Appendix D:

SEMI-STRUCTURED INTERVIEW TRANSCRIPT

CASE STUDY 1 – NUCLEAR WASTE

Case Study 1 – Nuclear Waste

Transcription of Interview

Duration of Interview: 01:58:19

Transcription of Interview

Duration of Interview: 03:06:51

[Beginning of File]

Part 1

Okay, so the mapping process the first, let me show you this map because the consultancy opens at zero. They did some consultancy on how a science technology was broken or a [inaudible 00:00] process through the regulatory framework and based on that I've sort of gone through and tried to use the same structure, sort of dig out the decision makers, the policy makers, where scientific advice might have come into this. Does that make sense?

Yeah, Command 2919, you've got it wrong there, change that.

Okay, 2191 sorry?

2919.

Thank you for that. Okay so with reference to the scientific knowledge before it became part of the Agency decision making process who was involved? I mean, I understand the basis as far as like the Operator and their Consultancy Agencies.

Yeah, so there's BNFL with their consultants. Can we describe it as Stage 1, Phase 1?

Great, Phase 1.

So we broke the project into three phases, there was Phase 1, Phase 2, Phase 3. Phases 1 and 2 we described them as the development of the post closure safety case so it was before there was a requirement for a formal submission and this was all a voluntary agreement between, initially '96, it was in the latter stages of – the Agency was just forming, it was HMIP prior to

that, so '96 we had the formation of the Environment Agency. So it was a good point, if you like to take stock, and say let's have a look at Drig, we haven't looked at a proper safety case for a long time, let's open this up and have a look.

We also had in '97 new Agency guidance and I see here there's a box under 9909 because there was a formal document in the beginning of March '97, if you describe it as the GRA so that's key and I'll show you that when we're finished, it's a critical document. Those two factors together gave us quite a good basis on which to say right, we're a new organisation, we've got this new guidance on what we require in terms of regulating and disposal facility. The GRA was developed initially with a deep repository in mind but we said it does apply to a shallow repository, it was developed with a view to a new repository for geological disposal but, again, there are clauses in the GRA that say this guidance was developed for a new facility but parts of it were equally applied to an existing facility. So that's that.

That's been revised and it's in the process right now, has just last week gone to consultation. There's two GRAs now, there's one for deep disposal and one for shallow disposal which is the one we follow for the low level waste repository now and, again, I can point you to those on the website.

That's two of the boxes done. Is this helpful?

No it is, definitely it is helpful, honestly 'cause, I mean, just to enrich this just so I know whether this does represent reality.

So in '96 we set up a project that said we'd like to review the post closure safety case for low level waste repository. We tried to get it on a formal footing, i.e. to write it into the authorisation at the time. There were concerns then that being a foul it said that anything that's in the authorisation exposes us immediately because it becomes public and we're very much in the – this time round we'd like to do a trial, draft safety case for discussion and at some point thereafter submit.

So we had quite a long dialogue and eventually we said okay, we'll agree to a programme of submissions informally under this draft interim work in progress which they said would allow

them to be more open and honest about what they were giving us. They said that if things done under the authorisation had to be public it would be more difficult to present the warts and all, shall we say?

Yeah.

And it seemed a reasonable approach. We were happy at the time with that, hindsight's a great thing. It might have been better because the programme dragged on then, things were changed, the goalposts moved, we were working with the costs of the changing programme. But there we go, we were where we were and that was it.

Eventually we had a new Site Inspector came in and in 2000 because of all this moving goalposts we decided then that we would write a requirement into the authorisation requiring them to produce a post closure safety case in 2002. I might need to check the dates but I'm sure that happened in 2000, it was a minor revision to the authorisation requiring a formal safety case submission. And I say, that was a result of largely this. We needed to put something on a formal footing to make sure we got what we were looking for but until then to 2002 we were working with these interim work in progress documents. So that's that left hand side.

So, yes, all the left hand side of your flowchart there is your Phase 1 and Phase 2 and I can look at why did it become Phase 1 and Phase 2, I'm not sure but we'll have a look at the documents, it's all documented on the database. Goldstone Sciences through a competitive tender exercise won the contract for Phase 1 and with us developed the process which is described in the review plan. There's an Environment Agency review plan which was basically externally to show how we were progressing with this and to let people know just what we were doing. There's a very detailed review plan that Gladstone Sciences have, who's doing what, how we're doing it. I don't know, it might be something you find useful but I think I might have pointed them towards the review plan for the Agency work but if not – we'll go upstairs later and have a look at the documentation.

I may even have it, when I see it I'll tell you.

When you see it you'll know. So they were working on individual pieces of work, scientific pieces of work, for example, hydrogeology, for example geosphere characterisation. What we didn't have were how those wonderful scientific pieces of information were going to be brought together to build the safety case but we were commenting on these, being a fellow degree, to give us these packages of work but, as I say, what they hadn't done at that stage was really understand how it would lead into a safety case and that was a constant theme through our discussions actually, all very well but until we see what the implication for the safety case, yeah, seems fine, up to there. Okay?

Yeah makes sense.

So we had the GRA which gives both ourselves and the operator guidance on what we would require so we were able to build up this issue resolution process, as they called it at the time, and whenever we were commenting on a particular piece of work we set it in the context of what does our own guidance require from the Operator with respect to that issue and, therefore, providing us with the basis for our regulatory comments. Again, I'll show you that, it's hard to explain without seeing it but the guidance helped us to develop a whole series of issues and requirements and then from that we married our comments to those. So we didn't just provide comments for the sake of comments, it was we were providing this comment because our guidance says we require you to do this. It will all make sense when I show you those.

So that's, yeah, it was an issue resolution process at that stage.

Issue resolution process?

Yes.

And that's between the voluntary submission?

Yes it's on voluntary submissions. Because we didn't have at the time the safety case itself we were looking at bits of science that would feed into the safety case so we were unable to say with any sense of priority what was high and what was low, we were just simply

commenting on the science. And this was a constant theme through our dialogue with BNFL at the time because they'd say well look, there's loads of issues that you've generated from this work, can you prioritise them and we would say to them no we can't because we don't see – it might be important evidence for the safety case but we don't know because you haven't shown us the safety case. So they were the only ones who could make any judgement and that's why we described this as an issue resolution process then because our comments, as saved by to our own guidance, were passed to BNFL and it was up to them to decide how to take them forward.

So that's that, so out of that Phase 1 and Phase 2 you've got this line ' published preliminary findings' so they were a whole series of reports on the individual scientific pieces of work and the database which is this whole suite of issue resolution forms. I think in total there's probably about a hundred and twenty, something like that. You might want to have a look.

So that's the output. They weren't formally published…

They weren't?

…you say published preliminary findings. Those were all based on voluntary submissions from the Operator. 'The Radioactive Substances Act '93 allows an operator to claim commercial confidentiality without justifying it' and at the time BNFL were very much everything was published under the CNC banner and RSA mandatory didn't really require them to justify it. The Environment Act was different for other industries, not under RSA93, it would have been a very different requirement claiming confidentiality, it had to be justified and that's a change that we've suggested in the Radioactive Substances Act and I don't know if it's going to be taken forward and then [inaudible 14:49].

Okay.

So nothing was formally published other than – or we produced some overviews. We produced an overview of both Phase 1 and Phase 2 I think so that's the Environment Agency. Again, we had to be very careful in what we were saying and referring to because it was all based on work in progress under the CNC banner.

Again, it was an argument that we had with BNFL through and through and through, can you not just remove this CNC cover and we got nowhere with that and we didn't have any weight behind us to say otherwise because RSA93 allowed them to just ban the CNC for interim work in progress documents not required under the terms of authorisation. Is that making sense?

It makes sense, yeah.

So that was the difficulty but we could do nothing about it but there was a huge dialogue on CNC classification. In the end we had to just live with it and we published what we could as a result because we felt as a Regulator we had to try and be as open as possible. Hence things like we published our versions of the review plan which enabled us to publish what we could within the restrictions of the CNC classification in the first work. So that's a good part of it.

So before we had this submission in final PCSC we did have a submission in Phase 2 and I'll check on it. It was almost a draft safety case but it wasn't, it was supposed to be a draft safety case in our terms but it wasn't and I'll show you why, I'll print the document out. We constantly said to them at the time we can't really give you more guidance without a safety case. We're not very comfortable with producing a safety case at this moment. Okay, produce a draft safety case and there was I think a lot of misunderstanding about what draft safety case meant and we didn't define it as such. We thought they'd understood what we were wanting and they went away and decided what they would give us and what they would give us and what we wanted did not marry at all, it didn't really take us forward much but we'll have a look at that. It's useful to note that, I can't remember what, I think they called it status report or something. It was about 2000 I think.

