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My name is [REDACTED]. I was born on [REDACTED] [REDACTED] [REDACTED]. I live at 1 Kingsley Terrace, Wynnum Central, Queensland, 4078. My home telephone number is (07) 396 9775. My work telephone number is (07) 260 1591. I am a Pharmacy Consultant and I lecture at the University of Queensland Pharmacy. I am a Lieutenant Colonel in the Australian Army Reserve, and am employed as a Consultant by the Army on a part-time basis.

I obtained a Diploma of Pharmacy from Queensland University in 1948. I worked at various retail pharmacies and in hospitals until I joined the Australian Regular Army on 28 November 1949. I had previously served in the CMF, but on entering the Regular Army I entered in the rank of Lieutenant. I was posted as the Officer Commanding Northern Command Medical and Dental Stores. I remained in that posting until 1954 when I was posted to the School of Army Health in Healsville Victoria where I worked as an instructor. I remained there until 1956, when I went to Maralinga.

Whilst at the School of Army Health, I underwent a major training course and several minor training courses as a student in what turned out to be health physics. It was particularly directed towards nuclear warfare. Having attended those courses at the school, I then taught them as an instructor to groups of students. Towards the end of my stay there, I was teaching the subject at a fairly senior level, instructing Army Medical Officers on matters concerning nuclear warfare.

Prior to arriving at Maralinga, the team was assembled in Melbourne and underwent training before proceeding to Maralinga via Adelaide. To a large extent, the training was conducted by [REDACTED] and other members of the then X Ray and Radiation Laboratory staff.

The training was also given to members of the Australian Radiation Detection Unit. However it was more extensive for myself and the other members of the Australian Health Physics team. Those persons included Warrant Officer [REDACTED] RAAF and Lieutenant [REDACTED] PAN. The course covered nuclear physics, radiation hazards, detection and measurement of radiation, health control, decontamination and a whole series of associated topics. I still have in my possession printed notes issued during the course, and my own hand written notes. I produce these for inspection.

We also had a number of briefings from AWRE personnel who had been previously involved in nuclear tests, relating amongst other things to expected radiation levels.

On the completion of the course, we proceeded to Maralinga. To the best of my recollection I arrived there in about August of 1956, and we proceeded straight to Maralinga Village. The village was adequate. It compared favourably with normal service barracks accommodation, although there was some shortage of water. The mess was superb, with air conditioned rooms. There was an up to date cinema at the village and world class films were shown frequently. There was a recreation room with billiard tables, ping pong, darts etc. and a number of bars. These facilities were duplicated at three levels, one for officers, one for senior NCO's and one for junior NCO's and other ranks.

All senior officers in the camp were very conscious of the need to keep people entertained. All sorts of voluntary activities were organised. I can recall, for example, [REDACTED] lecturing us on flying saucers. I became particularly interested in the study of tektites, that is parts of meteorites that have come to earth in the desert and which have a particular alloy of aluminium in them. I also recall a British officer giving lectures on bird watching. I don't remember any formal facilities for football, cricket or other

sport but certainly we improvised and we had football games and played cricket. I also remember people playing golf in the sandhills. There were also frequent church services and the padres were very good. They knew how to deal with people in isolated environments. I would say that most people tended to be able to entertain themselves but an introverted person could go into his shell.

There was a hospital at Maralinga Village. I recall that [REDACTED] RAMC was in charge. My recollection of him was that he appeared very competent.

Prior to arriving at Maralinga, at some stage earlier in 1956, I was involved in the provision of medical equipment for the hospital at Maralinga. It was either whilst I was at Healsville, or at the directorate in Melbourne. Because it was known that I was going to Maralinga, anything coming in to the directorate before I left for Maralinga was referred to me. I recall seeing a list of equipment coming in from the British, and I remember that it was a very sophisticated equipment list.

