Oral History Interview Transcript

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Interviewee: Donald Kerr

Interviewer: Roger Chiasson

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Donald Kerr

Interviewed 23 March 2007

By Roger Chiasson

Tape 1, Side 1

INTERVIEWER: This is a Canadian Defence Industrial Base (CANDIB) oral history project interview with Donald Kerr that was recorded in Halifax Nova Scotia on the 23rd of March 2007. Mr. Kerr was interviewed by Roger Chiasson. Both participants have signed the copyright release form.

This is tape 1, side 1.

The Canadian Patrol Frigate, or CPF project, was the first Canadian naval procurement initiative to employ a turnkey approach in which a prime contractor, 'Saint John Shipbuilding Limited' or SJSL, had total systems responsibility for delivery of 12 CPFs complete with integrated logistic support, to the Canadian Navy. SJSL was therefore breaking new ground in its management of the project, which included the implementation of a highly sophisticated quality assurance system. The aim of this interview is to capture Donald Kerr's knowledge and perspective of the CPF project from his experience as Quality Assurance manager in SJSL during the CPF project.
Mr. Kerr, I was wondering if you could start with a brief biography of yourself, including your introduction to shipbuilding, your experience leading up to your employment as Quality Assurance officer or manager, in the Canadian Patrol Frigate Project.

KERR: Yes, happy to do so. I started off my career as a mechanical engineering apprentice back in Scotland with the National Coal Board, and after I served my time I decided I didn't want to be a mechanical engineer, so I served another apprenticeship as a metallurgical engineer and joined General Motors Heavy Earth Moving division for a period of time and then moved from there to production engineering and welding engineering with Foster Wheeler Boilers Limited in Glasgow where I worked for six years and entered the shipbuilding industry with Fairfield's Glasgow as Shipyard Technical Services Manager covering a number of different areas. This was my first experience of military builds, because we built HMS FIFE and HMS ANTRIM during that period, as well as two survey vessels for the United States navy. I was recruited by Saint John Shipbuilding and moved to Canada from there and became Steelwork manager and Welding Engineer in Saint John Shipbuilding; then I left Saint John for a period of time and went building off-shore drill rigs for the Gulf of Mexico for a period of time, and then was recruited back into Saint John Shipbuilding in the mid 70's as again Yard Technical manager looking after quality control and warranty, while working on tankers we were building at that time, and welding engineering, and general work of that sort. Then with the advent of the Canadian Patrol Frigate program, I became Deputy Program Manager Quality Assurance in 1983 and then Director of Quality Assurance as titles changed in 1986.

INTERVIEWER: Thank you very much, that's an excellent introduction. I think we'll start off by looking at the contractual requirements – that is contractual quality assurance requirements, for the Canadian Patrol Frigate project. I'm wondering if you could give us a run down on that.

KERR: My first experience with the Canadian Patrol Frigate project, and the fact that it was going to come up, was I was on defence contractor's team who were involved in NATO work and so forth. I was an anomaly because I was a shipbuilder and everyone else was involved in aerospace

and so forth. At one of our briefings in 1978, Lieutenant Commander Millman and Lieutenant Commander Barton briefed the whole group on a project that was coming up called 'the Canadian Patrol Frigate Project' and they indicated to us that it was a unique project in that the contractor would be responsible for all aspects of the project, from design right on [to] procurement to acceptance and the various other aspects. Most of the people that I mentioned who were there were from aerospace and their opinion was "it couldn't be done: waste of time", based on their knowledge and experience.

When I went back I spoke to my boss, John Shepherd, and he said "I've talked to Mr. Irving and he said we're wasting our time, we shouldn't really be involved in this type of thing because it's happened so often." A year later an RFQ came out and there were six contractors involved, one of which was Saint John Shipbuilding and it was that much work for me anyways at that particular time, but then in 1982 I was responsible with Sperry Systems Management, our weapons systems contractor, to write a proposal for the Canadian Patrol Frigate, for the first six ships and there was Saint John Shipbuilding Limited and Scan Marine in Montreal; we were the final contestants left standing. We were both given $20,000,000 each to design a ship, to integrate it, to do all the QA work, all the trials etc. It was rather interesting that during this particular phase the Government of Canada came back and said "we would rather (I should emphasize that Sperry was the prime contractor at that particular time and we were a sub-contractor to Sperry) …we do not…we're uncomfortable with that and we would prefer a Canadian company to be the prime contractor"; as such, we switched roles.