So it was quite a while.

So the authorisation review in 2000 required them to submit a post closure safety case in 2002 which they did. So this is now Phase 3.

From submission upwards?

Yeah. So we had to go through another temping exercise, of course, because we couldn't just employ Goldstones to carry on. So in all this we went through a competitive tender exercise. Goldstones did win it, it wasn't a foregone conclusion although people who would say it was but no it wasn't, it was done fairly and with the view that also with new minds coming in might be useful. So it certainly wasn't a foregone conclusion but they came up with it, when you put price, quality and everything else into the pot they came up with the best tender.

So they continued, we had a new review plan for Phase 3 because it was a very different beast now, we had a formal submission so things were on a much firmer footing. So there was a specific review plan for Phase 3 and from Phases 1 and 2 were also this whole series of issue resolution forms which documented our concerns over the work that had gone previously so it provided us with quite a good basis on which to work and focus for the safety case itself.

So we used that issue resolution form basis for our review so it wasn't just key experts given the safety case and told 'what do you think of that', they were very much directed down avenues to look at what we'd said before and build on those.

So the review was carried out with a core team, in fact we had a core group which took cross cutting issues, the whole safety case, but we had a number of review groups specifically on, for example, geosphere, hydrogeology, geology, engineering. I can't remember the exact titles now but we'll go and look at the documentation. So yes, each review group were given key tasks, key documents, key parts of the safety case itself to look at. I don't know if you've seen the safety case, it's a whole series of volumes, about fifteen.

I've just seen the overview which was like that.

So the review groups looked at specific parts of the safety case but the core group tried to look and bring that together so members of each review group had a member of Goldstone Sciences on it and a member of the Environment Agency and then members of Goldstone Science and the Environment Agency also sat on the core group as well. So you could pool holes in together, it was important that we didn't have one group of experts here working in isolation, just everything was pooled together.

So that generated a whole lot of issue assessment forms then and that was a subtle change but an important change because we were able to be more specific about our concerns because with a formal submission of a safety case it wasn't about resolving issues there, it was about assessing what BNFL had done.

So the outputs from the review of the safety case were a whole series of individual review group reports but those were sort of internal documents with the associated issue assessment forms and those all came to us in a whole suite and they were pooled together into this public consultation overview report which was our summary document if you like. That accompanied the consultation process. When we talk about consultation it's consultation on review of the authorisation and that's a formal regulatory requirement and our review of the safety case was a document that held that, it was a complete piece of work, so we didn't consult on our review of the safety case, we provided our review of the safety case to inform the consultation on the review of the authorisation. So that's quite a long way down the line. So in 2005 we produced the overview review of the safety case and that accompanied the consultation on the authorisation review.

So working through, that white box and the blue box there, so from the blue box that PCSC review fed into the Environment Agency's Site Inspector's consideration of the authorisation. So he was taking that into account in developing his views as to how the authorisation needed to be varied to take into account what we'd found and that's what went to the consultation. It's a document that almost says this is mindful of what we intend to do, what do you think given the things that we're feeding into and then after the consultation on that is the decision document. So this grey line here, this grey line going down, 'PCSCs placed on the public register', that needs to go down to that white box there because it was a formal submission required in 2002 under the terms of the authorisation so it was put on the public registers then when it was submitted.

Right okay.

Those are the two, okay, public consultation. I think you probably put the decision down here, maybe you hadn't got room, but the decision document fed from – if we call that an

explanatory, I think it's described as an explanatory document but we'll go and double check on that. And from that you've got your decision document after the public consultation.

Oh I see what you're saying.

Perhaps it doesn't matter.

So it goes past the public consultation first and then to the –

To a decision and then from that you get the revised authorisation and that's part of the decision document and that decision document is what goes to the Secretary of State and it's up to the Secretary of State whether or not they decide to call in the application and that's done on the basis of public opinion, own opinion.

I'm not involved in that so I wouldn't know how the Secretary of State decides to call in an application but if they foresee a public debate, a genuine reason for calling it in, like the RCF enquiry, they got a characterisation facility in the nineties, it was the Secretary of State called in the application which then went to a full public enquiry. So the decision on the authorisation in 2006, I think, it wasn't called in, it went through.

Was that question one?

I think you've answered a few questions there.

I hope it's accurate, it's as accurate as I can think.

No definitely. I mean, Simon mentioned that as the information just before it comes into the process it goes through a number of quality audit processes before it reaches the Agency itself.

Are you talking about the information from BNFL?

Yes.

Oh yes, they would have their own system of checking and approval, what they didn't ever have until the very latter stages was an external peer review of their work.

Seriously, they didn't have it until the latter stages?

Not until the very latter stages but it was really too late for it to have been any use to us and, again, that was one argument, one comment that we continued to give them right from the 1997 stage was we really recommend you carry out an independent peer review subject your documentation on the independent peer review but it came a very long way down the process and, to be honest with you, it wasn't very helpful. I think they were almost using us as an independent peer reviewer and we constantly said to them – I can remember meetings where they actually said but you're doing the peer review and we say no we're not, we're undertaking a regulatory review which is very different.

We were focussing on things that really mattered from an internal point of view in terms of authorisation and that was a real battle with them, to stop them thinking of us as an external peer reviewer because if they'd have had their work peer reviewed properly through the process it would have made things a lot easier for all concerned.

So up until that point it was just the BNFL and their consultants?

Yeah and, yes, they definitely had in place their own procedures for approving documents and submitting them to us, nothing came to us that hadn't gone through their own quality process.

So points of entry, that was the Site Inspector is that correct, of the information entering or is that not correct?

In the latter part of '96 it was a dialogue that we had with our own Site Inspector at the time, he was an Ian Porter, and he'd been a Site Inspector for a long time, this is going back to the HMIP days. There had been dialogue between ourselves and the guy who managed the project before me which was Alan Ashworth. As I say, we were a team internal to HMIP and

then the Environment Agency who supported our Site Inspectors to work like this and we concentrated primarily on the Nyrates work at that time but also we knew that there was Drig in the background and, for reasons I said earlier, it was a good time to start thinking about review of the authorisation.

Under RSA 93 there's no specific term on which you've got to review the authorisation, you generally look to revise the authorisation after three, four, five years and it had been some years. I can't remember the details but it's not a set time period in which you've got to formally go through a review of the authorisation. Obviously there's a constant dialogue with the Site Inspector and the Operator anyway but not a formal review of the authorisation until the Site Inspector decides.

So back in mid 1996, I think it was, Alan Ashworth who was part of this internal HMIP team looking at radioactive waste disposal – I can't remember what they were called at the time – he had dialogue with Site Inspector and between them said yeah it's a good point to us being allowed to look at their post closure safety case.

So that was the point of entry and, as I said earlier, the Site Inspector with us, with the help of ourselves, tried to negotiate a programme but it was all done on this informal basis. That was in '96. I've got minutes to say this is what we agreed, these are our concerns at the time about the basis of the decision but let's run with it. And then the review in 2000 post the authorisation, a minor variation in 2000, a new Site Inspector came in, Ian Stretfield, carried out a minor variation requiring BNFL to submit the 2002 safety case. So that's another point of entry.

The result of this whole Phase 1, Phase 2, Phase 3 process and their revised authorisation in 2006 has required BNFL to produce other things amongst which is a revised safety case in 2011 so that's another point of entry. I think you've got the decision document which gives you the Schedule 9 table of requirements so there are things that feed into that, of course, that we're looking at all the time anyway and other things that aren't to do with the safety case but that will be a key point as well which we're building up to.

But during that process when the Operator was to provide you with the scientific knowledge it would be just through the Site Inspector or would it?

Things came to me as the manager of the review yeah. The Site Inspector was part of it but he was very much at the time right I'll let you get on with it. He was more the day to day dialogue with the Operator and, if needs be, if we were needing a bit more weight behind things we'd get the Site Inspector involved but he was very much of the attitude we'll leave you to get on with your review of the safety case.

