



Oral History Interview Transcript

Interview Control Number: 7-C15

Interviewee: Bob Mustard

Interviewer: Tony Thatcher

Date of Interview: 17 August 2007

Location of Interview: Ottawa, Ontario

Transcribed by: L. Masterson

Tape 1, Side 1

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Interviewed: 17 August 2007

By Tony Thatcher

INTERVIEWER (THATCHER): This is a CANDIB Oral History interview with Bob Mustard that was recorded in Ottawa on the 17th of August, 2007. Bob was interviewed by Tony Thatcher. Both participants have signed the copyright release form.

The subject of this interview is the Maritime Coastal Defence Vessels or MCDV Project. This project took place in the late 1980's and through the 1990's and was for the design and build of twelve vessels about one thousand tons to be operated by the naval reserve. Today's interview will present this interesting story from an industry prospective.

Bob Mustard retired from the Navy as a commander after a long and varied career in Naval Air positions, surface ships, Naval Headquarters and on exchange in the UK. He was project manager for MCDV for Lavalin [Fenco Engineers]. I will ask Bob to introduce himself briefly [and] describe his career at that point that was covered by this interview.

MUSTARD: This is Bob Mustard speaking. My introduction to the MCDV Program happened in 1988. I was working for Thomson [CSF] and we wanted to be involved in the MCDV program. At that point we thought we had a deal with Davie [Industries -Shipyard] and MIL Systems to work with them but senior management changed [in MIL Systems] and they said "not invented here" and didn't want us anymore. We were left out in the cold looking for somebody to join up with. Our lords and masters in France - I am talking about Thomson now - decided that they would like us to go with a French company and of course this meant trying to get onboard with Lavalin. To make a long story short, we did go with Lavalin and went to Toronto and spent many weeks there helping them put their answer together for the RFP (Request for Proposal) for the MCDV's.

The proposal was submitted at the end of [nineteen] eighty eight, and there were five proposals submitted. There was one from Lavalin [later to become SNC-Lavalin], there was one from Halifax Dartmouth Industries (HDIL), there was one from Saint John Shipbuilding, there was another one from I believe Allied Shipbuilders, and there was one from CSE (Canadian Shipbuilding & Engineering). The one from Allied and the one from Saint John were dropped pretty quickly [post interview explanation provided by Bob Mustard – Allied didn't understand the problem and Saint John wouldn't sign up to the government Terms and Conditions] and that left three teams in the running; one being Lavalin and one being CSE and one being MIL Systems/ Davie. One of the peculiarities was what we were to do in PD (Preliminary Definition) Phase. They [Department of National Defence (DND)] had very extensive work that must be done in the PD phase and they were willing to pay the PD winners 4.5 million dollars to do this work. As an aside it cost SNC-Lavalin and their team 12 million dollars to achieve this PD phase. The reason that MIL Systems/Davie was dropped out of the running was that they told the government that they would only do 4.5 million dollars of work and not do all the work they wanted and that left CSE and ourselves to go forward. At about this time I became an employee of Lavalin engineers and was designated the Program Manager. As I said CSE and Lavalin engineers [Fenco Engineers was the Lavalin subsidiary that was awarded the contract in 1992, which was later renamed Fenco MacLaren in 1993] were given PD contracts approximately late June '89 to run to June '90. The RFQ (Request for Quotation) proposal document (the request for quote) ran about ten times the size of the one for the frigate [Canadian Patrol Frigate Program] in fact in a lot of areas it was the frigate document with the numbers changed slightly, which was wrong for the type of ship we were building.

However one of the interesting things we were to do in the PD phase was to give in an estimate as to what it would cost to meet all the things they would like in the RFP. We delivered that and although the program was a seven hundred and fifty million dollar program, to meet everything they wanted was a two billion dollar program. So the government then said, well, your choice it's a design to cost program in the cost of seven fifty million, you figure out what you are going to do. This happened during PD phase when we told them the numbers and they had some criteria of what you would or wouldn't put on the ship. One of things that supposedly you were allowed to not put on the ship was a gun, but after having spent 32 years in the Navy I was not going to produce a warship that didn't have at least a gun on the front, albeit a 40mm gun, so you can thank Bob Mustard that there was a gun on that ship.

