develop it and the pads got bigger and we started to spread out. Then, of course, in the early 1980s Maskwa came along and it was the first of the...

PMB: Sorry, what came along?

KROOK: Maskwa, the Maskwa plant and field. So, the mega project philosophy was shelved... Maskwa, M-A-S-K-W-A, and that's *The Bear* in Cree. So, the names of the newer facilities are named from the Cree language. We built the plant, but like I say, the mega project, the cost and the price of oil just didn't support it.... At one point it was just going to develop and go big right away. Then we went into this phase development and Maskwa were the first two phases and 12 Pads. So, I moved to Maskwa. We set up right from scratch, the building design, the vehicles, getting employees trained and then we commissioned the field, A4-Pad in 1984.

PMB: I just want to go back just a little bit. So, you joined in '78 we decided.

KROOK: That's correct.

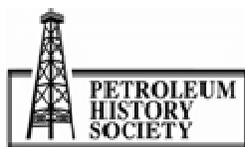
PMB: And, if I'm not mistaken that is also the year that Imperial announced that it was going to do the mega project?

KROOK: Yeah, it could've been. It was during my early, early years, yeah.

PMB: '78 or '79. Can you reflect at all on whether there was excitement here or there was a lot of buzz in the community? Or, what was it like at that time? Or, did it really affect you?

KROOK: No, it did because prices of housing and land went up substantially and I remember I bought my first house and I went, "holy cow." And, as soon as it was going into the phase development or the mega project wasn't going, things kind of stabilized and it went down a bit. So, yeah I think there was ~~were~~ lots of speculation in the communities around Imperial Oil were going to get big quick and the phase development kind of pushed that back a bit. Since, I was a kid the communities have grown substantially and they are just huge. Of course, what you have now is Cold Lake North and Cold Lake South. We're all one city now. But, it was Cold Lake, Grand Centre and the Canadian Forces Base back in those days. So, yeah, I think there was lots of speculation and things were heating up. But, the phase development was definitely the right way to go. So, we moved into ~~that~~ Maskwa, the next ~~first~~ two went up to Mahihkan which is the wolf.

So, the next two phases went there back to Maskwa and built the next two phases of the plant and more field pads. Went back to Mahihkan and another couple of phases and then four phases in total up there, they have 18 (OTSG or Once Through Steam Generators) and Maskwa has 12. And then, of course, in what 2001, Mahkeses which is the fox, is our newest flag ship facility, has co-generation, generates electricity and it's another couple of phases.



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PMB: So, the co-generation system there, basically you generate... you use heat to produce steam.

KROOK: Right.

PMB: Then, you use the waste heat to generate electricity? Is that how that works?

KROOK: Yeah. And, runs the turbines and again, I'm not an expert in the co-generation but it runs the turbines, yeah. So, those two units are called, HRSG's (Heat Recovery Steam Generators) They are heat recovery units so they do both, make steam and through the turbines and what not, and generate power. And then, we sell the power, export the power to the grid and I think we buy it back and we'll get to it. I don't know if we make any money. I think they must make some money.

PMB: You probably make some. You also have the right to use it without selling it.

KROOK: I think, but...

PMB: You consume your own electricity and then the surplus you would sell off to the grid, I would think.

KROOK: I think we actually send it all out and bring it back though, but... And now, Nabiye is in development and it's the otter. So, it's a little bit north --17 kilometres or so by road north of Maskwa and they're just doing civil work and starting the heat up to put that in place. So yeah, we've grown. I guess when I started oil was calculated in barrels although with ExxonMobil we're back to barrels and then it moved into cubic metres. But, we're in the, I don't know, 150,000-160,000 cubic barrels a day of production. I don't know if we were five (5000) when I started but it was way lower. And with Nabiye, we'll add another 30,000 barrels when it's up and running.

PMB: So, when you joined in '78 it was about 5,000 barrels a day?

KROOK: That's just a guess, don't quote me.

PMB: Is that the number?

CS: Yeah.

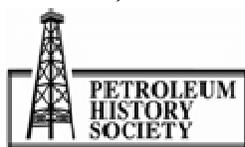
PMB: I think we saw a number something like that. So, that gives us an idea of the scale. And the new expansion, how big will that make the project?

KROOK: The Nabiye portion?

PMB: Yeah.

KROOK: So, we'll add another 30,000 barrels to production.

PMB: So, that will take it to 190,000 barrels?



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KROOK: 180 to 200, yeah.

PMB: Good!

KROOK: And, I think they have plans to add pads and stuff to it. I mean, we add PM Pads in the areas that we have now to bolster production.

PMB: What do you call them?

KROOK: Productivity Maintenance or PM Pads. So, then we just tie them in to...

PMB: So, what happens on a well or a pad begins to just deplete, you close it down and then set up a PM Pad?

KROOK: Or, we add PM Pads as they decline and they stay running too, so..... There isn't that many that I can think of that are actually abandoned. The old May, of course and a lot of the Leming, but Maskwa doesn't have too much that has a pad abandoned. There is lower producing and PM Pads at different parts of the reservoir to enhance production again.