When Ian Stretfield came in 2000 he was a lot more involved with the whole process and, as I said, we had Agency staff involved in the review groups. That was important, we had to understand the messages that our consultants were giving us. It would have been very easy to just take contractor reports and some agency reports and there you go but we had to understand what it was, the basis of our concerns, so we made sure we had agency staff and we made sure that one member of agency staff in each of the peer groups so they could be sitting in with the dialogue and be understanding of the concerns and Ian Stretfield sat on a couple of those groups and he also sat on the core group with me and that was important.

But that explains really who was accountable for providing, receiving and passing on the information. It addresses that I think, doesn't it?

Yes.

And as far as the scientific knowledge being presented, it was always in a formal report was it?

Yes, what would kick start a piece of work would be a document about the size of this document, there you go, on a key line of signs underpinning the work. For example, human intrusion, take that was a subject. They would submit the document to us, this is in the development work so I'm talking about purely Phases 1 and 2, they'd submit a report, we'd reviewed that, produce our issue resolution forms, give those back to BNFL and that then formed the basis of a meeting and, again, that's all recorded on this database.

That meeting enabled BNFL and their contractors to understand the issues that we were raising with them so we were able to have dialogue to try and see, make sure we were understanding each other and we'd often come away from those meetings – this is an interesting point, we'd come away from those meetings that were attended by BNFL and their local contractors, ourselves and our contractor, Goldstones, we'd come away with a real sense of yes they're really understanding what we're saying, it's not an issue, yes, and what they're proposing seems great, yeah I'm really quite comfortable with that, I'm very happy with that and then blow me next stage you think actually were they listening, were they hearing what we were saying, why did it all seem fine then and that message hasn't got through.

So each piece of scientific parcel of work, if you like, had an associated – I can't remember what we called them – anyway meeting with BNFL and its contractors. Sometimes it was one particular item but sometimes maybe human intrusion was as popular as something else and that had two lines in one meeting but you'd need to check the database on that, I can't remember exactly.

So as far as the potential barriers that existed I suppose that was the communication then was it?

Yeah, I think one of the key barriers was the fact that on the day to day work and sitting at these meetings we had the people who were doing the work and the immediate managers above but a great suspicion I had was that messages weren't going up so that people could put money in where it was needed, put the emphasis. I don't know, you'd probably get more input and honest input if you could speak to BNFL on this but there was a strong sense, both I think myself and Simon had, was that the people who were doing the work, the scientific experts, not a problem but I think there was tremendous frustration that they were tied because the messages weren't going up.

And perhaps we could have done more about that, perhaps we could have gone in at a higher level with these and made sure that things were copied in at a higher level perhaps by summarising these because, as you can imagine, there was a huge amount of information and

I think we naively thought that the key points from that information were being taken up to higher senior levels but perhaps they weren't. I don't know, it was a suspicion that we had.

It was a huge project, it was a lot of money and often we'd be going back and saying we haven't done enough on this and constantly trying to ask for more resources on a project that was costing a large amount already.

What kind of money was it into?

I wouldn't know how much BNFL spent but I know how much our projects – our Goldstone review contract itself, I think it was over a million for the review task itself.

It's a lot of money isn't it?

I mean, I wouldn't like that to be in the report anyway but, yes, if you imagine this spans nine years and it was – I'd have to check the figures but Phase 1, Phase 2 and Phase 3 were separate projects so we're talking about a lot of money for just Goldstones to review and bring in their agency staff time which is charged. We never actually totted it all up, I'm sure BNFL have.

So that was one of the major potential barriers that existed, the information actually being passed up, like you say, messages being passed up?

Yeah, I can't say for sure that's what happened but did we engage at a senior enough level, that's the question that niggles me now, in that early stage, the development phase.

I suppose it's very hard to know, isn't it, because you've got so much to do, it isn't a very easy process.

You can't be holding the operator's hand in a way unless we really had a concern. We eventually did when it became apparent that – we were constantly talking to them about optimising, about risk, identifying your key risk drivers, focussing on blah de blah de blah. There were a few lines that we were absolutely fed up of keep reiterating ourselves and at the

end of the day we did call a meeting at a more senior level and literally just sat around and spelt it out but that was a long way down the line. I can't recall the dates in my mind but when we had got to a stage of saying we're giving them this same message time and again, it's time to bring in the big guns to get the messages finally and when we brought those people in, it was a chap called Adrian Coyle at BNFL, he was in the senior management chain, no problem, he could see our point immediately and da da da.

And had you not had contact with him before or that type of?

Not on the review of the PCSC, no. I assumed that he was getting the messages but I suspect they weren't.

Of course, yeah, well it's quite possible.

But, like I say, it's not my job to hand hold the Operators right the way through and it was a development programme at the end of the day, it was up to BNFL to understand what were our key messages and to take those to their senior managers and say what are we going to do about this. Until it became a formal submission and a formal dialogue it was appropriate that we left that to BNFL.

Made sense.

But maybe we've have done better and helped the whole process if we had involved them.

It's not easy though is it when you're dealing with competent people as it is, people that have been employed to do a job?

You are but what I can't comment on is whether or not there was any frustration in that team of trying to get these messages up.

But there was a clear difference when you actually got in contact with the guy. So with reference to scientific knowledge after it became part of the Agency decision process, I think the public enquiry was quite a long way off, but who was involved, who those were

likely to transform it and, as far as transforming the information, it was explained to me that the Site Inspector would take the information that was given to him and then go through a process of cherry picking the most important parts and, from what I understand is, I'm not quite sure how it happens but the information is put into a hierarchy process where the most important information is at the top, a bit more heavily weighted, is that right?

This overview report, the overview of post closure safety case review, this is what we're talking about now, isn't it, we're putting aside BNFL's documents now, we're talking about our own. If you can imagine what we had from the project was a huge amount of documentation from these review groups so key scientific experts on our side giving their opinion on scientific knowledge that they'd been presented with but not all that was equally relevant. It's there and all the issue assessment forms are there, there's a lot of detail in those but what we did was distil those into key lines, key issues which we pooled into that overview report.

So the overview report presents a summary of the key issues but it also points to all these detailed issues at a much lower level so they're not lost and at any point in the future they could become bigger issues again. But they're not lost, they're there but, yeah, we pulled out from this huge amount of information at the real scientific level, what's really important in terms of an authorisation and then from that, yes, the Site Inspector had to look at that to see how far do I need to go in terms of the authorisation, what do I really need to do for the authorisation. So he picked from that some key activities that were needed immediately but also, in putting this requirement through a revised post closure safety case in 2011 you would hope that the Operator would then go back to the detail level 2002 and tidy up the loose ends if you like.

Obviously, there's never ever going to be a right answer and a wrong answer but we'd expect it to be as good as it can be and a sound scientific basis blah di blah, all this is set out with GRA. So given that the site is still operational, given that there's a long time before we need to close the site and put the lid on, we've got a lot of time to improve the safety case. So nothing's urgent as such other than if we really have huge concerns then you would question the validity of creating new vaults. So we've got time, they can come back to what's already

there and, yes, tidy up the loose ends if you like and improve on what they've got and we'd expect that for the next round.

Okay that makes sense. As far as the proportion of the information presented to the final decision maker, would he just see those key lines of evidence?

No no, the Site Inspector saw all the outputs from the review groups. To what extent he looked at them I don't know.

Because there's a wealth of information, isn't there?

Yeah but when you say wealth it wasn't – we're talking about a set of documents probably about this big and a whole set of issue forms. I haven't got those, I can't show you those but we've got them on the database. That was his big turnaround actually I would say from the previous Site Inspector who very much said there you are, it's your project, get on with it. It was really helpful having a Site Inspector who wanted to be part of the process so he had access to all the information that was coming in, everything went onto this database, this was his database, so he was seeing everything that was coming in. Maybe he wasn't reading it to the N^{th} degree but he was at least seeing, oh yes there's an issue there called, I don't know, Risk and Optimisation or something and he was being asked to sign off issue forms anyway. So yeah he was very much part of the process in those stages.

And that was to do with him as a person or was it to do with process, the power that was given to him?

Both in some ways because we revised the review plan to make sure, as I said, key agency staff were slotted in and used where we could and so he was formally identified as a member of specific review groups but, having said that, probably personality came into it in that he wanted to be involved and coming in new anyway I think it did help him anyway understand the site. So why I said both, I know it's a bit of a cop out but –

No I think it makes sense, doesn't it?