Now I must admit that the briefing we had with Sperry at the beginning of this program, when they were still the prime contractor, a bunch of us went down to Long Island in New York each of different disciplines; QA, ILS, engineering, etc., and they spent the day briefing us and we came out of the briefing and I was quite frank and I said to my colleagues "I have no idea what these people have been talking about, am I alone in this?". Everyone shook their head rather sheepishly; none of us knew what the acronyms were and all the rest of it. We had no idea what they were talking about because we were a commercial shipbuilder, we were not a military shipbuilder, we didn't know anything about this and we were quite horrified when they referred to our ship as the platform for the weapon systems. We thought we were the main people, and in fact we weren't.

Well, you know the program that we were given by the Government of Canada made Saint John Shipbuilding Quality Assurance the Acceptance Authority for all aspects of the program, from engineering, procurement, equipment acceptance, software, test and trials, final delivery of the ship. Building buildings and stores were another aspect that we got into as well, and as Acceptance Authority it was a rather amazing situation to be placed from the then quality system that DND had (DND1016 which we probably might have made) and then suddenly we were to catapult the company to DND1015, which was really top of the line quality assurance and we were given a year to write the program and we did this and I organized my department into a documentation section, a purchasing and QAR section - that's quality assurance representatives – a follow yard section, a lead yard section and an audit section. We worked on the principle that when the documentation came in from the contractors that what we would do was access those by looking at the strengths and weaknesses and then the quality assurance representative would visit the contractors and do what we would call 'product verification' and process control, to just look into the strengths and weaknesses. So really that was where we started off and these were the various things we did, and I've covered question two to four of what you have here in one shot first.

INTERVIEWER: Well thank you very much. Could you describe your quality assurance organization in a little more detail; how many people were involved in quality assurance in Saint John Shipbuilding at its peak, recognizing that you had a host of subcontractors to oversee and of course the activities of the shipyard as well?

KERR: Well I had a total staff of 130 people, both in Saint John Shipbuilding in the follow-ship yard and a weapon system contractor in Montreal (Sperry had changed its name from Sperry System Management to Paramax) and therefore I had to put a detachment in there, and I was procuring so much stuff from Europe that I had to have an office in Europe as well. So I had people all over the place and was managing 130 people including a truly functioning audit staff.

INTERVIEWER: That's a pretty impressive quality assurance organization; in fact I would venture to say that it was probably the largest quality assurance organization that Canada had ever seen up to that time and probably since. Would you share that sentiment?

KERR: I would share that totally, and the size of the organization and the complexity had to match the requirements of the program and the only way you could possibly meet the requirements of the program, as they were written, was man-up to this degree.

INTERVIEWER: Now again 130 people is a lot of people, but when you consider the cost of your organization relative to the cost of the total project, it is still a relatively small proportion of the total contract value and a lot cheaper, in the long run, than the previous method of overseeing or looking after quality assurance would have been prior to you assuming total systems responsibility. Would you share that sentiment as well?

KERR: Oh I agree totally. Having done a lot of military work, both in the United Kingdom and Canada, when you're doing a build of this type usually the resident quality assurance people would be anywhere from 60 to a 100 people in the yard depending on which stage you were at on the build, plus all those outside in different parts of the world that were supporting the program by DGQA (Director General Quality Assurance Staff).

INTERVIEWER: And I guess another observation I would ask your comments on is the fact that, in the old days of overseeing, where there were a lot of naval personnel basically doing inspection and overseeing the work in the yard, there was perhaps a tendency or at least there was a potential for the shipyard not taking the responsibility, but now that this contract, this new approach had total system responsibility vested in the shipyard, I think its fair to say that there was a lot more sense of responsibility because there was accountability for the first time in this major contract.