PMB: From this point, I think Cal and I are just going to share the questions. So, I am going to turn it over to you for a minute or two.

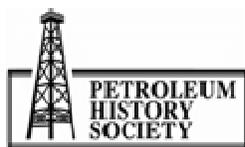
CS: ~~No~~ Now, I was just going to ask the question, Dave. The cycles, how long do they extend typically, from the first cycle of steam to production and then they go on to multiple cycles are sort of... But, what is the kind of history of the pad?

KROOK: Well, the first cycle it usually goes by volume and you're running 250 to 350 cubes a day into each well. The first cycles are normally 8,000 cubic metres and last about a month, 35 days. Now it depends on the way you steam and the mega row and you steam through the whole field with your strategy, then sometimes you have to let wells soak ~~it~~ and you may communicate as the steam banks are moving forward and so some wells will have to be shut in. But, you don't want to produce wells that have just steamed because then you rob from what you're putting in. You try and let it get far enough away so that it does the best heating of the reservoir and you can produce the most. So, first cycles in the 30-35 days, but it only lasts six, eight, ten months of producing, right. Then you go back to steam. As the cycles go longer, the amount of steam necessarily doesn't go... it maxes out -- I can't remember at what, but production days then go a lot longer. Then you are usually, yeah, ten, twelve cycles per pad.

PMB: And the reason for that is that heat is retained in the ground?

KROOK: Right! And then you bring it out and then you put it back in and heat it up again and pressure it up a little bit and allow it to flow to wellbores.

CS: So, that on a time, 12 cycles, would that be 20 years? 15 years?



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KROOK: Well, Maskwa was '84 and A4 is 84 and it's still going, so, yes, it's approaching 30 ~~20~~ years coming up. It will be approaching 30 years and it's still under production in 2014, it'll be 30 years.

PMB: Do you know whether production has declined a lot?

CS: Now when production was starting at Leming, how much water was being used to produce a barrel of oil then?

KROOK: Oh, it was four to five times and fresh water, right.

CS: Yeah.

KROOK: Leming is still the highest user of fresh water because of some of the generators, that's all they'll run on, right. It is our highest and something that Imperial is working on to reduce the fresh water usage.

PMB: And then fresh water comes from the lake?

KROOK: Cold Lake, yes. A pipeline from Cold Lake and when it's not in service or you're not allowed to use it, the lake levels down or whatever, we have groundwater wells close to the Mahihkan plant, two wells there that will provide up to 10,000 cubic metres a day.

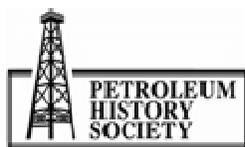
CS: Is that brackish water you use?

KROOK: Yeah, we have brackish... that's right, brackish water. Three wells near the Cold Lake pump station near the Primrose Highway. So, haven't run those for quite some time. As the guy as the pipeline and utilities foreman and they belong to me and we only ran them the odd time since I've had them over the last couple of years. So, I haven't had the requirement to use brackish water. But for Nabiye and when Nabiye starts up, yes. We will upgrade some pumps and one of those wells to a higher volume and some VFD (Variable Speed Drive) and electrical work done and Nabiye will pay for that. And then, there's some potential to add more wells as well. But right now, three wells... oh God, 5, 6, 10 or 12, 13,000 cubes a day. You can pump maybe 15,000, something like that, out of the brackish.

PMB: You mentioned and I'm sorry that I can't find my notes. You mentioned that you'd been in safety. I'd really like to talk about that a little bit. But, in terms of having been a maintenance foreman, am I correct, or production foreman?

KROOK: Production foreman. A little bit of maintenance, but mostly field production.

PMB: So, actually that's even better. As the production foreman, what were the biggest challenges you faced and how did they change over the years? And, in this case I'm not interested in a lot of the environmental stuff because we've covered that with other interviews. But, the specific hard



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production issues or challenges that you faced over the years? What were they? How did they change and how did you deal with them?

KROOK: I am thinking, yeah, you're putting me on the spot. But, my thinking is bottom hole pumps is one of where we had a lot of trouble with scaling seizing, sand influx, that sort of thing. We still have to do a bunch of maintenance work and it's repetitive.

PMB: The word you used there, "scaling seizing" as in seizures of the...

KROOK: So, the sand...

PMB: Then sand influx which kind of jammed up the gears.

KROOK: It'll actually... the plunger then sticks inside the pump and it won't pump any oil. Then we'd have trouble with sand coming in and causing issues where we couldn't stop it. So, consolidating the formation, better bottom hole pumps, better liner assemblies than the liner assemblies came along ~~on~~. So, that was to keep wells running... and I mean, we still have the service rigs and Corod rigs that we use today are busy, keeping the place running. And, I don't think it's any different than any other oil organization in our area. But, that would have been one of the big changes and things that we had to manage. Early on as we developed Maskwa field we had to learn and get competent at to produce oil, was the vent gas compression. So, not being able... when I was a young operator, gosh, we had pipes on a board and that's where we'd vent the well, just to the atmosphere. And then in Leming, it went into tanks but still it just blew up in the air.