One of the interesting things in the proposal, although I knew we needed degaussing-and it would be terrible to try and put the cabling in after the ship was built-I decided to put the cabling in, but fit one ship with the equipment knowing that the Government may be able to find some money later on, and besides I wanted to make sure we had two minesweeping systems, four route survey systems and that type of thing on the ship. So we used, [what] some would call nefarious means, to get the costs under control.

Our competition CSE decided that they would put all of their effort on the ship design and basically tell the Government that we don't think you need all of this paper and we do not propose to supply it so we will spend it all on the hardware and works and bricks and it is my opinion that in the end that is why we won the contract for Implementation and they didn't. As an interesting aside we had to build ships, we had to supply payloads, we had to do training and much of this, how much and what you did was left up to the individual teams because again, as I say, it was a design-to-cost program and they were not willing to go over it unless you forced them into it.

So the proposals were delivered in I think it was June '90 and we were told "don't worry boys, we'll be a contract in May '91. So from delivering the proposal in June until December that year we spent most of our time answering questions from the Crown that said "when you said this what is it you really meant" and we were going back and forth. After December of '90 we heard nothing from the Crown and quite frankly May came and went and finally in October of '91, which is six months after we were supposed to be in contract, we were told you are the winners (us being Fenco MacLaren) however we almost rewrote the contract between October '91 and May '92.

Another interesting thing happened during this period. In our proposal we had to say what it would cost to build in one yard, two yards, three yards, and four yards and due to some political interference, I won't call it anything else, we were told "well what would it cost to build half the ships in CSE"? But CSE already knew that we were going to be told to do this so all I will say is the negotiations with CSE were less than wonderful because it was "well here is what it is. Take it or leave it because we know we have got these big boys behind us". To make a long story short when we told the government the type of money it would take to build ships in two yards concurrently we were told no, go on and build them in one yard. This took over a year to resolve and as a consequence in May of '92 after much writing and negotiation we were at contract for the Implementation phase.

Another thing instituted in this program was a concept called 'total systems responsibility' which meant the contractor was totally responsible for the systems and not the Crown. This may be why they only had eighty five people when we were in Implementation overlooking us. Maybe it would have been bigger if it wasn't. My bossess at SNC-Lavalin thought it was very interesting when the Crown said that in reviewing our proposal over two hundred and fifty people were involved and SNC-Lavalin, a large engineering firm, had never been subjected to this type of review scrutiny and number of people on the job looking at things. They were rather shocked and when I said 250 people and they said "oh you mean twenty five" and I said "no, 250" and when I said eighty five they thought I meant eight point five. Anyway that is part of the problem with dealing with DND and Government on these contracts. The amount paid for the PD phase is always considerably less [than] you're going to be paid for the PD phase and there is no allowance for saying, "Well I spent eight million more I'll get it back when I go to contract"

because that is not allowed. It should also be noted that the guy that lost also spent twelve million dollars or thereabouts, which is not good.

The delay of contract from estimated May '91 to May '92 was pretty much determined to be due to political interference. I will not name names, but the interesting part is [that] the contractors have to keep somebody around to answer questions and keep it going and since you've already spent twelve million you have to make a decision - do I wait for up to a year and spend the money to get there? So, we had some very interesting times of how to reduce staff and keep the office open. Right in the middle of this Lavalin went bankrupt and had what you can call a merger [with SNC]. The Quebec government told SNC that they didn't want Lavalin to totally go over [under]. So in the middle of this waiting period we [Lavalin] were being taken over by SNC and that's when SNC-Lavalin was formed. And in the middle of this, just to have more fun, I had a heart attack trying to keep things going. Anyway, be that as it may, in May '92 we did sign a contract for the Implementation.