KERR: There certainly was. The major success factor of the quality assurance program that we implemented was because we got total management support, both from the project and from the shipyard. You know there was a gentleman there named Matt Reid who was fanatical almost about quality assurance and John Shepherd who was direct boss and who supported me in every way, shape or form, and the introduction of the program into the yard was assisted by the fact that we had had a layoff for a number of months and quite honestly when you're introducing a QC system into a quality assurance system you're making a giant leap forward in every aspect and usually you are encountering a lot of opposition. I never encountered any opposition from the tradesman in the yard and the foremen who were coming back from layoff were employed initially and writing procedures which quite honestly was a stick for my back because the minute you write the procedure and enter it to your list it is all auditable, so my original procedure list was about fifty or sixty different procedures but when they had finished writing it went to two or three hundred procedures, which is a major problem as far as maintaining and looking after

procedures in the yard. When we delivered our documents to the Crown initially it was a complete list of all manuals, procedures and plans; and we delivered four and a half thousand pages of quality assurance documentation in accordance with what the Canadian Patrol Frigate was asking us for, plus all the plans. Some of our plans, well one of our plans I remember, was 50 feet long. It was an amazing thing but it was what the customer was looking for at that particular time. It started off in engineering and finished off delivering the ship and it was so complex that it looked like a printed circuit board. But when I delivered it, I'll be quite honest with you, I had no idea who could follow it apart from us but it was such a great work of art that everyone including the Commodore and the Director General of Quality Assurance staff were absolutely astounded at the complexity. But it was what was being asked for and paid for and we achieved it and we did it.

INTERVIEWER: Now was the secret of success here partly the fact that the people who were responsible ultimately to deliver the work were actually writing the procedures? Obviously you didn't have the resources in your quality assurance department and they weren't necessarily quality assurance documents per say, so again am I correct in saying that a lot of the subsequent success that was achieved was attributable to the fact that everyone who was involved in the planning process and developing the procedures which you were then responsible for auditing?

KERR: That is absolutely true. People took responsibility for writing procedures. We wrote procedures on how to write procedures, basically. They started the writing of those procedures and they took responsibility for them and they took responsibility for implementing them and for changing them, if that was absolutely necessary. Perhaps the biggest problem in that regard was subcontractors, because we were procuring all over the world, and I used get calls and my staff used to get calls on: "OK, how do I buy quality insurance and where do I go for the policy?" So I knew with some of my contractors I was in trouble when I got questions like that.

INTERVIEWER: Well actually you've opened up another avenue that I wanted to pursue, because I'm sure it wasn't all good news and certainly I sense that controlling the quality of your subcontractors was certainly a challenge. Could you expand a little bit and give us some examples of some of the issues you faced? I sense you were probably fairly comfortable about what Saint John Shipbuilding could do, but your relationship with Paramax, who was now a subcontractor, and all the other sub-contractors….. Could you expand on that a little bit?

KERR: Well subcontract quality assurance was literally a nightmare, it really was. Basically because the NATO group of countries all had their own individual quality assurance standards. France had their own, Netherlands, the United Kingdom, Belgium, and we accepted contractors in the beginning because of the flurry of activity initially, since they had a bonafide quality assurance certificate from the country of origin. We quickly found out, for example in the Netherlands, that if you went to the quality assurance authority in that country and said you had the possibility of getting a major contract they would give you a quality assurance certificate to any level that you wanted if you promised to implement it in one year. So it was a different approach altogether from what we were used to, and we quickly found ourselves in trouble with a lot of the contractors because the level of quality in some of the NATO countries was much less than what we were looking for, and we quickly found this in our poor documentation section and then when we literally went and audited some of these people, we found out they had nothing. They didn't have procedures, methods, there was a huge factory with one guy sitting in an office being ignored called the 'quality assurance manager' with no staff. So I knew I was in trouble with documentation with some of the contractors, not them all, and another item that I was tasked with was a thing called 'Qualification and Proof Testing'. This was an item whereby all material