And at Maskwa, we had the compression systems that brought the gas through a sequence of vessels and into a compressor and compressed it back into the group line. If you don't get that gas off the casing, you gas lock the pump. That means the casing gas pushes the fluid level down, it gets into the pump. If it's gassy then it gas locks and then it won't lift oil either. So, we had to learn to run those systems and they were difficult because we hadn't had them before. And, it took some doing to be able to keep those running efficiently because as soon as they went down, ~~Leming~~ it would back up the casings and then of course, your wells would gas lock on that pad and you wouldn't produce oil. But, it took some time and we learned and today they run pretty darn effective.

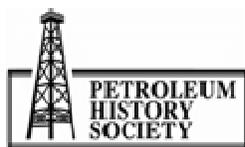
PMB: What were you venting to the atmosphere? Was it natural gas or was it...

KROOK: Well, it would be whatever is coming off the casing of the well. It would be some steam vapour, but yes -- some hydro-carbon type of vapours, yes.

PMB: And, maybe sulphur compounds or?

KROOK: Yes. We didn't measure anything, so....

PMB: Wow! When did that stop?



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KROOK: Well, that stopped...

PMB: When did you stop venting, because, I remember... I think it was in the early 80s or maybe the mid-80s that flaring had to stop?

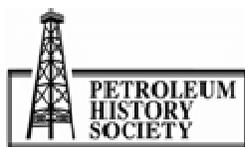
KROOK: It was in the 80s. But, Leming wouldn't have had that so Leming, all the new pads there are, I think have now been...they would still have some old pads that didn't follow what Maskwa did. And everything from Maskwa forward a new design as compression, either the Nash ~~or the~~ Liquid Ring, there ~~they~~ are now some Bornemann compressors out there with plungers that I don't know much about. But, we've been trialing those too, so.... since 1984 -'85 at Maskwa and every new facility from then on, would... And of course, we had some difficulty because in those days we'd actually allow it and I think the ERCB and the boards allowed us to... if that happened, a valve could swing and we could start venting a little bit. But today, we can't do that. That doesn't happen and we run the systems. So, that would have been a big one.

CS: How about sulphur recovery?

KROOK: Well, sulphur recovery is in plants, although the field is trialing that too. The Mahihkan plant has sulphur recovery and Mahkeses both. And, I don't know a whole bunch about it. I haven't worked on either of those plans. I was the foreman at Mahihkan but that was before sulphur recovery came in. I hear it's a difficult process at Mahihkan but I really don't know. It's not the liquid scavenger we use there. Mahkeses, it's my understanding, it works much better. But I think, more often than not, we meet the regulatory requirements of capturing the amount of sulphur each ~~the~~ quarter that we're supposed to or we cut back. But don't quote me, I haven't worked in that environment so I don't pay attention to it.

CS: It was an issue. The ERCB changed the regulations. You were asking about regulations previously. The ERCB changed sulphur recovery regulations to say, "All plants are to one tonne per day, had to have sulphur recovery." And, we're looking at our plants and holy cow!

KROOK: So, we put them in and like I say, the one at Mahihkan is not the best or most efficient Mahkeses is more of the Cadillac. And now, they have some small systems out, they've been trialing and they're building for the field where they can actually at certain cycles or pads they'll be able to figure out where the high sulphur is coming from, the high H₂S, and go remove it right there. So, the field is working on those right now. I think the other things that I would say are the regulation changes or even company changes or OH&S changes is that you have to wear safety glasses now. The company says that. Well what do you mean we have to wear safety glasses? We never wore safety glasses before, they fog up and they cause me... now, you don't even think about it. Same as wearing a seatbelt, I ask people out there if the government or Imperial Oil said you don't have to wear a seat belt, and by the way Imperial Oil implemented that before the government did, would you not wear them then? It's just, I get in, that is what I do now, and you wouldn't change. When I came, it was a difficult change for us. So, those kinds of things just to get employees to be able to accept it because we're all resistant to change, I think those would be some things as well.



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PMB: That's really funny because that was exactly the point that Archie Sharpe was making. He said it was a pain and he was talking about when he had start using steel-toed boots.

KROOK: I had to have those when I started so he's before me, though.

PMB: That didn't happen until right into the 60s.

KROOK: Yeah.

PMB: People would bitch and complain, literally.

KROOK: Yeah.

PMB: Because, they had to do that. Now you wouldn't think about it.

KROOK: No, it's just second nature.

CS: I guess the contrast in culture would be cell phone use in vehicles?

KROOK: Yes.

CS: Because, right now everybody is complaining about distracted driving laws and not obeying them. Imperial Oil, years ago...

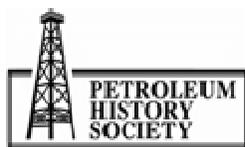
KROOK: Before the government, that became a rule for us. And even the radio, saying that only an operator can use the radio when they are driving, if it's an emergency and they can quickly say, "Okay, I will pull over just to acknowledge. And, just give me a few minutes to get in a safe location." And, I think the other thing...

PMB: Did you say only an operator can do that?