I came to know [REDACTED] when I was at Maralinga Village. [REDACTED] knew that I was in the Army medical equipment supply area, and when he had a problem he would often refer it to me. I saw inside the hospital on several occasions. What I saw in the hospital confirmed the view that I had previously formed when I saw the list of equipment, that is that the hospital was in fact very well equipped.

I had my blood test taken in Melbourne, but I do believe blood tests were conducted there.

On arrival at Maralinga Village, I was allocated to the Health Physics Group, under the direction of [REDACTED]. [REDACTED] had authority over groups outside the Health Physics Group, and in as much as my task was to gain as much experience as possible, he was responsible to assign me to other groups such as Radiation Measurement and Decontamination.

In the days before Round 1, I was mainly involved in working on radiation measuring techniques and equipment. In relation to radiation measuring equipment, it could be classified into the following three groups:

Field Radiation Measuring Equipment

This equipment included such things as conventional geiger counters, ionisation chamber equipments, water contamination measurement equipment, a range of dosimeters including quartz fibre dosimeters and film badges.

Geiger counter equipments were generally used "safety devices". They were not necessarily as accurate as ionisation chambers, which were more in the nature of scientific measuring devices. One would never go into a radioactive area without a geiger counter or a geiger counter type of device, as it was that instrument which gave you an instant indication of the general nature and level of the radiation hazard in the area. The ionisation chamber tended to be used to accurately measure the radiation levels to be transmitted back to the health control point to provide the data for the isodose lines for the maps prepared and located in the control point.

In addition, there was some more specialised field radiation measuring equipment. This included dust sampling devices and fallout collection and measuring equipment. In relation to the latter, it was called "sticky paper trap" or something like that. Another device used was a "cascade impactor".

Occasionally I was involved with some of the more highly sophisticated telemetry radiation measuring equipment, but these were not equipments which the average person may have had contact with whilst working there. The sophisticated telemetry equipment was used to monitor the initial fallout pattern after each detonation. These monitors were used for the first ten minutes or so after each detonation, and

an initial idea was obtained from them, of the likely fallout pattern following each firing. It was only after this telemetry monitoring had given a general idea of levels that the initial measurement teams would be sent into the blast area.

Air Sampling Measurement Devices

This was primarily performed using a specialised "vacuum cleaner", designed to simulate the human respiration rate and in fact operated by sucking air through a filter paper. Paper would be removed after the required exposure time, and the radiation accumulation would be measured. The actual radiation measurement was performed using a variety of laboratory devices. The results were used in particular to analyse the relationship between particle size and radiation activity. This was performed to assess the type of respirator needed to effectively filter fallout from air.

My association with this research work made me aware that the Buffalo trials did not produce anything like the anticipated airborne hazard. I understood this to be because the actual radioactive material was encased in "glass" beads, which were large and insoluble. These, because of their size, accumulated on the ground and did not pose a significant airborne threat. Even in what would otherwise be regarded as dusty conditions, the radioactive material did not seem to be present in the air, in any significant quantity.

The "sticky paper" samples showed the type of fallout as the apparatus was designed to trap fallout after the blast. The sticky paper was protected from dust, until the time of explosion and the accumulations on the paper were in fact a fairly accurate representation of the fallout, deposited in a particular area.

Laboratory Measuring Equipment

These equipments were really more sophisticated forms of radiation measurement devices used in the field equipment.

Prior to Round 1, my major involvement with Health Physics control was as a potential user of these facilities. I was certainly involved in the rehearsals before Round 1, for the establishment of the health physics control posts. I became involved in the detailed operations of the health physics control associated with Round 1 after my immediate post-detonation radiation measurement duties ceased. Thereafter, in each round, I was involved in health control before, during and after each firing.

My function initial in relation to Round 1 was to be a member of the radiation survey team which entered the blast area after the firing.

Immediately prior to Round 1, all personnel involved were located at points at or south of Roadside, with a possible exception of some persons involved in high speed photography further up the road. The firing control was located at Roadside, and the health physics control caravan team was initially located at Roadside. All teams which were to later enter the active area were also located at Roadside. These included scientists and indoctrinees and RDU and Health Physics personnel. It did not include village staff.