It was a very different attitude from the previous Site Inspector, he very much said no I'm the Site Inspector, you're the review team, get on with it and I'll look at the outputs at the end of the day. But in the interim he moved on and Stretfield came in.

I can see the influence there where the decision processes were individual. I suppose that was almost necessary wasn't it? Well it must have been very necessary, he actually would have changed the decision process to make sure he was actually involved.

Yes.

I'm assuming that isn't why he left his post?

No no. I mean, he's now Head of the New Build project and he's passed onto another Site Inspector, Andrew Fairhurst, who's taking, what I would call, Phase 4 and that's the outputs from 2006 review authorisation and the 2011 PCSC.

So it will be a new build?

It will be a new build all together yeah. We've still got Ian Stretfield there so I'm sure he will be a shoulder if need be and they know they've got me but, yeah, we've got a totally new set in. My colleague, Ian Barraclough, he's taking on my role and, as I said, Andrew Fairhurst is taking on Ian Stretfield's role. So yes, it will be interesting to see how it pans out.

So I understand that the final decision was based on a lot of information and a lot of different lines of evidence were presented. Do you think it's possible to address those lines and say what kind of relative weight, was there more weight placed on some lines of evidence than others and possible reasons for that?

Yes there were, it was very much risk based in that it involved coming out with risk numbers for associating with the Coastal Erosion scenario so well outside our target values and the obvious question is how can we continue to put waste into this repository if it's going to end up in the sea.

So that was one of the top issues. It's obvious because any member of the public, for example, can come up with look, it's a low lying site, not far from the coast, we know that sea levels are rising, what do you know about the coastal situation there, is it eroding. At one point I can remember saying it wouldn't be a problem if it was a depositional coastline, go and get sea level to rise fast enough such that it will dump a whole load of sediment over the repository, Bob's your Uncle, no problem but that's an aside and that's a joke.

But it was obvious that coastal erosion was an issue and would be an issue. It was an issue with us and it would be an issue with Joe Public and they needed to go and do more work on that to understand how the coast is eroding, how sea level rise change associated with climate change so it wasn't just a simple pitch, it was step back and look at climate change issues, look at climate change on sea level and was the sea level likely to change, rise, fall to create depositional or erosional situations. So there's all these lines that they need to look at and that's highlighted in one of the Schedule 9 requirements.

I was thinking because I realise that would have caused a lot of public opinion as well, and public opinion would have been quite important I would imagine, and one thing that struck me when I was reading through the report was, like you say, the sea level rise which you were saying that Joe Public could come up with that scenario and understand it was a risk but then you've got glaciation, haven't you, which is completely out of Joe Public's mind because they can't quite imagine it.

It's so far in the future, yes.

Did one play off against the other or were they treated very much as separate issues?

Again, coming back to this risk based approach and the risks associated with glaciation, the risks associated with coastal erosion, risks associated with human intrusion and that was another area. We use a risk target not as an absolute limit, it's a target to point the Operator into – if you're pushing the target and taking one line of reasoning then what can you do, what do you need to do there? If you're well within that target then perhaps the emphasis is on other things. So we weighted it that way and the government now are totally pointed

towards risk based regulation so you're not worrying about the little things, it's the big ones and we in this business use risk targets to try and focus in on the issues. I think that's the answer to your question isn't it, I hope?

Yes.

So no, all the scientific issues weren't given equal weight, it's putting them into context and what are your key drivers, what are your key problems in using risk calculations to try and identify those.

I guess I'm asking an impossible question really because, like you say, with coastal erosion it exceeded the target of what you could have – you could have easily said okay we'll accept this but then you had to – justify it more I suppose.

You've got to calculate your risk from coastal erosion outside the risk target then you put emphasis on what is the comparative risk of digging up the site and moving it elsewhere because you've got obvious problems there and exposure in the immediate future. So we did ask BNFL to look at all of these options.

As I mentioned to you earlier, we sat Adrian Cole down and said you've got all these problems, it's mainly your trenches where you've got specific burials that you might be able to identify specific hot spots, what can you do, what can you do to improve the situation. Look at digging up little bits of the trenches, moving them into the vaults, reengineering them to dispose of them in vaults, look at digging up the whole trenches and redisposing in the vaults, look at removal of long live waste because it's the long live waste that's really the problem. Look at removal of those long life wastes to a deep repository.

So we spelled out these options for them to go away and do cost benefit analysis on these options, a proper cost benefit analysis, cost not pounds, shillings and pence but also cost in terms of radiation exposure.

It makes sense. It's one of the challenges I have through this process is one first talks to psychologists which is more interesting than a challenge, it's quite interesting, but then

to talk to the computer scientists issues a challenge because when you tell them about these regulatory issues one of the things they always come back to you is they want to look at it as a negotiation process and put numbers next to it and if the Operator comes with something to the Agency, if its within, I suppose, looking at the risk triangle as low as reasonably achievable and if it's within that is it in the high end or the low end and how are we going to be able to map that out. It's not such a simple process, I suppose, really?

No, we did a presentation to BNFL on this, April 2002, it might be interesting for you to see that, and it was given a whole set of risks that they could present how would we treat them, what would we be expecting. So yes, we were very specific and that was, like I say, it was before the PCSC was published, it was in the early part of 2002 and it was all about if risks are well above target then we'd look at the science, we'd look at the calculations, we'd do XYZ, if it's well within target we'd just look at a limited amount of information. I'm just summarising very simply now but maybe you could have a look at that presentation.

Yeah, that definitely sounds interesting. Sorry, what time is it, I don't want to be taking too much of your time, ten to one. Okay that's the part that took the longest.

[End of Part 1 – 00:64:35]

Part 2

So I've set this up because when I did this with Simon I found it could be quite confusing for him to see the process as he was answering the questions. You can either just tear that off and fill in these here or you can just tell me verbally and I can fill it in afterwards, whichever you prefer.

Time line. Well obviously my own personal role, yes in Stage 1 – let's draw Phase 1 start. A constant process but there were a lot of key meetings with BNFL in the first part at a sort of management type level and the personal role there was very different to later on because in the early stages it was more about the process rather than the science. So yes, I put a few

lines there that represented management type dialogue, something like that. Does that make sense for you?

It makes sense.

Simon was involved in some of those. That's 1996/7, I think there was a key meeting in '98 and, to give you an example, in those early stages we were talking about the programme itself, the deliverables, the CNC issues, how the GRA applied to the site itself and our guidance wasn't specifically drawn up with an existing site in mind. So yeah, those sort of issues in that period. So I'll describe those as management type dialogue, it was a whole series of meetings and, yes, I was very involved in all of those. We had the Site Inspector along but I think very much driven by ourselves, the risk team. And then as part of that there were some scientific meetings but I was only there really as a facilitator if you like.

EA Rep but it's, yeah, it's the intelligent customer if you like. And then we had the Phase 2, a lot of work in actually setting up that Phase 2, revising the review plans and things like that and thinking about the process itself but it wasn't as clear cut as Phase 1, Phase 2. But in Phase 2, again, the key there were these specific – I can't even remember what we called them – Science meetings, if you like, key technical areas and that was when our contractors were getting on with the review and each Agency member of staff were involved and would attend those meetings with planner and consultants.

Phase 3, which was the review of the 2002 PCSC, again a lot of input initially in terms of the process management issues but then more the scientific outputs and there was no dialogue. We didn't have formal meetings with BNFL in Phase 3, we didn't discuss our findings with them. We made a conscious decision about that, because there were four submissions we had to understand them, we had to make judgements on what we were given and I felt that if we'd have done it in the same way that we'd had meetings to discuss our outputs in the earlier phases, it was important that we interpreted what we saw not what we heard subsequent in a meeting.

So if we'd misinterpreted something from a BNFL document then we misinterpreted it based on what they were presenting so we actually made a clause in the review plan itself for Phase

3 that we didn't have dialogue with the Operator on PCSC itself and on the review other than when if something was clearly totally misunderstandable and I don't think that really came – that didn't happen.

Especially after so much dialogue beforehand.

Yeah, and it was very much we get on with it, we report. So yeah sorry, that hadn't come out earlier, it was a big difference.

So a really big difference with the relationship between –

Yeah and also our contractors were tied into the fact that you don't have dialogue with BNFL or the contractors on what you're reviewing unless you go via the Agency's Manager and it didn't happen. I can't recall any instances where they felt they had to have dialogue, there might have been one or two. It was very much a go and get on with it and we interpret what we see.