KROOK: Well, yeah. Field operations, because they take the two-way radios and they're driving the field and they usually have the mike that's clipped up top. They're only allowed to acknowledge there's an emergency somewhere...

PMB: Then they have to get off the road?

KROOK: Yes. Then they have to pull into a safe location to continue the conversation. And I think, well, the pressures of business is always one. Do more with less and pressure goes up when production goes down. So, those are things that especially with the ExxonMobil influence, I think it's just that much further. And then a couple of things, other things I would say and it is a bit of an environmental thing but it's a cost and maintenance issue was stuffing box packing. The polished rods in ~~are~~ our environment, with that steam and heat is different than conventional oil and we have a hard time with the polish rods and the packing to keep it from leaking. And boy, I've been



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out of the field for a while again, and now if you get this far around it's a spill, like it was only if it was over so many metres or cubic metres.

PMB: You're going to have go back a minute or two. Because, I haven't followed what you've been saying just now. I haven't followed it and it's because I don't have any experience in the field.

CS: The stuff in boxes on that wellhead behind you? Just right behind you, it's a polished rod and some old style stuff...

KROOK: The pump jack, the rod that pulls up and down with the pump jack. It's connected to the rod that goes to the pump and that's what's stroking the pump. Well, we have to seal where the rod goes up and down and we call that "the stuffing box" and there's packing in it and that leaks. It doesn't hold and because of the steam and heat, I don't know; about conventional operations. I've been working up here for in the whole 34 years, you heard me say that, so I don't think they have the problem we do.

CS: And, it caused questions about "what is a spill?"

KROOK: Yes.

CS: And, ERCB has a certain volume and...

KROOK: Yeah.

CS: But, the situation at Cold Lake we had to prove that the pads were of a certain density and that this is not a spill to the environment although it's an operational issue.

KROOK: Yes.

CS: But again, it's one of these examples where you had to work daily to come to a solution.

KROOK: Right.

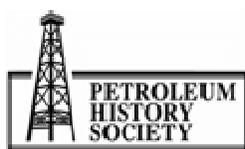
PMB: I think that isn't there a regulation in Alberta that if you spill, I think it's less than a litre of oil that has to be reported?

CS: They changed what used to be one cubic metre that had to be immediately reported, smaller spills you could report it...

KROOK: Internally.

CS: ...internally.

KROOK: So, I'd have to go through the guidelines...



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PMB: So, it was a cubic metre. I thought it was much less than that?

KROOK: No, it's much less than that, I think. Anything, if it's off-lease is reportable.

PMB: Oh, okay, off-lease.

KROOK: On-lease where we have berms containment, compaction then... But, I think it might be at five barrels... well, I shouldn't say this. Some internal reporting and then when it goes to the government reporting. So, Cal might be right. So, it might be a barrel... Exxon/Mobil...

CS: It's a chart of numbers.

KROOK: But, I still called Mike Trefry when he was here, because you don't do it daily and thank goodness. If it's something I did every day, I would know it off by heart. But, once every few months something happens and it's a little bit different then I'd get the environmental people involved.

CS: Yeah and that's the way to...

PMB: Mike Trefry, his name or actually his wife's name came up yesterday.

KROOK: He just retired.

PMB: What is the worst operational problem you've had since you came here?

KROOK: Well...

PMB: I'm not talking about something like it was on your watch or anything like that. What's the worst problem that Imperial has had at this plant, operationally, in terms of production since you got here?

KROOK: For field it is casing failures, right. We've had failures.

CS: How did the T-Pad failure affect us?

KROOK: Well, it was substantial. I mean, I wasn't involved much with T-Pad, I was at a different site and so I didn't get into the privy of what happened. And, I don't know if we're allowed to see the video now. You couldn't at one time. I think it is public record now. And, yeah, but the monitoring for casings and steaming and soaking and what not are programs that we have electronically to alarm and identify that you've got a problem are just so much more advanced. I don't think, again, having been in the field. My belief would be they don't miss those anymore. The only ones we miss that might occur, that we find that there's a failure, is the failure has occurred during... what do you call it, not tension but the other way and caused during the production cycle which you don't monitor and if you did, you wouldn't see it anymore. But, at soak at high pressure



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and high steam, I don't think there is... to my knowledge we haven't missed one of those that we haven't found and reacted to quickly.

PMB: Well, that's quite neat. Just a few moments ago, Cal was talking about... in the earlier interview, Cal was talking about environmental monitoring and how that worked. You're talking about operational field monitoring...

KROOK: Yes.

PMB: ...systems.

KROOK: Right.

PMB: And, the use of these and they're very advanced and sophisticated. What are they and how do they work?

KROOK: Well, they work and again, I'm not the engineer here, the programmer who developed them. But, we have a Honeywell TDC panel, the transmitters are wired to there and it comes in from the program and it's watching. If you're steaming and you get a drop or an increase, it'll detect that and there are some parameters then it'll work through and it'll give you an alarm and then we still have to go do the visual and manual monitoring. Go check and make sure something hasn't happened out at the... the valve got open by mistake or something. So, we do that. Normally, if it is an event it's found out quickly and so when they're soaking in what they call, DFP alarms and differential pressure, I'm messing up the wording.