After the firing, the telemetry instruments were monitored from the firing control point. When the levels had subsided, and a rough idea had been obtained of the fallout pattern, there was, to the best of my recollection, an initial quick survey by a very expert team, along the main road leading to Iwara and towards Mina, to establish whether the health physics caravans could be moved with safety to the predetermined health physics control point. After those teams had proceeded to that area and had indicated that the proposed health physics control point was suitable, the health physics caravans moved out of Roadside to the predetermined point which had been cleared. To the best of my recollection, the health physics caravans were the first vehicles to leave Roadside after the initial survey team.

To the best of my recollection I did not enter the area on day one but entered on day two. I think I may have driven one of the caravans to the health physics control point, but I did not conduct any radiation survey on day one.

I have retained a copy of the schedule of radiation measurement surveys for day one, day two and subsequently. I produce a copy of that document. It can be seen that I did not enter the area to perform radiation measurement until the second day. Of the names on that list, to the best of my recollection, some of them are Canadian. These persons came from the Radiation Detection Unit, which to the best of my recollection was split up to permit individuals to be used for a variety of tasks after each of the firings. As I recall it, the following persons were Canadian - [REDACTED] I think [REDACTED] may have been Canadian, but I am not sure.

The list I have produced comprises the basic members of the radiation measurement survey party for Round 1. There may have been some modifications to the personnel in this group. However it was important that all personnel have a very thorough knowledge of the range area in that the range area bore little resemblance after Round 1 to that which we had been used to before. It became necessary for all persons in the radiation measurement section to have a thorough knowledge of the ground in order that their task could be properly performed after the detonation in somewhat different surroundings. I would doubt, therefore if any significant substitution of personnel would have been permitted.

On day two, I proceeded as a member of one of the radiation measurement teams past Roadside. To the best of my recollection, there was then still located there a security point which controlled personnel who proceeded further into the range area. Having proceeded past Roadside, we drove to the health physics control point which was located then,

to the best of my recollection, shortly before Mina, I think. I produce a map of the range area, with three locations of the health physics control site noted in blue ink.

On arrival at the health physics control point, the leader of the team reported to the health controller, and was given a briefing. In the briefing, the leader would be given an indication of the likely dose levels, any hazards which were likely to effect useable time in the area or your ability to move around, and a very comprehensive briefing on protective clothing to be worn and instruments to be carried. A briefing was also given in relation to radio communication and emergency procedures. Finally, a time was given by which the team had to be out.

The team leader would then return and brief his own people, and would be then issued with protective clothing. Dosimeters and a second film badge would then be issued. Further, recording equipment such as "clue" boards would be issued, as these could not be removed from the area afterwards.

In relation to the issuing of film badges, the following is my recollection of the procedure. A foolscap sized sheet of paper was divided into a number of columns, with a series of numbers listed down the page which corresponded to the numbers appearing upon the actual piece of film located in the film badges which were issued. I can recall on occasions issuing these film badges myself, and the procedure was that the person who received the film badge would have his name entered on the foolscap sheet of paper adjacent to the number written on that sheet which corresponded to the number on the film inside the badge.

The quartz-fibre dosimeters also had numbers on them. I think that as a general rule they tended to be recorded as being issued to a group rather than being issued to individuals. To the best of my recollection, all dosimeters were normally recorded as being issued in the name of the group leader.

However, individuals considered to be at special risk were, to the best of my recollection, also issued with dosimeters for personal use. I had a number of such issues, myself.

The dosimeter would give an instant reading of the radiation level in an area, and was used to enable the person concerned to check on his own dosage. The film badges had to be sent for development and measurement, which took some time, hence the reason for the issue of dosimeters. The radiation exposure records subsequently compiled for personnel were compiled from the readings from the film badges, and not from the dosimeters.