supplied at a certain level and a certain value had to be qualification and proof tested. Now, there was an exemption: if they were sailing about in foreign navies they didn't need that and therefore we did that, but it was such a critical item to us, both in Canada and the United States, and we were shocked that no one ever took this up or understood this so I undertook an initiative to hold a session in the Schipol Hilton in Europe [Holland] and a Toronto hotel and another somewhere in the United States to get people interested. The marketing people were the only people that showed up, so I tried again and it didn't work, so I used all my QARs to go around the various engineering companies that we had contracted with to explain what qualification and proof testing was. This was environmental testing, the whole works. The reaction was "My contract people asked me to do WHAT! – there's no way I can do that". I knew this would be the reaction but I had to get to the right people to emphasize that it had to be done. Our friends in Paramax, who were now our subcontractors, realized the extent of quality assurance that they had to have and monitor and look after and the fact that it wasn't tokenism but that they had to be serious; I quickly ran into trouble with them also, because they would not take quality assurance seriously. In the software industry I ran into 'engineering snobbery', would be the best term, and that was "how dare you impinge in my intellectual freedom do design something; I don't want anything to do with writing all this stuff down. I am a qualified engineer". This also happened in the land based test sites. You know we went to get civil engineering design companies to build schools and warehouses here in Halifax and I quickly found out that I had immediate opposition. I rationalized it this way to myself and to my people who were talking, and that was "OK you are designing software or building whatever the case may be; are you telling me that when you design that as in when you do foundations, calculations and all the rest of it that you merely accept what the engineer has calculated or written down and you never do it yourself?". 'Oh no' they said 'absolutely not; a senior engineer will do the check' and I said 'wonderful: all I want is you to do is record that check' and that's called quality assurance….and do that at the various phases. When reputable engineering companies found out that what I was asking for was what they do, but I wanted them to capture the information, they quickly came on side. Quite honestly, apart from our good friends at Paramax who had such a large task and they were doing so much software integration and software design, that they felt the quality assurance was a big holdback, if they had to record all the different phases that the software plan and integration plan said they had to record. So I had to come down fairly heavily on Paramax and I did so as a matter of fact. I really didn't make any friends or take any prisoners during that particular time, but for the sake of the company reducing risk on the program I was prepared to do that with not only Paramax, but other people. Regretfully we had to close down a number of companies and they went out of business because they were unable or uncooperative or they were just totally over their heads and they closed up, and are no longer in existence.

INTERVIEWER: Well, that's certainly a fascinating account of the challenges that you faced. It was not all a bed of roses; in fact you did prevail in the end. One aspect of quality, or challenge rather, that I would like you do dwell on a bit, is the fact that this was for the first time a performance based specification, because traditionally the navy had a habit of telling shipyards exactly what nuts and bolts or how things were done with very detailed drawings. This was a new approach, where you were asked to take total systems responsibility for delivering a capability and a certain level of performance. Can you just elaborate on the challenge that that presented to you?

KERR: Yes that did present a lot of challenge, both on the structural side and the weapon system side and on the software side, because we had various performance targets to meet at various stages, and there was so much work to be done that we did get behind and we were put on material breach by, what were they called back then, the contracting authority.

INTERVIEWER: Department of Supply and Services…Public Works

KERR: That's right, Public Works yes. Anyway, we did get behind and then we did catch up, but they were holding our feet to the fire to make sure we met with all the contractual things. We designed various parts of the ship, and for example, the radar section and the electronic side-we had to do a brass model of the ship in order to find out if there was any interference with the different wave bands and the only place we could do this was California. Now we designed the entire ship and we were past our deadline and we did the brass model test and it didn't work, so we had to go back and do it again. Therefore, we're now behind and this happened in a number of different areas, both naval architecturally, electronically, software-wise. Equipment-wise it wasn't too bad, you know it had a number of failures of equipments, major failures in some cases, but the rest; the torpedo handling system, the gear box - I wrote the first two of them off you know because of cracks in welding. Nothing major, but they were unacceptable. Basic things like this, and that's how we proceeded but as far as the incentives were concerned we were behind in many different areas. We had a system on the ship called SHINCOM and that was a communication system, I can't remember what the total thing, the word for it but…