We are now going to talk about starting Implementation, but a very interesting thing happened between the PD Phase and Implementation. Saint John Shipbuilding bought the shipyard in Halifax and they were going to build ships there. And they also made a decision that the bows would be made in PEI at a yard that they had there [East Isle].

One of the problems encountered by the prime contractor SNC-Lavalin was there was a limitation on cash flow. And although we could have delivered the ships earlier than required by contract we were not allowed to because the government did not have the money to pay us in the budget and therefore we had to stick to the original contract, which delayed the program in my estimation by at least a year and a half. So be it that is what we did. Basically we delivered all twelve ships on time, on cost and met the performance that was required by the contract.

Another thing that we had to do in the contract was to provide eighty five percent Canadian content which we achieved. Although a funny story about the Canadian content is the propulsion system, which came from France. The reason it came from France was there was some pressure brought to bear from Government agencies. Anyway these propulsion system diesels and generators had couplings that had rubbers in the couplings and in the guise of Canadian content these rubbers were contracted to a company in Toronto and one of my lighter moments in this program is driving down the 401 [highway] seeing a truck with this company's logo on the side underneath saying they are the proud makers of condoms. Which I found rather amusing and I will let you make your own jokes about that.

Another problem we had along the line was ballast. The contract stated you should just use ballast [rather than some other method to adjust ship's trim] so the shipyard came up with a scheme that said "well we can use cement" and they were about ready to pour cement when the Crown thought, well this isn't too good. So we agreed we would put in water ballast, and we did put in water ballast and that was okay. We were about to deliver the second ship, we'd already delivered the first ship, unfortunately somebody turned the wrong valve in the first ship which was now in the government possession, pumped all the water out and the ship was running around with no ballast and was quite unstable so the powers that be in the Crown said "my god we can't have water ballast because this is unsafe", so we went ahead and found some lead pigs with handles on it and everything else that we could put in. And we thought we would get away with lead. Unfortunately somebody in a senior position in the Crown said "well it was his experience that earlier on in life sailors got into those compartments stole the lead for fishing sinkers and so he wasn't going to have lead on his ships. So we ended up putting steel ballast in which was a regular pain and I'll leave it at that.

I told you previously that Saint John Shipbuilding took over the building of the ship and the bows were being built in PEI. One of the more unpleasant phone calls I got on a Saturday or Sunday was "Hi Bob, the warehouse with all the bits and pieces has just burnt down in PEI."

That was right up there with one Saturday morning I got a call. The ship [HMCS YELLOWKNIFE] was ready to be launched in about two weeks. They were moving it around on the launch way. A steel bar broke and the ship launched itself into the water with nobody there. Well two guys were lying underneath it

still shaking from the evolution of the ship riding over their head. It ended up in the harbour. Unfortunately there was a big hole in the bottom that eventually cost us a quarter of a million dollars to repair.

INTERVIEWER: That was where they used Hilman rollers and it [the ship] was actually up above enough so it could roll over [a person].

MUSTARD: Oh yes but there were two people apparently lying on the ground still when one of the guys who was working in Halifax came in to look at the shipyard and says "what the heck is the ship doing in the harbour? It's not due to launch for a couple of weeks!!". Then we found out - we finally got a tug - that didn't sink, but it did do an awful lot of damage because the compartment that was open or part of the ship that was open on the bottom was to an electronics compartment and didn't do the electronics much good.

Another interesting problem that came up was the Reverse Osmosis Distillation units. Two problems; the first one was the company that we, SNC-Lavalin, wanted was the one the Crown didn't like, and the one that the Crown liked the Shipyard didn't like. Anyways we went out on that one [with Zenon], but it was a long, long time. And it's interesting, I thought I understood what was going on anyways; they had to do a modification to the inlets because a lot of air was getting in. I kept hearing about this great modification that had to be done. I was looking around the ship one day and the shipyard manager said "look over there, there is the modification that we did." Well I looked high and low and couldn't see anything. I finally found a little valve three inches by two inches and this is what all the fuss was about and many dollars later.