Routinely, all quartz-fibre dosimeters were checked at Health Control on the return of a party from a sortie, before the members of the party were cleared for return to the village. This would have allowed immediate action to be taken if members of the party were likely to have received high accumulated doses.

There were a large number of variations to this procedure. This could be due to a variety of reasons. There may have had to have been two different types of film badges or dosimeters. In particular, the dosimeters could be selectively sensitive to different kinds of radiation, as could the film badges, and if a need arose, groups or individuals entering a certain area could be issued with these more specialised instruments. As an example, if a team was to be entering an area with a large known amount of beta radiation, each could be required to carry a conventional gamma reading dosimeter, a beta reading dosimeter and possibly two film badges.

Team members would be issued with sets of protective clothing. They would be issued with different items of equipment depending upon the area in which they were to enter and the radiation levels in that area. It could vary from at the one extreme complete protective clothing protecting all body surfaces,

including a respirator, to, at the other extreme, merely a dustcover over conventional boots, and probably gloves. Even in the latter case, film badges would be issued as described above.

If full protective clothing was to be worn, the person to whom it was issued would remove all his clothing, even including wrist watches. A completely new set of clothing would then be worn, it being issued to the person in conjunction with the protective clothing.

To the best of my recollection, the Canadians brought with them their own protective clothing, which I seem to recall was of a dark colour. The Canadians may well have used their own protective clothing when operating as a unit, however when personnel operated individually moving through the health control point, when not operating as a unit, they would probably have been issued with the white protective clothing provided by the U.K. authorities.

I have retained a complete set of protective clothing, together with respirator, less the boots. I now produce that clothing.

The personnel at the health control point were most insistent that all personnel go through this procedure. As radiation surveyors, members of my party were probably more aware, of the health hazards than the persons who were processing us through the health control point. Nevertheless, all personnel were required to have that briefing and to go through the procedure in detail, even including [REDACTED]

Except for the last round, when I was the OC of operations at Emu, I was involved as a member of the health physics control point. For rounds 2 and 3, there was no difference in the attention to detail, however, there was some lessening of the restrictions placed upon areas into which personnel

were required to wear full protective clothing. This was due to the fact that we were just not getting personnel returning through the control point contaminated. I would think that that was basically due to the fact that radioactivity was normally encapsulated in the "glass beads" referred to above. The directions given in relation to the wearing of protective clothing also tended to vary according to the weather. In windy or dusty conditions, despite the encapsulation of the radioactivity in the "glass beads", full protective clothing would be worn. In calm or still conditions, the same requirement was not insisted on.

Also, some latitude was permitted for drivers of vehicles, who would be required only to remain inside their vehicle whilst driving the party around the contaminated area. If the health control personnel were confident that the group leader would insist that the driver remained inside the vehicle, the driver may have been permitted to enter the area wearing less protection than other members of the party. Nevertheless, the checking and monitoring was exactly the same. The monitoring was always strict.

On day two after Round 1, to the best of my recollection the radiation measurement group went in in four teams, each of three persons. On day one, radiation measurement teams had proceeded to particular areas to clear the area for entry by specific persons. On day two, as far as I can recollect, the systematic mapping of the area began. I have been shown figure 4 contained in Report T49/57, The Radiation Survey of Ground Deposited Radioactivity. I contributed to the compiling of the contours shown in that figure, from the work performed on day two of Round 1. This work was also performed on subsequent days. I still have the map that I used for the purpose of those measurements, and I may have an overlay available with notes of my workings on it. To the best of my recollection, we proceeded up the road from the health physics caravan towards Warū, and then proceeded to survey the track network based on the road which was known

as "Waru track". We used the ionisation chambers shown in figures 2 and 3 of Report T49/57. If the control point wanted to know a reading at a particular point, we radioed it back. If not, we recorded the measurements for the subsequent production of isodose contours.

To the best of my recollection, we would not have entered the active area more than twice on day two. Each visit would have taken about two or three hours.