PMB: Differential field pressure?

KROOK: No. Differential... I can't remember the acronym. And then, when they're on soak at high pressure same thing. There's a DP, Differential Pressure alarm, so that the transmitters and the instrumentation is monitoring and we have a program in place that they can identify as if something is not within the parameters that it should be. And then, we'll go out, like I say and manually monitor. We'll purge with nitrogen and do fluid shots to see what's happening. Yes, it's... they still occurred. I don't think probably not as often but they're found quickly.

PMB: And the last big one was, T-Pad and that was in 1996, wasn't it?

KROOK: I guess. I don't remember the year.

CS: No, it happened in '94, I believe.

KROOK: Yeah, I'm not sure of the year.

CS: Just back for a second, what about seismic monitoring on the pads.



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KROOK: Well, we have yeah -- passive seismic, which again, we have certain wells they are drilled with new pad now and they have instrumentation in them that come and I don't know if I'm a hundred percent right. We have a contractor... it was in Montreal at one time and then in Ottawa, so that goes right there and they have professionals. And of course, we have some technical folks on site that understand as well. And, Richard Smith is a fellow in Calgary that's good at it. Rick Kry was the resident expert on understanding that kind of stuff. And yeah, if they see something... and what it will do... the geophones and whatever the technology is, it hears a noise, it'll pick it up. It can be very small movement and it picks it up quickly and alarms and...

PMB: I think it's called, micro-seismic there. The geophones which are essentially permanently cemented into the ground...

KROOK: Into those wells.

PMB: Into the wells?

KROOK: Yeah.

PMB: So, they just tell you what's happening in a very small area. It's not like seismic geophones...

KROOK: Yeah, but...

PMB: They're permanent.

KROOK: And, I don't know if there's more than one per pad but for that location it'll cover the location that it's at for those wells.

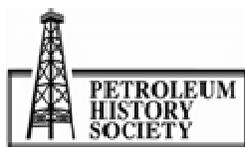
CS: Remember that the wells go out from the pad.

KROOK: They're deviated.

CS: So, it's basically designed to cover the pad and the vertical parts and I don't know how far out it goes but it's quite extensive. And, it's micro-seismic because it's high frequency because these micro-fractures in the formation it could be caused by steam being released or the high frequency in each of them. So, that was required on every pad after Mahkeses.

KROOK: Yeah. And, when they were trialing them a little bit, what they did... I think May was built to about Well 30, I believe. And, they actually perforated it. And, that was in the early development of that stuff. And from what I understand, it was surprising what you could pick up and how little that you could pick up by those micro-whatever. And hey, that's not my forte, that instrumentation stuff. I'm not an expert of... if the computer doesn't turn on, I'm in big trouble, so....

CS: And, special protocol with the Ottawa group and with the research group. But, what is... you don't want a false positive.



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KROOK: Yeah. And, how do you interpret the data and yes, that's when they come in and help us out, so....

PMB: So, basically a red light comes on in the operations room and says that there might be a problem that's bad. Then simultaneously this data's being alerted to people in Ottawa who are working...

KROOK: Well, that's different.

PMB: ...understanding it?

KROOK: The specific data that comes to the control room that at night goes into the plant control room. So, it's alarming somewhere where somebody is there 24/7. It comes from each one. So, when it's on steam, on soak and on high pressure those transmitters and alarms come from those particular wells into our central control system. The other wells for the passive seismic, I guess they must come in through the fiber optic cable and whatnot and right into the system. But, they go to... and I don't know if anybody locally, they look at that or not but they go to the contractor who they have somebody monitoring that all the time. And, they get a hold of us. So, it must come into the same location but it's a different system.

CS: So, you have redundancies and it protects you. In the early years, it was...

KROOK: If you had have told Archie and I back in 1978 that was going to happen, we would've laughed at you. What are you talking about? That doesn't make any sense.

PMB: And yet, these technologies have become first of all possible and second of all cheap [background noise overrides talking] and still they are doable.

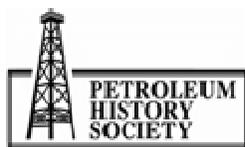
CS: Just to your second question about [voice too quiet, background noise overrides] for the first 1980 to '85, I think 1987, we actually had to install seismic monitoring and operating to prove there weren't earthquakes.

KROOK: Okay, all right.

CS: That was a much more [soft spoken?] broader [soft spoken?] but it proved that we were not causing earthquakes and the requirement was subsequently dropped by the ERCB to not have to do them.

PMB: Good! Where are we now? We've been sort of all over the place. It's been fascinating stuff but how about we go back and take this back to history. What would your thinking on this Cal?

CS: Well, what would you say to your kids about the development of Cold Lake operations and what it's meant for you and for Cold Lake?