Another interesting thing about the Propulsion Systems that I said earlier came from France. Well when we actually put them in the ship and started using them we were trying to do trials on the first ship we found to our sorrow that basically this propulsion system, or power system - power generating system (because the ship is diesel electric) was designed for use in a power plant. Well in a power plant ashore you want to save the equipment, which is very expensive, but of course on a ship you would like them to keep running so you don't go aground. The first time we were doing trials and all of the sudden everything shut down and we had no power because the diesels were getting too hot and they shut down and we had a ship out there just running free which caused a bit of excitement.

Another bit excitement was later on when we [were] doing trials with the autopilot. I happened to be onboard watching this, and we were running parallel to the shore and the shore was on our starboard side and all of a sudden the autopilot kicked in and turned us 90 degrees to starboard about to run us aground. This caused a bit of consternation on the bridge and we disengaged the autopilot and got the ship back on a safe course. Of course since I was onboard I was told we were giving the Navy not a very good ship and it was dangerous and what the heck was my problem, why did I do it? And the interesting outcome of that was the old computer thing "garbage in, garbage out". They put the wrong waypoints in. They were supposed to go along the shore, turn to port and after a while they were going to turn to starboard. The turn to starboard got in before the turn to port so it was a finger problem and nothing to do with what we did. In fact the system did what it was told to do.

I mentioned before that one of the criteria was to use Commercial-off-the-Shelf equipment. This has been one of my bugbears for years because when somebody tells you it's "off the shelf", it's been in use for a number of years. By the time you actually install it in the ship and when you get one that's truly commercial off the shelf, the technology is probably 10 years old. So before you start, you're behind the 8 ball and I think it's one of the mistakes we make every time. You should pick equipment that's on the horizon and has a high probability of being successful with maybe a back-up of commercial off the shelf but it's very difficult to get ahead of the curve if you are always buying technology that's six to ten years of age. Just my opinion.

One of the more interesting evolutions you had to go through was getting the ship accepted by the Crown. And the way it worked was SNC-Lavalin accepted the ship from the shipyard and then turned the ship over to the Crown to get accepted by the Crown. So, I forget what ship it was, which it doesn't really

matter but the shipyard had done everything it was suppose to do: all the tests and trials were completed and it worked properly so we, SNC-Lavalin, were quite happy with the ship but for some reason the Crown did not want to except it. So I accepted this ship from the ship yard and the Crown wasn't going to accept it to me. My statement when I left Halifax to the government project manager was 'well if you don't want to accept it on Monday the SNC-Lavalin team is going to take it on a cruise to Bermuda and we'll bring it back when you tell us you are ready to accept it. I don't know if that had any influence, but the ship was accepted on Tuesday.

One of the most aggravating, disturbing parts of the whole program was early on the Crown said that in Implementation they insisted on a B55 insurance program [B55 is a particular set of standard insurance clauses for shipbuilding], which in my opinion insures against stupidity. I claim that if the shipyard guy took a sheet of drawing paper and put a drawing number on it and then did not do any drawing he would [could] claim 'that's an error and an omission. I forgot to do the drawing and it is an insurance claim and I want more money'. I think B55's are a waste of time and particularly if you want the prime contractor or other members of the contract team to run it [the insurance program]. If the government wants it and they pay for it, they should run it, and be the middle man because it was rather stupid to have SNC-Lavalin in the middle between the insurance company, the Crown, and the shipyard. Totally inefficient; cost more money than it should; never did understand what the insurance broker did for their money, but they got very well paid for it. I was just jealous I would have liked to make that much money for doing as little as they did. But another problem we had over insurance was in the contract when we gave the Government the choice of three different levels of insurance in the B55 and they picked one and then we had to decide on deductibles. Well anyways when the deductibles were all agreed to, we put in the contract with the Crown an item that basically said the Crown shall pay all deductibles. Because if the Crown wasn't going to pay them and the prime contractor had to pay them then the Prime Contractor would have increased his costs to the program because it's just an issue that if you have to pay it, well it should be paid by the Crown. Anyway this issue was in; "the Crown shall pay all deductibles". I don't know whether someone in the Crown was asleep or wasn't paying attention, but when it actually came to have some claims the Crown said "Oh no no no no no, the Prime Contactor pays the deductibles." The result of this is the Crown and the Prime went to court. The only funny thing about the court was after we had been going for 2½ hours and the judge said we could have a coffee break or a washroom break the man who was in charge of the court like the sergeant-at-arms or whatever sidled over to us and he says "I've been working with this judge for thirty years. Can anybody tell me what this is all about?" and we said "no we thought you might be able to help us". As we walked out of the court my best feeling was when a lady who was a lawyer in DSS (Department of Supply and Services) for this project, not the one that was before the judge, said to me "Well Bob smile... you won." Unfortunately it took us seven months to get a decision on whether something as simple as the government shall pay took us six to seven months and a day in court to get this resolved.