Was that very much driven by the fact that maybe the Operator felt that like this was a done deal, that they were going to get the –

No it was driven by the fact that we decided we wouldn't have the dialogue.

And as far as them not wanting to get in contact?

No, they understood, they saw the review plan in the early stages when I discussed with them how we were going to carry out the review, it was very much saying to them I don't think we should have the dialogue as we have done before for this reason, if we've got something wrong we've got something wrong because the submission points us in that direction and it's as important to record that anyway. And they understood that and they were happy, just get on with it.

Cool.

Although the only dialogue I think we had were these like constantly saying to them justify CNC in these documents and peer review, have you had these peer reviews and can we have the outputs on peer review. They were the dialogues that went on in that period.

So yeah, we were sort of trundling along, trundling along until we got to end of Phase 1 overview support, overview of PCSC. That was absolutely key, a lot of work there for me because we as an Agency had to own that document and as a public document we had to be absolutely sure that what we were saying was right, what we were saying was not open to misinterpretation and often a case of looking at every sentence, sentence by sentence, and struggling with should it be and or but. Really to that level because you had to try and put yourself in somebody else's shoes and could that be taken in a way that we mean it. So there was a lot of work in taking contractor's reports and producing an Agency document.

At that time we had a new manager came in, Andy Baker, who hadn't been part of this process before and didn't understand why I was taking so much time in this overview until I brought him to a meeting with Goldstone Sciences when we were in the very last stages of producing this document and we actually sat around a table for a whole day and went through just only bits of it and I particularly remember one instance, and I can't remember the detail of it, but I remember saying hang on, let's go back to that sentence, look at what it's saying, are we happy with that and suddenly it hit home that you had to do it at that level of detail because it could be taken in different ways.

And I'm not saying we still got it right, there were still bits that the Press pick up on what they want to pick up on, 'the low level waste repository in Drig is going to be washed into the sea'. Well we never said that but you've got to be so careful about what you say and there were still bits of our text that were taken out of context and we did go through it time again with a fine toothcomb. So that's why I've highlighted that, there was a lot of work there making sure we were happy with what we were saying.

So you had to be really conscientious sort of thing?

Yeah, it was fine toothcomb work and it was I suppose hell because I'd been involved right the way through, there's not many projects where some of these people for ten years and I'd

really stuck with it and I'd fought to stick with it and I think that helped but, having said that, maybe somebody coming in might have picked up on these things a lot – maybe I was too close to the process, I don't know. But there you go, there was a lot of work there.

So were you involved in all of these marks that you've –

Yes, well actually the authorisation review, explanatory document and decision document, I had only minor roles. I was asked to comment on but by that stage there'd been – Ian and I worked together really closely anyway so by that stage there was no conflict or anything, Ian understands what we're getting at and it was, as I would say, a minor role just to make sure Ts were crossed and Is were dotted.

That makes sense.

But yeah, that's how it should be. Is that alright?

Yes. Maybe if you could make it because I've chosen four, I've said four, I've chosen four, would you – I suppose you've got four stages.

I've got four key stages yes.

Yes if we think of it – just choose those four key stages as four occasions that you were involved in relation to the next question, does that make sense?

Yeah.

You can write on here if you want and then I can show you. Shall I swap with you so that you can see this one, it might make it easier.

Where's my role? I was Manager throughout. Project phase, shall we say.

Was it pretty much the same?

No it was more or less the same throughout other than in the early stages, that was more managing the dialogue with BNFL. Do you want me to write that as recorded?

Yeah, as recorded.

Yeah, it was the same throughout. I would describe it as the intelligent client understanding what was coming through from the consultants, making sure that as a Regulator we understood the basis of those concerns so that when we were receiving reports and filing reports we were receiving them in the knowledge that we understand them, we can sign up to those. We didn't hand the whole task over to consultants and take the deliverables and then think about what it all meant, it was a constant process. And also facilitating it, what was happening because you can imagine there were a lot of people involved.

Goldstone Sciences had a manager in place, David Bennett, who is excellent, we get on very well and he was very much like me, process orientated, very much this is how we're going to do it and then we'll stick to it and make it happen. So we worked well together in terms of facilitating the whole thing. I was pulling together key threads in the Agency, for example, when we needed legal advice or policy advice. Other people might climate change people, I'd be responsible in the Agency bringing in key expertise when we needed it. But I would have said that went throughout.

So it was very much a mediator role?

Yeah other than, like I say, at the very beginning of Phase 1 it was – managing this dialogue with BNFL was different.

Yeah?

Yeah. So you caught that on the tape, see tape. Scientific knowledge received on each occasion. Well on each occasion we received the knowledge from BNFL and from our own consultants if that makes sense?

That makes sense and it was the same, it didn't vary throughout the process, the same people you were involved with.

The decision process. Yeah, the consultants – let's take BNFL out of it because we're not talking about their role are we, we're talking about the regulatory decision so, in terms of our Agency consultants, they were very much having to look at the guidance what as a Regulator we would be expected from the regulated and, therefore, commenting on the adequacy of the submissions to meet those requirements. So they did have a role in the decision making process right at the base level but then when it came to the actual final decision on the authorisation review they were very much by that stage out of it. Their role was in making comments on the key science that was part of the safety case based on a regulatory guidance.

So when you say that varied was it more – because we've got four phases here? What weighting would you put like there, their involvement at the beginning of the stage?

No because I think it was throughout because it was based on this issue assessment process, the issue resolution process. Here we had – that's relating to these management type dialogue, BNFL, but we did have the scientific meetings so our consultants were involved then and a few here in Phase 2. So I would say it was the same throughout because they were working at the scientific level and so, even here when it was Review PCSC, it was looking at the scientific documentation. So yeah, I would say it was throughout for the consultants.

[inaudible 20:06] the formality of the relationship? Which relationship are you talking about here?

Where it's like from the beginning of the process through to the end?

The relationship with whom though, with the Regulator?

Sorry, with BNFL and with your EA consultants?

With BNFL the formality increased hugely for reasons I said earlier. With the EA consultants it was the same throughout and I think that's reflected in the review plan which we set out the relationship there anyway.

It was very much because you're on the same team.

Level. Okay, how abundant was the qualitative data?

Did that change throughout the process?

Probably got more, yeah, it was a lot of stuff underpinning the review PCSC itself.

So maybe if we call this Stage 1, would that be relevant?

Certainly the quantitative data, we didn't have much at all in the early stages. We're talking about BNFL's documentation now aren't we?

Yeah.

So in 4 they weren't submitting anything. In the third occasion it was, yeah, so it would have gone from – like that.

How political was the scientific knowledge? That's an odd thing saying.

Sort of the implications of getting it right, I guess.

In the early stages, like I said earlier, they didn't want to put anything public because if it wasn't absolutely right they didn't want that going out so I think you'd probably have it as 4 there then going down to the latter stages. If by that question you mean the implications of getting it right.

Exactly yes.

No I've have to say that we have a requirement to look at the social impacts. Is that what you're getting at or something different?

Yeah how much social interaction did it require to obtain this scientific knowledge being that scientific knowledge can come in many different forms, reports. In other words, it can come in contractual reports, public kind of staff briefings, peer review literature, advisory comments.

It was very much an in-house thing.

So it didn't require a lot going out at all?

It's changing now with NYREX and the NDA work, they're very much engaging with stakeholders now but that's a different line, that's a deep repository. So you're talking there really about openness, transparency?

Yeah as in did you need to be that kind of person that would go out there and talk to people to actually get the information?

No.

That wasn't dependant?

It was very much based on information being available to us. I'm basing that scoring on how they put that information together and I think, yeah, we're talking minimal externally.

I'm not putting anything in this fourth occasion because it's different there, isn't it? Perhaps I need to think about that given that the fourth occasion is – here I'm thinking of BNFL's docs and here's EA.

Yeah for me this is good because the idea was just to try and think of yourself there and on each occasion I suppose you're receiving information and then I suppose you have to pass that on to your people internal or possibly the other way round as well.

There might have been some quantitative work in here and maybe a bit in there. It's hard to make the distinction here, if you look at 3 being neutral any information is never neutral so it's always going to be substantial. I've marked that down there, that one, 2123 because I'm trying to think how much quantitative information there was there.

But would it be easier with a bigger range to rank in? Say if I'd ask you to rank it between 1 and 6?

Possibly yeah but then whether or not I could have made that distinction, I don't know.