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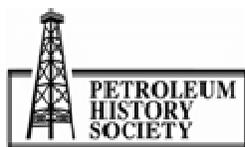
KROOK: Well, I think that the development at Cold Lake has been robust for the communities, Bonnyville, Cold Lake. Not just Imperial, but... there are lots of competitors. I mean, when I started it was us, Imperial, and the odd small oil sands pilot and they were trying it, but there was no Cenovus and CNRL and Shell and Husky and they're all here now. So, it provided jobs for the community. We were hiring, in those days, is mostly local that got hired. I think, in my opinion, what Imperial Oil has done for the area though is driven safety to the number one position. Our priority is safety and I believe this in my heart and I'll go to my grave that safety is number one. We will not produce oil in an unsafe environment for people. And I think it's driving our competitors, I'm pretty sure from what I get told by others, that they're not where we are, but they are getting closer. And I know in the City of Cold Lake, the contractors that work in that city don't follow OH&S and don't follow rules like we do. But, we're putting a real focus on everybody else to bring their level and their game up to where we are too. And, I know we do a lot in the community and at schools... I've never gone, but lots of us, Cal you might had, Sue Trefry did and Gordy Claybert and talk at the schools and have that partnership with the school. And, I know in schools now they're talking safety. I think that's something that I'm proud of.

When I hear people and come to orientation I would do the management portions and a worker would state back when I was working for another company but their safety is not what it is here. It made me feel good and my chest stick out a little bit and the one good thing about Exxon/Mobil is they believe it to not just Imperial Oil but that hasn't changed since the Exxon/Mobil influence has come. That would be one of the major, major things I think for the area.

PMB: You made a comment a few minutes ago and I started to call you on it because I didn't understand it. But, you've reminded me. You talked about the impact of Exxon/Mobil locally, but I wasn't sure whether you were saying it was a good influence or a bad influence? What is your thinking in respect to being part of Exxon/Mobil? Is Imperial not enough?

KROOK: Well, this is my opinion. I think that not all the Exxon/Mobil influences are good, of course it's different too and it's changed. But, if I look back from when I started, ~~to~~ the change that's occurred through the company to now, it's night and day anyway. I just believe Canadians...we're bleeding heart to a point, which I am not there and I don't believe in that a hundred percent either. But, we're not as aggressive or cocky as the Americans are and they're our friends and allies. The only thing we're as aggressive at and cocky is hockey. We believe hockey is our God given right to win gold and if we don't whatever else doesn't matter. They do that for everything.

So, they're still high on safety. I'm glad that they haven't backed off there. The people, I think the next thing is money and whatnot Whereas Imperial might have been safety and people. And, it's not that Imperial's safety only. We're an oil sands company not an ore-company, safety and cost and production and quality, we want everything but safety is number one. We won't jeopardize safety for those... And, if you see our operating priorities, that's what the first one is, take care of yourself and all others. We live by that.



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PMB: Take two exact operations: one owned by Imperial and one owned Exxon/Mobil somewhere else in the world. Which would be the safer operation in your view? Are they poor or would they be the same?

KROOK: Be close to the same. Statistics say Exxon/Mobil is safer than we are. That's what the statistics say. We're now getting close to what they are but, I don't know, my opinion just what I've seen and incidents that I hear, is we don't have the fatalities I see there. The statistics are based on hours of work and whatnot. So, the statistics say them. I'd say us. And, our statistics are pretty close to being on average to the production unit for Exxon/Mobil as well now. They weren't though, we were higher, we'd hurt more... we still hurt I don't know what was our statistic, two or three per year out of a hundred. That's what it's based on 1 or 1.7, I don't know who that .7 of a person is, but that's just a statistic. When it comes... now we're under one and we're usually under .5.

PMB: Now, let's go to your couple of years as a safety guy. What did you do as a safety instructor or supervisor or whatever it was that you did?

KROOK: So, my responsibility was for Leming plant and field and the well servicing group.

PMB: So, what years were these?

KROOK: 90-something. I cannot remember for sure, in the 90s. I would say early to mid-90s. And then, my responsibility was to help promote safety. To provide safety meeting topics, present stuff. I actually had some pretty good focus on the well servicing area where I helped implement a bunch of things in well servicing that if you go back to that time, they were called, "Rig Pigs." And, that's how they were treated. It was almost like they were expendable. They could work in any conditions and whatever.

PMB: What are they called today?

KROOK: "Rig Roughnecks" and "Rig Manager" and "Derrick Hands" but, I mean if you go back even before that, them and the drilling folks were bar-room brawling, heavy drinking. Today they've got benefits. They're home with families and they're not travelling all over the place and brawling and whatever. So, their culture has changed too. But, it kind of brought it to the point where we got some procedures in place, some recognition in place. It didn't allow them to work in these types of situations and did some things that kind of brought them into the... "Hey, they're valuable assets here. Not grubs that we a..."

PMB: Not, "Rig Pigs."

KROOK: Yeah, that's what they called is, "Rig Pigs" and today you don't hear that. So, those were kind of training folks and making sure they have the training, but helping deliver the safety message. Being out there, doing walk-arounds, talking to people, talking at the safety meetings, presenting themes and presentations, but also helping them so they could do it on their own. And, of course,



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keeping statistics, you always have to do that. But, you look after all that other stuff I think the statistics will look after themselves.