I think there is a real problem with defence contracts and I think the problem is in the Defence side and not necessarily Industry side and I will give you a couple of examples. One was somebody wanted something extra put in the ship for free and really did not understand that something that would cost \$80,000 per ship which would cost close to a million dollars [in total for all 12 ships in the class]. They did not realize that this would have to come out of our profit, which was restricted by the government contract and just thought I was the worst person they had ever met in that I wouldn't just take the million dollars from our profit and didn't understand that maybe I would have been shot at sunrise by the owners of SNC-Lavalin if I did such a thing. When I was in the Navy, and twenty years after, I advocated that military officers as part of their training should spend at least one year in industry and I believe the military could sponsor this and go to a company, let's just call it ABC Electronics, and say you will get Lieutenant or Lieutenant Commander so and so for a year. Do as you wish but he has to be involved in the contracting to have a better understanding what industry is all about.

On another issue one of our problems in a ten year contract that this was-10 to 11 year contract- is that the industry side did have some changes in personnel but by and large 80 to 85%, and certainly the key

players, remained constant. Our problem was on the Crown side, and particularly DND, that the majority of the players changed every two years.

And the problem was dealing with the new saviours every two years. "I am going to come in and save this project, and I have gotten a better idea". It was getting annoying at answering the same damn question every two years that you thought you had put to bed, then up it comes and it's like one of those toys you push it down one place and it comes up some place else. It would be nice if there was more continuity in the people you are dealing with on the Crown side. Not necessary but I know there has to be changes but, there is a point. And the other problem with changing every two years; everybody then wants to go and visit your suppliers and particularly if they are in France, Germany or someplace else – "Oh what a fine time lets have a European trip". Well unbeknownst to them no self-respecting contractor is going to let the Crown go off by himself to deal with these guys because those guys will look and say "Oh here's customer. I wonder what he wants, let's just give it to him and then it's the prime that ends up spending more money. So there was this constant trail of people going to your contractors and in a lot of cases it was hard to understand why the guy even had a reason to go there at all.

In conclusion I would like to say that I think that the MCDV was one of the more successful projects I have ever seen. I think the Prime Contractor and the first tier subcontractors [Thomson-CSF Canada, MacDonald Dettwiler & Associates, Tecsub Eduplus and Halifax Shipyard Ltd] were quite pleased with their effort and their work and at the time when we accepted the ships the government was very pleased that we had met the requirements. In fact the project came in on-schedule, or ahead of, on-costs and we gave the government what it wanted. The only annoying thing is ten years after the fact people who don't know any better write in newspaper articles that the ship can't do this or can't do that, not understanding that it was never a requirement. Although we might have tried to get the requirement, the Government at the time said "not enough money" and so we gave them what they asked for.

INTERVIEWER: Bob, did the members of the Fenco MacLaren team, the first tier contractors, did they all feel this was a success from their point of view, were they pleased that they participated in the project?