From what I can recollect, there was still fairly limited access to the blast area in day two. I think for example the armaments personnel went in to recover unexploded shells, to remove the obvious danger associated with that. To the best of my recollection it was not until day three or after that large volumes of people entered the blast area to monitor, assess and remove target response equipment.

Some days after commencing the radiation measurement survey, I recall that I was involved in the performance of health physics duties. I cannot recall the precise day when this commenced, but I may have performed some radiation measurement work in addition to the health physics control work after I commenced health physics control work. During this time, I worked in the health control point performing a variety of functions. These functions included briefing personnel, physical radiation monitoring of personnel and vehicles or other equipment, and supervising personnel decontamination. I cannot recall the precise position of the health control point at this time, however I do recall that it was gradually moved further away from Roadside towards ground zero. To the best of my recollection, the control point finally finished up adjacent to the Waru track about 2,000 metres from ground zero.

I recall that for the first few days after the detonation of Round 1, Canadians were passing through the control point

as individual members of teams working in the blast area. I cannot recall thereafter before Round 2 any Canadians passing through as members of Canadian teams, although this could have happened. I seem to recall that a few days after Round 1, the health control point was largely manned by Australian personnel and I think that this was due to the fact that the Canadian personnel who had previously performed this work had been withdrawn. This however is only a vague recollection.

I recollect that on one occasion I went back to the radiation measurement duties, in fact to conduct a survey of radiation in the "crater". My recollection however is that gradually less survey work was done and more health physics work was done, to the extent that by day five, the majority of my work if not its entirety was in health physics control.

During my period of duty in health physics control, however, I did spend a fair amount of time in the blast area, doing specific radiation level measurements for persons who wished to go into specific areas in which the levels had not been assessed previously or where the assessment was out of date.

To the best of my recollection, there was little target response recovery work in the first two days. After the first two days, a large number of people were involved in those tasks. The groups that came through to recover target response equipment tended to be those who were responsible for its placement there in the first place. For example, I can remember British armoured corps officers removing tanks, in association with a couple of Australian RAEME personnel.

I can recall radio equipment being retrieved by Australian Army Signals corps personnel. I can recall ammunition being recovered by British civilian scientists. I have no recollection of a large number of vehicles coming out of the blast area at any one time, and I do not think this type of recovery really commenced until about ten days after Round 1. I couldn't be sure of that however.

From time to time I acted as an escort to vehicles being convoyed back along a "dirty" track. This was necessary because at times the track was difficult to follow. In that time, I do not recollect large convoys coming back.

I do recall a couple of mobile decontamination vehicles at Roadside, equipped with steam cleaning equipment or something of that nature.

We used vehicles from the "yellow" fleet whilst in the blast area, and used other means of travel from the village to Roadside. One of the party would drive the vehicle, as drivers were not formally provided. I cannot recall anybody who did not have a licence there, and it was the normal practice for a nominated member of a party to drive the vehicle. In fact, in contaminated areas, the position of driver was rotated amongst members of the party to balance out the total cumulative radiation dose for each person.

Drivers were available for VIP's but you had to be a very senior VIP to warrant that treatment. Drivers however would be provided if you could not return with the vehicle, i.e. proceeding to the airstrip or to a location for an extended visit, when the vehicle was to return. Even then, there was a large degree of self help involved, as a result of which personnel who needed a lift in a vehicle would enquire generally around the village at an appropriate time before leaving.

I recall [REDACTED]. He was in charge of the motor vehicle pool in the task force at Maralinga Village. He had a number of Air Force personnel under his command, who were involved in vehicle servicing. I have been shown a photograph of the plaintiff, [REDACTED], whom I do not recognise. My attention has been directed to the two markings on the door of the motor vehicle, beneath [REDACTED]'s elbow, resembling a capital W over an inverted capital W. I believe

they were not administrative vehicles, but were vehicles that were somehow related to the test area or to target response. The endorsement "Rang Commandant Task Force Watson SA" may well be the address or destination of the vehicle, stencilled upon the door of the vehicle cab by the British Army Ordinance Authorities.