INTERVIEWER: Ship's Integrated Communication System. [Actually, Shipboard Interior Communication System]

KERR: Thank you very much, that was it. It was a Canadian company, who was doing this, and there was no problem and we had a meeting with them. For example, we had a major delivery on this and they said "oh yeah, we'll deliver this by June" and it was three months hence. Everyone was delighted and all smiling and so forth, and me as the lone voice in the wilderness – the John the Baptist if you like, I said "but you haven't finished your software, you haven't finished design, testing, integration, certification…and as far as my people tell me, that's a year away". Everyone was horrified, including the people from CAE.

INTERVIEWER: Canadian Aviation Electronics [Note: this should be Leigh Instruments]

KERR: Thank you. In fact it took about fourteen/fifteen months rather than twelve months, but they were not ready at all. The equipment was delivered, the software was not, and they were doing all the integration and work so in many different cases you have to stand up and be counted, and I tried to be- as I said, I didn't make friends and I didn't really influence too many people and I couldn't afford to take prisoners.

INTERVIEWER: Well, it's really interesting the way you describe this. It strikes me that the risk management challenge was to allow production to carry on, because after all people expect something physical to happen, but at the same time production would tend to run ahead of the proof of performance. So, have I summarized what you said fairly accurately? You couldn't just stop work necessarily, and you would end up with in situations where yes, physically it was there, but the performance of that equipment had not been proven.

KERR: Yes, I agree to all of that and that applied to the hull design all the way through to the most sophisticated equipment. We had a shipyard, we had a schedule to meet, we had an immature package of engineering in almost every aspect, because we were breaking new ground and what we had to do for our production colleagues was take drawings, for example, and build something that we knew was complete, but we couldn't do the entire ship because it wasn't ready. You know, there were constant problems with this piece of equipment not fitting in this particular area: there wasn't enough space, we had to redesign compartments and there was even a thought of expanding the ship at one time to take care of all the equipment because literally we were shoehorning equipment into the vessel. The equipment sizes were wrong in many cases

from vendors, the equipment sizes were wrong, the footprints were wrong and all this meant 'Redesign, redesign, redesign'. There was nothing else you could do other than stop the project, and if you stopped the project we would have been in a material breach.

INTERVIEWER: It's often been a concern of mine that in every major shipbuilding project at least, there is a tendency to, what I call 'cut steel' too early. I wonder if you would share that sentiment, and in your opinion, how long should the process have gone prior to the commencement of actual production from your quality perspective? I know it's a difficult question, but do you have any thoughts on that?

KERR: Well, we won the contract in July of 1983 and we cut our first steel in 1986 (or we laid the keel, I can't remember, one of the two) but during that period of time we were trying to put a design together that we could build. Regrettably we built four units and then suddenly someone discovered that the material that we had for the first ship was, as far as I and other members were concerned – unacceptable. The then Detachment Commander called the Program Manager in Ottawa, exaggerated regrettably, and said that the entire batch of steel was rejected. The Commodore went to his boss and that afternoon the Minister of Defence stood up in the House and announced to the world that the first batch of steel and the first six units were all rejects. I was then given the job of trying to sort this out, and I looked at the steel that my people were looking at in the shops and quickly determined that no matter what I was seeing, I'm employed by Saint John Shipbuilding and I would be perceived under such a huge political barrage to be biased. So I brought in a steel metallurgist (no we didn't buy the steel from him), you know, he was just an independent contractor, and we walked over the steel in the stockyard and determined what was what and he was absolutely horrified at some of the things that were being rejected, other things quite justifiably so, quite honestly. So there was a mixture there, but that was our start up of a catastrophe, quite honestly.

INTERVIEWER: That was perhaps a unique situation where in fact the material was affected, but I guess what I was alluding to was the fact that in the design of a ship as complex as the Patrol Frigate and in the design of something like an Airbus 380, there's an awful lot of design integration effort that needs to take place before you actually start flashing up welding torches. Even though there was a three year gap between contract award and commencement of steel construction, in retrospect perhaps that should have been longer, but I think Saint John Shipbuilding would have been facing immense political pressures to start production.