But with regards to the quantitative and qualitative, was one more influential than the other?

No because, in making decisions, part of our guidance is quantitative assessment is only one part of it, you take the whole lines of reasoning in making decisions so it's an equal bias really and, again, it comes back to what I was discussing earlier about using risk targets to guide your other work. It's almost saying a limit as such so you use the quantitative work to support your safety case but not to provide it.

So it's important but it's not more important just because –

It's equally important with the quality and I think you get that from looking at the guidance itself.

Definitely yeah.

How political was the scientific knowledge? So given that we went to public consultation on that fee documentation I should mark that as 4 shouldn't I? I'll tick the box as well.

Maybe it's easier to think of these as low, medium and high.

Mmm rather than don't know and substantial and neutral, yeah. It's pointing me towards marking 4 for all of them when I wouldn't say the scientific knowledge presented in here was as high as elsewhere. Let's do that.

We're nearly coming to the end now.

We produced progress reports which we passed onto our sort of RSL policy and wider but I would say perhaps I'd cross that out there and put it – it became more important in Phase 3. Let's put that in Phase 3 but, on a sort of ad hoc basis, anything that was coming out here needed others in the Agency to see and it went there but certainly on Phase 3 a lot of people were involved and, yes, here for sure.

In Phases 1 and 2 BNFL were having to respond to our comments in terms of thinking about how it would apply when they produced a safety case so they didn't have any formal role for us. They could choose to go away, provide us with the information, discuss the information with us and, if needs be, produce some sort of response as to what they were going to do given that they received comments on it.

When it came to outputs from Phase 3, the review of PCSC itself, they didn't have any role in the decision process once they'd received our comments other than in Stage 4, as part of the external consultation exercise BNFL, they would be invited to make guide comments as well along with everybody else. So that's BNFL for the four stages.

The Site Regulator I would just say became increasingly more involved in the role, it was more important as time went on that the Site Regulator understood the messages that were coming out from the review so in Phase 3, if we were ranking it on 1 to 6, his role understanding the issues was at 6 whereas in Phases 1 and 2 perhaps it was 2, 3 and, again, this came back to personalities because in Phase 3 personality very much wanted to be part of it and certainly in Phase 1 and maybe later.

I think the change there is exactly, yeah, the responsibility.

The role in the decision process with the Site Regulator? Well obviously his role was paramount here in Phase 4 because he was making the decisions then based on our outputs so he then came to a fore, if you like. I would say I was the EA person who was more responsible for decisions through Phases 1, 2 and 3 and the Site Regulator was below that and then at Phase 4 it changed round.

RSR policy and wider EA, at the end of the day on Phase 4 our radioactive substances regulation had to agree to be part of the process but I don't know how that happened but the explanatory documents, decision documents all went through the higher management, if you like, so they were involved with that in the latter stages.

But there was no direct communication with yourself?

Not with me, not between me and higher management, no no, it was the Site Inspector, it was then his job to take that forward.

So what I'm trying to get at here is was it varied, did it change? This is like where you actually received the information and was that different to the information you passed on or was it just the same?

In Stages 1 and 2 if we forget your classification of don't know on the terms of low to high…

Low, medium and high yeah.

I would put it low Phases 1 and 2 increasing in Phase 3 and then, moving from Phase 3 to 4 obviously it was very – that makes sense, doesn't it, increasing. On the social side, so this is the stakeholder external input if you like, that's high. Is that right?

Yeah if that's who you were passing the information on to?

No because we never were in those early stages so it would be marked as 0, I'd have to put it as 1.

But here was low, wasn't it, so that would be a 2 you said. Sorry, I know it's confusing but in retrospect I should put 0123.

Right, so I'll just put 0. You probably won't understand what I mean there because it wasn't applicable there.

So you weren't passing this information on?

I'm just trying to think Phases 1 and 2, we did make some things available, I mean, producing overview reports but in doing that we didn't have any dialogue externally, we just published documents that were what we deemed in a format the public would be interested in and would want to see.

But when you're telling me this, this is very much from an Agency point of view, is that what you're thinking, rather than you personally receiving the information and passing it on, is that correct?

Yes, yes, I'm not thinking personally here at all, it's the Agency.

And if you was to think personally is there particular people you would have passed this on to or is it not so specific? Is it quite hard to think of it in that terms?

There were key people that you could identify externally who I thought might be interested in seeing the output and so, yes, I'm sure I probably did have a distribution list of key individuals externally who might be interested.

Okay this is good.

Is that enough, do you want me to actually mark that?

No no this is enough. Well what's this, technical –

How technical was the scientific knowledge I passed on? Well when we passed things externally we tried to reduce the amount of technical detail in it. So there's two sides, there's the technical stuff that we passed back to BNFL which I would say was high but there were also – I'd like to describe it as sanitised versions. I'd hate that to be in a report but you know what I mean, you try to summarise in overview type reports and also the public use so in each of those have these two lines.

Where the low scale is very much going to the public, is that correct?

Yes.

And the high scale is very much internally?

Yes, it's going into Site Inspectors and BNFL, they needed the detail hence what I described to you earlier, ourselves, BNFL, we've got that tremendous amount of knowledge down here but what we try to do for the pubic is to produce overview type documents which point to whether information is available elsewhere but we didn't think the public would want to be bombarded with everything and certainly we've not had requests to see everything and we've certainly not had any occasion where we've said no we can't give you that information because it's seen as work in progress.

Yeah, it's just not requested.

It's not requested, most people got to the BNFL overview document, we don't want to see the tones that I could show you upstairs.

How costly was the scientific knowledge? Are you talking about in terms of passing it on or the effort that went into producing it, what do you mean?

No actually passing it on at that stage. Did that vary then, I suppose that would have varied a lot, wouldn't it, from the processing of it?

Not really no because it was a similar sort of process that we went through throughout, it was just in terms of the amount of information. So I think we had overviews for both those and we had review outputs. There was a load of cost involved there, as I mentioned to you, in going to Phase 2 and producing this overview report so perhaps there I would just mark Phase 4 as really high and the others as say 3.

So this next stage with regards to the flow of the scientific knowledge that passes through the decision process, and I've given personality traits here with a number of facets. What I'm going to ask you to do is to just choose one of these three that you've had and to either put a high or a low in association with that, if that makes sense. So if you think on the first occasion and then I'm going to ask you for the four occasions and then that's it.

Well most necessary, not necessarily how I was.

I took a long time to make sure, like you say, worrying about the ands and buts for this question because what I'm trying to get across is, it says there 'how necessary was it' so if it was, I don't know, if these things were important. Does that make sense?

Yeah. Well I would say certainly on the first occasion emotionally I was never calm, even tempered, optimistic, sensitive to embarrassment or stress free but it happened so it can't have been that important.

Do you think these things got in the way of the scientific knowledge actually passing through the process?

In the early stages yes, yes certainly. How should I mark that then?

So which one? So these hot blooded, sensitive to stress etc, would you say that these played a larger role?

Mmm as I said to you in the early stages it was a very antagonistic relationship. What you'd probably translate into what you've written there – and it did get in the way of real sort of scientific dialogue.

I think there's two ways of asking this question. I'm sorry that I sound a bit ambiguous when I ask you this, because there's two ways, I mean like you say, there's probably a high or low in a team of antagonists actually getting in the way of the flow of this scientific knowledge whereas these things I suppose were facilitated?

That was yes.

So I suppose if you choose the ones that were facilitated the most, if you say it's a high or a low. Actually if you group those as one and then put a high there because I think it would be a bit hard otherwise.

I think that's it, a mix of the two. I'm struggling with this agreeableness, I suppose ideally you'd be – dialogue you'd have, we'll put it that way round.

Maybe if I explain this to you because I had an email from the Psychologist because first of all I was going to ask you to rank each of these words and then realised it was just too much. So what usually happens you end up on a five point scale and tell me if this makes sense and if it doesn't. Like that, so because personality is bipolar so you either – with extroversion you could either be highly extrovert or you could be introvert or you could be somewhere in the middle so it's either a high or low on this scale. So in relation to that with this one on emotionality you've put a high, would you say it was here, would you still put like a high mark as in closest to this end? Does that make sense?

You're not talking about my personality as such but you're thinking about to get the task done…

Exactly.