CS: Here's a thought that just occurred to me. Have you any copies of the Bayeux Bugle?

KROOK: Oh, God.

PMB: Of the what?

CS: Bayeux Bugle.

PMB: What is that?

CS: So, the Bayeux Bugle was an informal newsletter sent out to Cold Lake employees, contributed to by various people who might not want to be named, but if there were copies of the Bayeux Bugle around...

KROOK: I do have... I think I might have one... I know that was it. It was a Cold Lake, because Clint Cook did something and he got it in there and I think I might have a... I don't know what it was called. But, I think Randy Gossen might be in there at that time. So, I don't know. I'll look.

PMB: Tell me more about this Bayeux Bugle.

CS: Well, I think Howie Dingle was calling it the project a swamp and that he camped in the swamp and met alligators.

KROOK: You're up to your butt in alligators.

CS: So, he was describing the alligators and there was an irreverent newsletter, a satirical newsletter that went out to folks. It satirically characterized the project and the development. And, it's called the Bayeux Bugle and there were some articles as you mentioned, with Cook in there. The gossip of the other people that were in there. And, I don't know how many issues went out. But, if you read it with today's view, you would unlikely be let go through public affairs or anywhere.

KROOK: It was an internal newsletter too. We weren't taking it to town and sending it all over the place. I may have one... I don't know if that's what it was called. I kept one because it was, he wrote this thing about the town boys against the country boys in a hockey game and he lied like you wouldn't believe through it.

PMB: If you would consider doing this, make a PDF of it.

KROOK: Yeah. I can try and scan it or something, yeah. Yeah, I will if I got it.

PMB: Then what I'll do is put that into your file.



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KROOK: I wanted to keep it because I wanted to get him back someday for it, because he read it at a safety dinner, awards dinner.

CS: Oh, yes.

PMB: Please scan that and email it to me.

KROOK: Well, let me see what I can do. I'm pretty sure Randy Gossen, the cover is blue and Randy Gossen's on the front I think.

PMB: That too could end up at the Glenbow Archives. That would be absolutely perfect.

KROOK: Okay. Would I have to ask if I give it to you? I would, wouldn't I?

PMB: Yes, yes. It's an artifact and nobody would even particularly know where it came from.

KROOK: I'm not sure I even have it, but I'll look.

PMB: Just scan it and email it to me.

KROOK: Okay.

PMB: What are the other things that we can talk about here?

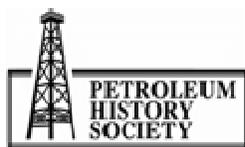
KROOK: Now, the safety culture though. That is something when I started we didn't have to wear FRC. I don't think we needed glasses but you had to have a hard hat.

PMB: What's FRC?

KROOK: Fire Resistant Coveralls, Outwear; so, for flash fire and whatnot. I think hard hats and steel-toed boots might've been it and of course you wore gloves when you needed it. Yeah, it's evolved to where... and I'm not going to say we were real unsafe and we didn't report stuff. But, it's not like we are today. Sometimes today, I think we over-report stuff. And not only that, there'd be something significant and nobody would get hurt but it wouldn't get written on a near-miss and handed in where you can share and learn. And today, boy, somebody tweaked, "Oh, I just got a little bit of a twinge there." They're reporting it and whether it was work-related or not, it's getting put in the system and they're getting treated. And, I'm all for that. It's just the evolution of what kind PPE there is, from respirators...

PMB: PPE?

KROOK: Personal Protective Equipment. And, Personal Protective Equipment that's the hard hats, glasses, the boots, the whole nine yards. And it's the last line of defence. You want that stuff if something unplanned happens... What we try to do is do everything so that you don't have to use



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that stuff. You're wearing it but you shouldn't have to use it. That's where we try and get to ~~so~~. And, the culture of people has changed dramatically. Now, are we a hundred percent there? No! I still see stuff and think, "why would somebody do something like that?" And, we still have a little bit of redneck Alberta in us and we're working on that... I retired with a company working to get that, so that everybody is thinking the right way. But, it's just... a respirator wasn't even thought of when I hired and now you can't go in boilers, you can't do stuff without having either a respirator or air pack. Gas detection is just... the way it's evolved from when we had that drag or squeeze thing to triple, quadruple heads now for CO2 to oxygen deficiency. And, yeah the evolution of safety and culture of safety is just leaps and bounds.

PMB: Let me run an idea by you and tell me if this makes any sense. What I've been hearing for the last two days is that the technology is getting better, it's being built safer, there are fewer and fewer failures in the system, in production and transportation and such.

KROOK: I would say. I would agree with that.

PMB: The safety regulations have become tighter and tighter and tighter so you have a really rapid evolution there. And then of course on the environmental side: fewer emissions, fewer effluents and better management of habitat and that kind of thing. So, in each of these things you've gone from kind of a Wild West show to...

KROOK: A free for all, yeah.

PMB: ...40 years ago, to something which is very, very sophisticated and much advanced today?