The presence of the dog in the photograph intrigues me. Animals were very much frowned upon on the range, although I could not categorically state that there were never animals upon the range. It would have been difficult to get them there, and they were very much discouraged. The photograph could easily have been taken at Watson. It could also have been taken at Salisbury. I cannot exclude the possibility of the dog being at Maralinga, however it would have had to have come a long way unless it was assisted somehow.

I visited the area known as the "DC and RB area" on the road outside Maralinga Village on many occasions. I saw vehicles being washed down there at an area adjacent to the laundry. I can recall having my own landrover, "yellow 14", washed down there. Contaminated vehicles were brought to the DC and RB area by the yellow track. I seem to recall that there was a shortage of staff, and I have a recollection that some of the Australian Radiation Detection Unit personnel were seconded into working there. They certainly worked in the laundry, but I am not sure whether they worked in relation to the vehicle washing centre. [REDACTED] of the Australian Radiation Detection Unit, was one of the Australian personnel concerned who was seconded to the laundry for duties. The Canadian vehicles were quite distinctive. Our survey vehicles were almost 100% landrovers, and the others that weren't were usually Morris 1 ton trucks. All our vehicles were of civilian pattern i.e. they were not necessarily painted in military colours with military identification symbols. The Canadian vehicles were military vehicles, and although I can not recall the precise type of the vehicles, they were combat type vehicles as opposed

to civilian vehicles. I have some recollection of the Canadian vehicles being at Roadside for considerable periods. Whether they were in the dirty area near Roadside or not I can not say. I have no recollection of Australian personnel washing or driving Canadian vehicles. It could have happened, but I have no recollection of that now.

From time to time, members of the Australian Radiation Detection Unit travelled as passengers in vehicles from the Canadian Radiation Detection Unit. I recollect that on three or four occasions, I went as a passenger inside the Canadian vehicles. I cannot recall the precise purpose of these trips but they were probably for "familiarization" purposes. I knew [REDACTED] [REDACTED] the OC of the unit.

My general recollection of the Canadians was that they were "aggressively" self contained. There was a Canadian component separate from 1 RDU whose title was something similar to "Canadian Defence Science Board". To the best of my recollection, the component outside the RDU was led by a scientist. To the best of my recollection, he had a PhD.

For Round 2, I was involved in health physics control and decontamination. There was some target response for Round 2, however it was at a far lower level than that for Round 1. As a consequence, there were less people who had a reason to go into the blast area after the firing.

I would have remained working from the location of the health control point until Round 3. I have produced a plan of the blast area, showing three locations for the health physics caravan shown in blue ink. To the best of my recollection, two of the locations indicated were for Round 1, i.e. the one south of Mina and the one between Kite and Waru. The location marked "HP" on the road between Marcoo and Mina may well have been the location of the health physics control point after Round 2. To the best of my recollection, the health control caravan located on the road between Mina and

Marcoo after Round 2 served as the control point for any parties who were required to go into the blast area around One Tree (i.e. the area of Round 1) thereafter.

During the times between Round 2 and Round 3, I was located in the area of the health physics control point. I was also involved in decontamination work.

In relation to vehicles, they were not decontaminated completely, but the dose levels were reduced to the extent that the vehicles could be returned for use to the yellow pool or could be returned to the DC and RB area for further decontamination. During this period, when I was working at the health control point, the same monitoring procedures and checks on personnel going through the control point were maintained. Film badges and dosimeters were still issued as before, and records were made of issues of monitoring devices as before. As indicated above, there were changes by way of relaxation of the requirements to wear full protective clothing in appropriate cases. The extent to which the requirements were relaxed on a daily basis was determined by the senior health physics controller in accordance with the Maralinga Safety Guidelines.

Between Rounds 2 and 3 I have no particular recollection of Canadians coming through the control point as a unit or in sub units. I recall that between Rounds 2 and 3, we had some rehearsals for the combined Australian and Canadian role in maintaining the health control point after Round 3. This may have required some Canadian vehicles to enter the area.