…and that's what I'm struggling with is because I know where I'd sit on there but actually to get the task done where would you be. So it's very different and that's why I'm smiling a lot because let's take agreeableness, yes ideally you'd be trusting BNFL, you'd be frank, you'd be open, you'd be cooperative but actually what happened was we were very suspicious and guarded and not necessarily competitive because that didn't come into it.

I'll tell you what then if it's possible, maybe if you give me a score like if you think like this, one for how it actually was and one for how it should have been. Does that make sense or is that feasible?

So in terms of emotionality I would say 4 and ideal would have been let's say 2. I think on extroversion that worked out because I've marked the second lot low. I would have said actually yes, that's what happened and yes, that's what I think helped the process. And, again, similarly with openness. Actual 4, ideal 2 on agreeableness. For consciousness I would say that being planned, organised, sticking to rules if you had a plan was how it happened and was very much because of my own nature and the other manager, Dave Bennett the consultant, and that's how it happened and that worked and that helped it work so are we talking 5 there, aren't we?

To which end of the scale?

To this end so 5 yeah.

And then I was going to ask you for each of the occasions. Is it easier just to put like a value on there?

It was the same really so actual.

You can put above the line actual.

4 and 2 actual because it didn't change much. I should just actual and ideal, just put A there and I there.

Okay.

I might be totally biased though, is that allowed?

That's okay.

The third occasion we're talking about is the actual review of the PCSC itself. I was thinking that actually when it came to the review of the PCSC itself I think you perhaps want more of a balance so I'm tending to think that we're looking at a mix of the two but, having said that, I certainly wasn't on the imaginative, theoretical or liberal side of things. Again, I'd say I think it's a balance ideally.

In answering this question on the third period, I'm thinking about the information that I was given from my consultants. So I was quite trustful of them and it was frank, open and cooperative so here I'd say 4 but maybe again, if it had been somebody else and maybe if it had been an organisation that I hadn't worked with in Phases 1 and 2, I might have been less open and more challenging so I think that's perhaps useful.

No, I have often wondered in going through Phase 3 with the same consultants did we lose something because we didn't have a new face in there and that the relationship had become very cosy and yes that question gets to that, doesn't it? As I say, by that stage I was very trusting of what was being told me and maybe not as challenging had it been a new –

A new environment yeah. So you'd already built up that relationship?

Yeah. Fourth occasion. You see, now we're talking about when I was passing that information into who were advising authorisation whereas actual was right down here. That was fine, that worked fine.

I'm struggling with this extroversion one because does it actually mean in terms of forceful, getting your message across or just sitting back and letting things happen? I'm feeling in my term's extroversion is a personality trait that's saying yeah you're at the front making things happen.

Willing to talk?

Yeah which perhaps, okay, maybe it is reflected in the words you've got there. So perhaps I'll put 4 but what's interesting to me is that I think I'm finding these coming together in the latter stages where earlier on they were wide apart so perhaps it because the relationships have developed over the years not only with the consultants but with the Site Inspector.

Because it's a long period we're talking about there, isn't it?

Mmm, that's why question five, I'm trying to think hard about what I'm marking here, I'm not just throwing marks down and I'm trying not to make it up but in doing it I think I'm justifying it by saying I think it was because the relationships had developed so there wasn't a conflict, it sort of brought people on board and both, I mean, dialogue's both ways isn't it?

Yeah definitely. Very good.

I think so, is there more?

Sorry.

How many more have we got?

Those are the last few questions there but you don't have to answer these if we run out of time. I was thinking more of like your role, as your role went along did you have all of these options? I suppose you wouldn't have, would you, you wouldn't have had the option not to take any action as far as direct threat and sanction?

For retrieving scientific knowledge?

These aren't relevant as far as putting a score next to it, you could just put a tick next to the box if you see that it would have changed over the Phases.

I'm struggling.

Like when you're actually talking to the Operator and asking him to –

To actually deliver.

Yeah deliver that.

Phase 1 and 2 was all about persuasion so that would be high, that would be 4, and Phase 3, it was a requirement. In Phase 4 we weren't getting information from them.

So that's not relevant.

I'm really struggling with these.

Not to worry. I was thinking more like – because these are words taken out from papers Simon wrote himself or one of the papers he wrote, did you like the actions or policy tools that are available to Regulators, you know, that you'd hope to be able to take no action at all but as the risk increases you might have to move towards being – to prosecute.

So I was thinking during that process obviously the prosecution part won't be relevant all the way through but I was thinking maybe one or two of these were relevant specifically to your role in that process but if it's too abstract don't worry. If any of them seen relevant you can just put a tick next to thing. I mean, I think this is asking too much maybe.

Again, passing on scientific knowledge because in Phase 1 and Phase 2 it was passing on back to BNFL so it was more guiding and influencing there and a bit persuading. In Phase 4 it's around [inaudible 67:57] and directing. In Phase 4 you're in that sort of realm. In Phases 1 and 2 maybe you're in the realms of informing, advising. You are actually in Phase 3 as well, maybe educating in Phase 1 and 2 as well because there was an element of understanding in what our guidance meant.

So you had to take on that educated role sort of thing?

Yeah and it was less of that, if you like, so in Phase 3 we're moving into this sort of phase if you like. That makes sense, I think, to me yeah. I should go back and redo that but that makes sense to me there.

This is an easy one. You see what I'm thinking here, when I went along to the conferences and I talked to people about the position of looking into the process of scientific knowledge, how much a role its playing because of more of a risk based approach and people often use this risk dependant as an example, they say I believe that we're moving away or towards a very much more risk aversal accepting society and in years to come they had an opinion on where they believed it was going to be.

I don't know, I don't think I can answer that question.

Yeah it is very much your opinion really, where you think we are today.

I don't think it has changed in terms of radioactive waste disposal.

Has it not, no?

I mean, are we thinking now in terms of [inaudible 70:53]?

Yeah definitely.

I don't think it will change and I think it's right that it doesn't.

So where would you place that, where we are, very much risk?

Risk averse, so looking at conservative I'd say –

High end.

I would say.

And the same in the foreseeable future?

Maybe if we can increase the understanding of rad waste disposal maybe it would change. At the moment I think there's still this – I compare it to the chemical, let's say hazardous waste disposal, compare that to rad waste disposal. People are quite accepting in a way and have been in the past. Let's take disposal of mercury, disposal of batteries in household waste, in the past nobody really worried about it but it's as difficult to accept as radioactive waste in some respects. An industry meeting in the eighties saying you guys in the chemical industry, your stuff stays around and causes a problem forever, at least some micro waste degenerates, disintegrates.

So where was I going with that? I think things are moving in things like the hazardous waste in the chemical industry, people are becoming more aware of the risks and, therefore, less likely to be accepting of the risks. In rad waste industry or radioactive waste, in the nuclear industry itself there's always there's knee jerk reaction to it, you mention anything nuclear, ooh scared don't want to know, and so it's always been seen as a risk and not really understood and whether or not we can change that in the future I don't know but I certainly don't think we've changed it in the last ten, twenty years. There is still this public perception that radioactivity is scary, the scariest of scare, more so than chemical industry.

Yeah despite what we know about it.

Despite what we know. Just because of the nature of it and perhaps because of the previous secrecy in the nuclear industry.

No definitely yeah.

I don't know, does that answer your question? List the ways in which the use of scientific knowledge has changed?

Yeah I suppose in this case the scientific knowledge is informing, like you said, gaining a better understanding of the actual risk. I suppose in many other cases, like you say, most cases with batteries and chemicals we're understanding more about that there is a risk isn't there so maybe we're going more towards a risk aversal approach where I suppose the nuclear industry is a bit unique like that, isn't it?

Yes.

Well I think you answered that question.

I hope so.

I suppose this is what you were referring to with the –

Yes.

Correct me if I'm wrong but with the regulatory frameworks, I guess with a lot of frameworks, they're just playing catch up compared to the nuclear industry, I suppose you've always had to have that evidence base?

Yeah certainly we've said – I think when Simon was there the chemical industry – I think there will come a need for some more stringent regulations will be there. I mean take hazardous landfills, I don't know what happens now but they used to work on a liner durable for thirty years and can you count on that, can you design a liner that will last for thirty years and is that good enough.

So we've often said it's coming, it's coming to the other industries and, in fact, BNFL in the early stages of this project said how come you're asking us to do all this, why isn't the same being done to other industries and our response was it will come but, like you say, they're playing catch up.

So is that answering those questions?

Yes I think so.

Is that enough?