KERR: Absolutely correct, we literally had to start because of the schedule that had been accepted by the Crown and because of the work that we had said we would do, we had no idea we would face such massive obstacles as I've just mentioned to you. I have never started a program in my life, in all my shipbuilding experience, where I have had the total engineering package, but the CPF program probably goes down as one of the worst because of all the problems that we ran into with our contractors, not the government. Day one they said "you have a schedule, we want you to meet this schedule, we'll pay you for the schedule" and a lot of it we couldn't meet because the information that we had was in error, and we had to redesign and redo all these various things. In retrospect we should have waited much longer before starting, but the Government of Canada wanted the frigates in accordance with the schedule that had been agreed. There was pressure from on high and all over the place to actually get the job done and it cost a lot of money to do that.

INTERVIEWER: But I guess the most important thing that comes out of our discussion here is that even though there was tremendous pressure from on high, you as a Quality Assurance manager

and director had to be absolutely religious about what was acceptable and what wasn't acceptable.

KERR: Absolutely right. I mean I never ever fell out with DND or DSS during my entire time on the program because essentially we were on the same side. I worked for Saint John Shipbuilding, there's no question of that, but I was religiously scrupulous on everything I did and stayed fiercely independent, much to the chagrin of many of my peers and many of the people I worked with. I held the line and I never had any problem with the customer or the contracting authority in the program….ever!

INTERVIEW: Actually I wanted to explore relationships just a little further. Saint John Shipbuilding had a project organization of something like a 1,000 people against your 130, how was the relationship with the project office within Saint John Shipbuilding?

KERR: Confrontational…that's the best way to put it. I refused to work closely with the project office because I felt that I was in charge of my own destiny. I was the acceptance authority. If I ever put a letter through them, I was going to send to a sub-contractor, they wanted to edit it and change the language to make it much more political [when] all I wanted to say was "look we have problems, these are the problems, I want them fixed, when can you fix them, I'll be monitoring you in doing this, and how can I help"…because I looked on my quality assurance project that the government had paid for as an industrial benefit. I offered my sub-contractors, "if you don't have a procedure that covers whatever (you know I had procedures covering everything) I'll be happy to give you a template, providing you don't hold me legally responsible". If you don't know how to do it, I will give you my method of doing it and you can look at it, improve on it, or discard it, whatever you want. Some people availed themselves of that opportunity, others did not because they thought if they accept my help they'd be admitting failure and that was sad because I was willing to help and very few people were willing to accept my help because it was tantamount to them saying 'I don't know'.

INTERVIEWER: Ok, thank you. I wonder if you could summarize, after this rather wide sweeping discussion, the successes and the achievements attributable to the quality assurance effort in the Patrol Frigate project, including perhaps the QAR (Quality Assurance Representatives) functions performed by the project office in Ottawa.

KERR: The main thing that I think of when I think of the success of the QA program was reducing risk tremendously on everyone. The risk reduction was incredible, I've given talks to our bankers and our lawyers and so forth, and to various project managers and I always showed exactly what I was doing to reduce risk and they loved that. That was the biggest achievement, reducing risk, and while we had some problems on the test and trials program and the setting-to-work of [HMCS] Halifax, the proof of the pudding was that in the end and fairly quickly most of the equipment worked. Now we had some surprises, for example some equipment that we bought from one of our NATO allies, which was qualified and proof tested, when we did the inclining experiment it failed and we were all caught totally off guard by this so there were problems with things that we thought were good. With the cruise diesels, another area, my audit team went over there because they were a wee bit worried about the workmanship and they came up with a very, very bad audit. There was a lot of shavings left in the engine and so forth…basic things…and I went over there ready to breathe fire and brimstone on a very big German company and did. I shook them up, and that was my intent. They tried to discredit my QAR, my audit team, and of course my attitude was "my people don't make mistakes because it's you people that make mistakes". You have to support your own people, and if they'd been slightly wrong then you talk to them later but they weren't in this particular case and regrettably the things that we found

manifested themselves later in some minor engine problems that were attributable to this. The contractor really didn't take note of exactly the suggested corrective action that we gave him. He did when we were there, but then he slipped back into old habits.