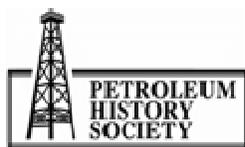
KROOK: Exactly. So, I think operators are... I don't think that the training that we had and the people that we hired back then, myself anyway, would fit in as well today as these graduates we get from NAIT and SAIT who come and they bring some of that. I mean, I still got my high school and that's it. I ended up getting a fourth class steam ticket while I was here. But, the reason I got a job was the guy who was the boss then, the area manager, he liked hockey and I was a good hockey player and he decided that when he talked to my dad, "Yeah, we'll keep a good hockey player in the area, send him out." That's how I got a job. And, I've done... I've given 34 years of good service too. So, I didn't do badly for the company. I think it is, yes. All of these young guys in and boy, just from the two year programs, they understand some of the stuff that I wouldn't have understood when I started. If this technology would've been there or not, so they bring that with them today.

CS: You say that part of your success was your good humor?

KROOK: Yes. I'm a good people person and I'm pretty comical.

CS: You said you wanted to get back at Clint Cook?

KROOK: And, I have just not specifically for that. For that shot he gave me, he's probably got 20 fold. But, that's okay. I've roasted people on more than one occasion. So yeah, I'm a real people



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person. And, Imperial Oil overall... I think the Exxon influence and maybe I shouldn't be saying this, has curbed that back somewhat. But, Imperial's still a good company...

PMB: Curbed what back?

KROOK: Curbed back the people aspect, the focus on people. At Imperial we used to have an acronym that was, PIE -- People Integrity Excellence -- and they were posted on the wall. But, Imperial doesn't have that anymore. But, when I heard an Imperial person and I didn't realize Exxon/Mobil owned as much of us way back when as they do. When I heard this Imperial manager talking about people are our number one asset ally and I hear the Exxon/Mobil say the same thing, I'm not sure I believe it as much. Not that that's not necessarily true, but I just think that the people aspect, the business aspect... It is more focused towards business than people a little bit with the Exxon/Mobil influence. That's my personal -- Dave Krook retired -- personal opinion, not Imperial Oil opinion.

CS: I think that's a great summary, Dave. The humor you've shown over the years. Like some of the names of the places and the roasts that you've given, good fun.

KROOK: Oh, it's been fun. I've done a lot of the speaking at functions and parties and stuff. And often I do those roasts, but there I get to be a little bit more off-colour than here. But, yesterday or the day before Clay Shipclark retired after 41 years and of course his foreman right now and the manager talked, but I got up and talked. Because, Clay came in '85 and Maskwa, he and I worked, he was the maintenance planner and I was called the production planner.

PMB: Was his name Ray...

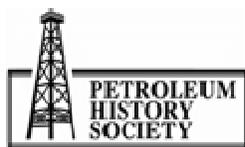
KROOK: Clay Shipclark and he came from Red Water. And anyway, we both worked at Maskwa right away and I think it would have been right after the Ds and Cs he helped start up and he was maintenance planner. So, I got up and said a few words about him because I know him and we went back a long way and everybody said it was a good... added a little humor to it and like I said, I don't get mad I get even. So, yeah, I just had a great, great time working for Imperial Oil.

PMB: I'm going to ask you a question that Cal has asked two other of the people that we've interviewed today: Did you by any chance give a presentation to the celebration of the 20th anniversary of this project in 2005?

KROOK: No, no. I was...

PMB: Have you ever given a kind of a major presentation to a group of your peers and your colleagues here?

KROOK: I wouldn't say major, no. I was going to do the billionth barrel and I got sick. I didn't make the billionth barrel. The song that we put together, I kind of was involved in writing it and was after that... If you had a...



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CS: Million dollars.

KROOK: ...million dollars and I was going to lead that. And, I don't know if they did because I got sick and didn't get to the party. I would have had Bruce March and Dave Willis and whoever, Randy Ottenbreit. I would've said, you guys get up and you start leading the singing over here. You're not here for your good looks boys. You're not managers now. But, I didn't get that opportunity but I had some fun with it. But, I've done a lot of... I'd say for smaller groups, it wouldn't be a major big presentation to the whole organization over something that was really formal or anything like that. I'm pretty well known by the contractor who would go into safety meetings and talk in safety and being able to verse what I want to say and then keep some lightness to it and keep them engaged. I'm pretty good at engaging them to get involved -- right. And, it's people. I like people and maybe that's why I think the influence has gone a little bit the other way. Maybe it hasn't, I'm just older too but it's just great, great people I've had the opportunity, Cal being one of them, opportunity to work with. You don't do some of the things and make some of the milestones at Imperial Cold Lake has made without good people. There isn't just any "ifs, buts or maybes". It's been great.

PMB: Are we at the end of the road?

CS: I think so.

PMB: I think you've done a great job. Thank you very much for this.

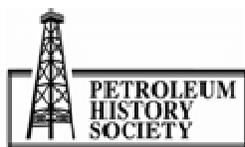
KROOK: It's my pleasure. Thank you for inviting me and I hope it was worthwhile for you to get the information I was able to provide.

PMB: Thank you.

CS: Not too many people can go that far back, you know.

KROOK: Yeah.

[END OF RECORDING]



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