To the best of my recollection, the recovery of target response vehicles from the forward area had been completed by the commencement of Round 2. There was a large collection of vehicles at Roadside for quite a long time. These vehicles had been removed from the target response area. By that

stage they were probably only lightly contaminated, but I am not aware what happened to them. Between Rounds 2 and 3, there was a lot of activity by the health physics personnel. This was brought about by the fact that the fallout pattern from Round 2 overlaid the fallout pattern from Round 1, and a number of measurements had to be retaken.

Generally speaking, there did not appear to be a great deal of activity outside those duties being performed by the health physics personnel.

During Round 3, my task was largely the same, except that Health Physics control became a very much more combined British Australian and Canadian effort. This extended down to and including the planning of it. In relation to the earlier rounds, we had by-and-large been given jobs which had been predetermined by U.K. personnel. In Round 3, we were involved in the planning of the establishment of the health control point and other matters.

After Round 3, we continued making radiation surveys, although these were not necessarily made in relation to Round 3, because there was not a great deal of fallout from that detonation. I cannot recollect any other significant activity in relation to the area of the third detonation. I think by that time we had established a permanent health control point on the road between Mina and Marcoo. However, for Kite, that permanent location was abandoned in favour of a mobile health control point planned and manned by the Australians, Canadians and British personnel. It was a combined operation. I cannot recall where that was established, but I think it was established somewhere about Mina. As far as I can recollect, after a period of some days the health control was re-established on the road between Mina and Marcoo at the point indicated above. I think that is the way it went.

I was sent to Emu about ten days before Round 4. I relieved [REDACTED] the OC of the Australian RDU, who returned to Maralinga Village. He was the only person who returned, and I assumed command of his unit. The unit was to provide medium range fallout sampling parties, if required. They were also required to collect certain biological specimens from properties in the area.

One of my tasks in going to Emu was to close it down. I did conduct radiation measurement surveys whilst at Emu. These tests were conducted at the blast sites and in some of the old laboratories. Radiation levels were negligible in both areas.

I do recall seeing a rack of test tubes, with chemicals dried inside them, but I do not recall ever seeing any evidence of hurried evacuation from the buildings. There was, to the contrary, considerable evidence of leisurely evacuation, in that, critical parts of instruments had been carefully removed.

I recall [REDACTED]. I have no recollection of him ever getting lost. I do recall an occasion when he radioed in asking for supplies and assistance to get to Maralinga in time for Round 4. There was adequate food for him at Emu. However, as a special arrangement, I arranged for a drop of lobster at Emu from Maralinga. Beadell arrived in due course under his own steam, and was given the necessary food. His vehicle was refueled. I think a minor repair was done to the vehicle and he left on his way within a few hours to return to Maralinga.

I could not imagine [REDACTED] getting lost. He is not that sort of person, and he knew the country too well.

At all times, he was in constant radio contact. I can recall many times listening to him on the radio.

I returned to Maralinga a few days after Round 4. I do not recollect the precise date.

On return to Maralinga, I was involved in the conduct of final radiation surveys, to establish a demarkation line between contaminated and non-contaminated areas. I was also involved quite extensively with the Australian RDU in their exercises, and peripherally with the Canadians. The Canadian RDU, in my assessment, was quite capable of handling itself. However, the safety regulations required a range health physics back up, and as such I was involved.

I would have thought that by Round 4, all the target response vehicles would have been removed. Occasionally, we used to receive a request to monitor a piece of equipment before it was finally packed. I have no recollection of that occurring late in the trials.

Routine servicing of yellow vehicles tended to be done at Roadside in the dirty area. Major servicing was done back at the DC and RB area.

I can recall seeing a mobile steam cleaning vehicle just off the road at Roadside, however I never saw it being used. I do recall seeing vehicles being steam cleaned at the DC and RB area outside Maralinga Village. I would have thought that decontamination of vehicles would have been performed by health physics personnel, and not mechanics. I can recall Australian RDU/Health Physics personnel being involved in steam cleaning of vehicles at the decontamination centre.