INTERVIEWER: Not all Canadian Patrol Frigates were built in Saint John Shipbuilding, some where built…in fact six out of the 12, I believe, or was it three?

KERR: It was three out of the first six because it was two separate contracts…

INTERVIEWER: …right, and the following six were built…

KERR: …were all built in Saint John, starting with [HMCS] Montreal and finishing off with [HMCS] Ottawa.

INTERVIEWER: I wonder if you could tell us what the challenges were from a quality assurance perspective in having three of those first six ships built on the river?…St Lawrence River, sorry.

KERR: Basically having a follow shipyard, another Canadian shipyard, was a rather difficult thing because one shipyard looking after another shipyard can be a very, very difficult thing to do and we quickly ran into problems with methods and personalities, etcetera. We in Saint John were going to build, if I can remember correctly, ship number one, ship three, and ship six and they were building the other three but we agreed that because of the problems we were having that were already discussed in both engineering/integration both structurally and otherwise, that Saint John would build ships one and two in order to eliminate a lot of the problems for the follow yards and save very large back-charging. So when we built our units in Saint John, particularly shaped units, we built them in jigs. We had our welding engineering staff do welding procedures to make sure that they retained their shape, and in some of the units we found out wee problems so we altered how we did things. What I did was, I went up to the follow shipyard met my staff and the DND staff (we always liaised when I was up there) and I met with the project office when I was there, and explained the changes that we had made and if they did it this way they could save a lot of money. On almost every occasion I found that when the job was actually built it was not built the way that we had suggested, and it was only a suggestion, they were trying to save them money, they decided to do their own build and it was beneficial because we knew how to fix it because we had to fix it ourselves. While we had to re-work most things, as far as shaped units were concerned, we knew how to do it because we had made the mistakes before we changed properly, but they stopped work initially. I had to guarantee all material. Commander Peter McMillan was up there at that time and Tom Pickersgill. I was in Montreal visiting a contractor when I got a call from Tom saying "they've stopped work because of your material that is now my material of course, when they've stopped work and there's a problem". So I asked "what's the problem?" "They've found copper pickup in some of the bars." Now what we had to do was buy H beams and cut them in two and we hired a company in Montreal to do this and in doing it they'd made a lot of errors as far as cutting was concerned and there was some very bad oxyacetylene cuts which they'd decided to correct, with the approved procedure, of putting a copper bar underneath and simply building it up - building the deficiency up and then grinding it down. Nothing wrong with that, but you had a massive amount in some of the bars of copper pick up because his welders had not been following the procedure. Now when you mix copper with steel you get cracks and in two of the bars, maybe three, there were cracks, so my material was suddenly rejected. So I drove down to the follow shipyard and everyone was up in arms, everyone had stopped work, and I said "well it's my material and I guarantee my material and there are three bars out of thousands that are defective. I admit that.

Take them out and I'll replace them." [DND said] "Oh no, the whole lot is defective". "No it's not" was my answer.

We sat down and cooler heads prevailed quite honestly, and they started up production again and I replaced the four bars, but we had this type of thing where people were jumping to conclusions and panicking initially. We had to sit down and talk about it. Not negotiate, but explain what the prime contractor's role was, what he supplied, and in the case of something being defective, the replacement policy. That was all we could do, and we got underway.

INTERVIEWER: Well thank you Mr. Kerr, I think we've covered pretty well the full gamut of quality assurance in the Canadian Patrol Frigate project. I wonder if we could finish with your account of the lessons learned for future major naval acquisition.

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Tape 1, Side 2

INTERVIEWER: Please continue Donald with your account of lessons learned.