MUSTARD: I believe that all the members that I talked to thought that this contract was good for them. It got them up in the learning curve in certain areas, it positioned them better to get other government contracts. I think we all made money, obviously we never made as much money as we'd like to. There are some very onerous, I would say, limitations which you can make versus a commercial contract but I know full well that SNC-Lavalin in my understanding still talks about the contract and says it's one of the most successful ones they have ever had - very pleased. I can talk about Thomson [CSF], who is now Thales, they and MacDonald Dettwiler did well. Eduplus - it got Eduplus into the training business big time. And the shipyard [Halifax Shipyard] - it gave them a lot of good work. And I expect [we] will see all of these particular people involved in future contracts.

INTERVIEWER: At the beginning of the program, why did Lavalin wish to be involved in this program?

MUSTARD: Lavalin at that time was a private company headed by a gentleman called Bernard Lamarre. Bernard Lamarre for those who know him was very much an entrepreneur, very much into project management - they did excellent project management - and he thought the skills of Lavalin could be put to good use in a major Government contract and he thought why not give it a try and see if we could do it. The irony of all of this is that up until then with the exception of ammunition their contracts were mostly commercial contracts. The make-up of our teams and particularly the people in Lavalin and the project managers were ex-naval personnel, with Lavalin personnel where we could and other people that had worked in shipyards etc. So although it was Lavalin backing us and that was a big importance because again on Government contracts the Crown wants to see some guarantees and so on and so forth and that becomes difficult sometimes with the shipyard and Lavalin was ready to take the risk and guarantee the performance and so on. So in my opinion he proved that a company like SNC-Lavalin could be a prime contractor on a shipbuilding contract and do a good job.

As an addendum one of the problems with the Crown projects is the amount of detail required. In fact we had to have a room that was probably twenty feet by forty feet with cabinets to the ceiling just to take

care of all the paper that went back and forth and one of the examples of this is we needed to use work breakdown structure and in most cases this went down to level 6 to 8 and we had to report on each one of those levels, so it becomes a real pain to put in bluntly and nicely. So it is unfortunate when you're dealing with the Crown it runs on paper, and it's too bad but that's the way it is and it never gets smaller, it increases. You start with what had [been required] on the last project and you add to it - nobody ever deletes. I hate to be the guy that's running a project ten years from now- he'll need a five ton truck just to get it out the door and that's all I have to say.

INTERVIEWER: Thanks very much Bob, that's truly interesting view of MCDV from the Lavalin perspective and one which has a number of aspects which are general to all industry that works with the existing Government structure of the contracts and thank you very much.

MUSTARD: You're welcome Tony.

This is the end of the interview tape.

TRANSCRIPTION ENDS

Abbreviations/Acronyms

DSS - Department of Supply and Services (now Public Works & Government Services)

MCDV - Maritime Coastal Defence Vessels

PD - Preliminary Definition

RFP - Request for Proposal

RFQ - Request for Quotation

Companies referred to:

- CSE - Canadian Shipbuilding & Engineering Ltd, Saint Catharines, Ontario
- HDIL - Halifax Dartmouth Industries Ltd - became Halifax Shipyard Ltd after purchase by Irving/Saint John Shipbuilding in 1993.
- Lavalin became SNC-Lavalin after amalgamation with SNC in 1992.
- Fenco Engineers, a subsidiary of Lavalin based in Toronto was renamed Fenco MacLaren in 1993 and SNC-Lavalin Defence Programs in 2001.
- Allied Shipbuilders, North Vancouver, BC
- Davie Industries, Levis, Quebec now called Davie Shipyards.
- MIL Systems, Ottawa, Ontario (a Division of Davie Industries Inc.).
- Saint John Shipbuilding, Saint John NB, a division of Irving Inc, now closed
- Thomson CSF Canada, Ottawa Ont, renamed Thales Canada
- Eduplus, Montreal QC renamed Tecsalt Eduplus in 1992
- MacDonald Dettwiler & Associates, Richmond BC