At the decontamination centre, personnel tended to wear dust coats or overalls and rubber boots and having got themselves wet, would shower very quickly after finishing a job. This would be quite appropriate in cases of very light contamination.

Respirators would not normally be worn unless there was a real danger of airborne contamination. In handling the heavily contaminated sections of vehicles or heavily contaminated equipment, rubber gloves would have been available. To the best of my recollection, there were also heavy duty rubber aprons which could have been worn in appropriate cases.

By the time a vehicle had been driven back over the rough roads from the test sites there would be very little radiation on it except in places like the air cleaner and the sump. Occasionally we would have to scrub the pedals because contaminated material had been ground into them. The first thing that was done in any vehicle when it came back from a hot area was to check to see what its radiation level was. This was done by health physics people. It was then given a classification, and if necessary decontaminated either by steam cleaning or merely driving it over the sand. The vehicle was then monitored after being steam cleaned or driven over sand as described.

Vehicles in the yellow fleet were not normally fully decontaminated until it was apparent that their usefulness as a member of the yellow fleet had finished.

Security on the range was maintained by ground patrols conducted by Commonwealth peace officers, and by aerial surveillance. Health physics personnel were primarily concerned with who went into hot areas, but the security personnel were also concerned from a security viewpoint. It was almost impossible for someone to wander around in a contaminated area without health physics or security personnel knowing of that fact. It was almost impossible for someone to go in or out of a contaminated area without having to go through the decontamination centre. However, if one wanted to be irresponsible there would always be a way of dodging the security procedures and getting on to the range. No system is foolproof.

I can recall a number of briefings given by [REDACTED] [REDACTED] [REDACTED] [REDACTED], and by a [REDACTED] in relation to health physics matters. [REDACTED] certainly gave a number of lectures at Maralinga Village. However, I am not certain how many I attended. I cannot recall the exact intent of the lectures but they included Health Physics. In fact, [REDACTED] took a very keen interest in health physics.

As a matter of policy in the health physics control, we proceeded on the assumption that persons being briefed needed the briefing and had no sufficient former knowledge to dispense with the briefing. On some occasions, all personnel going through the control point were briefed. However, if numbers were too large, the team leader was only briefed and it was he who was required to brief individual members of his party. Further, parties leaving the control point for the blast area were checked to ensure that they were then complying with briefings with regard to wearing of protective clothing etc.

I would doubt very much whether seconded personnel from the task force not nominated and trained specifically in Health Physics would have been required to drive vehicles into a contaminated area and to salvage radioactive target response items from the area to a clean area. I cannot imagine, from my experience, that this would have occurred. Casual help, as I recall it, would not have been used for that sort of task. It was apparent that concern was felt by the scientists that equipment be recovered from the area without causing damage, in order that the full scientific benefit could be obtained from examination of the target response items after recovery. They were therefore reluctant to have "casual" help handle their equipment. I cannot deny that task force personnel may have been used on rare occasions for those sorts of tasks, but it would have been most unlikely in my view that they would be regularly used.

It is my recollection that film badges were worn by all personnel in the village area after the first detonation. These badges would be retained by them, and would be separate from any badges issued to any personnel from the village who proceeded through the control point to the blast area. I recall that reference was made to "sortie" badges, being an Air Force term and referred to a badge used for a particular visit to the blast area. It was a badge which was used by the person in addition to their normal badge. The film badge worn in the village would be left by the person carrying it at the health control point when he changed into his protective clothing. It would be worn again by him when he left the control point after leaving the blast area, he having surrendered his "sortie" film badge on departing the blast area through the health control point. The only exception would be persons going into a very lightly contaminated area, when this procedure was not necessary. In such a case, the level of radiation would be so low that he would only be likely to be wearing overboots and perhaps gloves.

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 [REDACTED]

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 Signature of Witness