KERR: Well looking back on the project, looking at the contractors who were from the United States, Canada, NATO countries, I would spend more time up front right at the very beginning verifying the contractors, the primary contractors, those working to the highest level of quality assurance and therefore providing more risk. I would verify that what they said they could do, they actually could do. I'd spend time upfront doing that.

In retrospect, reaching for the stars, I would suggest never starting until the engineering package was complete. There was so much money that we wasted playing "catch-up ball" and rectifying drawings and so forth, that we should have had more time to solidify the design before we actually started.

Another aspect was we got a very, very bad rap from the Canadian Press on the Canadian Patrol Frigate Program. We should have been more pro-active I always felt, with the public relations people, in telling them how good this project was, how much work it was creating, and how this was state of the art. The amazing thing was this was the most optimistic project of all times, as far as total integration of a ship was concerned, and we were so successful it was absolutely incredible. When the HMCS Halifax visited Norfolk the Admiral came onboard for a courtesy visit (the US Admiral) and ordered all of his senior staff on HMCS Halifax for a day and the papers read..."You know the Canadian's have done it properly. We have been trying for years. They have achieved it. Get on there and see what they've done." That type of publicity we needed, we really did, because the press was really down on us.

I think in retrospect if I was building again, in a yard, or doing QAR work I think I wouldn't hire my own people. I'd maybe go with a good classification society because; they're already in place, they're qualified engineers, they know what you want. Back then they weren't - you know they didn't know what quality assurance was; now they do. So to save money on equipment I'd use classification to do factory acceptance tests and things like that, but I would still use my own people to do auditing because that's got to be unscrupulously independent.

I would provide electronic help and guidance to contractors online in every aspect. Now back then we were trying to put documents and manuals…things like that… online, and this was the beginning of the revolution that we are now all involved in like email and various other things. It is easy now, then it was very difficult, it was paper we were dealing with and if you altered something you had to have it re-typed but now you go into a word processor or something like this and you do it. It would be so easy to email someone a procedure saying 'this is the type of

thing that we're using'. It would be wonderful and simple now compared to what it was back then.

Then I would automate, as much as possible, the acceptance process. Now during procurement in Saint John, rather than looking at purchase orders, we were accepting purchase orders electronically by someone in the QA department…rather than going over and reading the whole thing, we were accepting it there, and we were throwing out purchase orders at the end of the program in jig time because we were automated; but in the beginning you had to send someone there and they lived in procurement – you lost them because that's all they did. So that's another thing. I would template as much as possible for contractors in the QA world who had problems. I would say 'this is an example of a QA manual (or this or that or the next thing) and you could use it if you want but otherwise this is the type of thing that you need to have'…and that would be so easy.

I think more time is needed at the start of the project in order to get personnel involved. At the end of July in 1983, there was me and two others. There were a million things to do. I mean I was signing purchase orders worth multi-millions of dollars and it was the only way we could really get going because we knew that these contractors were reputable and it took me months in order to staff up. I mean we were just… without properly looking at people…hiring them just to have bodies. We needed bodies to do the work, and regretfully I had to let a few of them go because, although they had excellent resumes, they weren't capable. So up front-wise what I would do is rather than keeping it a deathly secret – you know one if you want to do that fine – but you won the program in July, we'll start up the program in November so that way you can gear up for what's coming because an express train hit us and for two years I worked seven days a week for 14 hours a day trying to do this job and in the end I said 'I refuse to work every Sunday and I'd go home to my family'. Now, on the Saturday I took a bundle of papers home and my dictaphone and I handed my secretary two tapes on Monday morning; at least I was at home, but we just were caught flat footed with what we had to do. We had to get going, hit the ground running, and there was so few of us it was a problem…a major problem. From the time of announcing the program to physically starting it, staff up is necessary; otherwise you run into or you make old men of people in a few years.

INTERVIEWER: Well Donald, on behalf of the CANDIB Oral History Project, I'd like to thank you for this very thorough and interesting account of your experience in Saint John Shipbuilding as the Quality Assurance Director and your perspective on quality assurance as it pertains to, probably Canada's largest naval procurement project ever and probably will be the largest for quite some time to come.

Interview with Donald Kerr, interview ends.

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