It is, thank you so much for your time and sorry, I think we've overrun haven't we?

Do you want to have a quick look at this day to day stuff?

It's entirely up to you if you have time. There's a personality questionnaire for you to fill out but I can always send that to you by email if you want.

Yeah if you're happy with that. I've filled in a lot of these in the past on management courses. I usually came out as an extrovert, maybe that's changed.

No I'm sure it's still the same.

I'm sure you change in time. I think it would be useful to have a look at the documentation.

Okay brilliant.

[interference whilst moving from one room to another]

This is the issues database I was telling you about. So we've got in here the reviews on the Drig PCSC Development Programme Phases 1 and 2 and this is Phase 3, April 2002, and that's for the authorisation. If we look at the Development Programme there we've got the issue resolution forms, position papers. These are the individual lines if you like, reports that were delivered to us and we've commented on. So individual pieces of lines, if you like, scientific lines, geological interpretation, site characterisation.

So we created a report based on each of these. This is Phase 1 overview so that was a public document, all these weren't. These are the issue forms. Phase 2 overview, this was this status report where I said to you we were asking for a draft safety case, this is what they came up with, the status report on the development of the safety case and we commented on that.

So that's what happened, we produced – we'll call them position papers, I've forgotten the name. So those are all the text of the position papers are all in this database, you click and jump to links etc.

These position papers and associated issue forms, we'll not look at those, we'll look at how they're fed into meetings. As I mentioned to you, in Phase 1 it was very much management type dialogue so hence they were titled programme for the PCSC so it was how we were actually going about and then we got into the real scientific type dialogue. So up until then it was very much management type.

As I've tried to describe to you, those are more process meetings and then we progressed onto the scientific meetings, whenever we could use the position paper that then prompted a technical meeting. There's a whole load of those there.

Which led to more research?

Which led then to – well they didn't respond to any of those position papers as such, it was then Phase 2. Sometimes a piece of work was taken into Phase 2 to develop further hence you see there's A Series issue forms and B Series issue forms and the B Series were aware they'd taken things a next stage further so you were commenting on a second range, if you like. So this is typical.

Issue form, treatment of uncertainty. So actually simple format title, is there another issue form that's effectively associated to it? Issue description, there's a GRA cross reference here so it links you to sections of the GRA which provides the basis for this heavily thumbed book. So that's saying go to Section 7.6. We're talking about site characterisation so the primary reference is to that paragraph there but also to paragraphs 8.15, 8.19. So that's the basis of your issue, is that making sense?

That makes sense.

Our interpretation of BNFL's position, so our understanding from what they provided in their documentation and then our evaluation of it and why and then what we'd actually expect

BNFL to do to address the issue but there it's an expectation not a requirement because it wasn't a safety case, it was development work.

At this point here the form will go to BNFL. Another thing, hold meeting, review meetings, and then produce a response and that's BNFL's response.

Like an audit trail.

And then we assess the adequacy of their response. Throughout these processes sign up so Jimmy Irvine, who was my second in between the position that Simon would have been in, I can't remember who was the immediate Manager then, but Jimmy Irvine was head of the risk section and there's the Site Inspector.

So he was having to look at these to sign them off. Sometimes he moved data on, sometimes just a cursory glance and that's approval by, that's BNFL. Annette was the Manager of the project at BNFL and Paul Groom, who was the equivalent of me.

So that's your QA process there. Things were changing here, Llewellyn left in '97/98 and then Simon came in when Jimmy was still the immediate boss of the section. And our assessment and their response.

Criteria resolved? No it wasn't and that points you to where [inaudible 88:02] so these are these B forms you can then click forward onto 1B and 37B.

Sorry, I don't want to take up loads of your time but that's the database.

Okay and you put all this together, is that correct?

Goldstones, it was part of the contract to document issues. Review Plans and Guidance Note, that just points you to the review plans that we produced. I think I've given you some of those, 44 I've given you which is the review plan, Phase 3. There's Phase 1 and 2 so guidance note 1 and 27.

There was this separate bit, the status report. This was, as I say, the document that we requested from BNFL expecting an interim draft safety case and what they produced as their status report. On the development of the safety case, that's it. Okay that's their report. Oh yes, our review of it was elsewhere and there it is, the review status report.

And this database is held within the EA?

Yes there are public versions of it for anybody who wanted it but they wouldn't have – I'm not sure what, that's the pubic version. I can't remember what's in that, I'd have to check through, I suspect a lot of Phase 1 and Phase 2 stuff. That was all the work in progress stuff.

Because we're talking about this side of it now, that's where we were looking at the new submissions. These are all the review groups, review group report, core group report, other activities, that's where all the safety cases are. So each one of those groups has a member of Goldstone Sciences, at least one member of Goldstone Sciences, a member of the Environment Agency and technical experts, i.e. within Goldstones or contractually with Goldstones. Sometimes it's quite small, sometimes it's large.

So those are the reports and associated with those reports are the issue assessment forms. I'm thinking of one in particular and I can't think of it quickly. Let's have a look at one of the scientific ones. The slightly different structure to these is that they were called issue assessment forms because they were based on the review safety case. What does our guidance ask them to do, the relevant paragraphs there. Assessment criteria, there's your requirement 6 setting out the basis of your criteria.

We defined the assessment criteria based on the guidance of the requirements which pointed you towards the actual requirements themselves and like in the previous case interpretation from the documentation of BNFL's position in that with their references. So this was not only the information in these that was reviewed but information underpinning that and, as you can imagine, that's your top suite but below that you've got hundreds more documents.

But these refer to them like you were saying?

Yeah so there there's a whole suite of documents that we looked at and we'd certainly look at every piece of underpinning information, it was on a sort of risk base analysis if you like, what do we think are the key areas where we'll drill down to look for the evidence.

And you talk about the legal standing, the Environment Agency's legal standing. Simon mentioned something about the fact that your approach towards the review of the authorisation and it's not so much to try to see fault but actually to try to pass.

Yeah absolutely because, if you can imagine, this site's been operational since the 1950s and we or predecessor organisations have licensed it in the past so, yeah, ideally you don't want to find fault at all but you want to make sure that your decisions continue to be firmly based and things move on, science moves on, understanding moves on, disposal practices move so, in terms of at the moment they're talking about constructing a new vault 9 up there, you would look to be optimising that vault 9 now given the new practices using new materials so we'd be looking now to ensure that the decisions that we make now on that new vault design are based on up to date technology and information. Because what you can't do and what the guidance quite clearly says is in revisiting anything that has been authorised in the past it's very difficult to change that, it becomes an intervention process.

So actually yeah, we authorised disposals, for example, to the trenches at Drig in the past which are the ones that are causing problems now. Now there is an argument and I don't think we've resolved it but those disposals were authorised to the trenches so, therefore, if we ask BNFL to do anything about them would it be our responsibility to pay for remediation but there is a clause in our guidance here that says disposals are not considered complete until you walk away from the site.

Yes, of course.

I can't remember the actual terms but it's in there. So it is about dialogue. You wouldn't say we're sticking to our guns and that's the way it is and full stop but there is that negotiation of saying things have moved on, because we've approved that process in the past doesn't mean we'll approve it now particularly if you're building a new vault, don't just design vault 9 on vault 8 because we approved that, things have moved on.

It makes sense and I suppose there's only so much you can do as well once they've got planning permission to go forward?

Yeah once you've actually got your design there's not much you can do in terms of optimisation and everything, looking at stacking and backfilling, but what you can do is optimise your understanding and that was something that was hard to get across, optimisation, it wasn't just about design, it's about improving your understanding.

I suppose it's those small qualitative things that get lost on the way, isn't it? It's the same as when I talk to my computer guys and we talk about regulation, they want to see it very much as though the Regulator is trying to put the Operator out of business almost, it's almost like there's a bargaining process there. Yes I'm sure, like you've explained to me, there's a bargaining but it's much more soft skills almost.

Yes because at the end of the day we need the disposal site, this is the only one in the country and you could actually take the whole feet out of the nuclear industry by stopping the Drig site. What we have done through the revised authorisation is to say look we have concerns about it, deliver these things, we'll have a look at them and in the meantime we won't authorise disposal to any new vaults, we will authorise storage to new vaults until such time as we're happy with XYZ. So that's a subtlety that came into the decision document and you might pick up on that.

Yeah I noticed that and it's a very clever way, isn't it, of maintaining control?

It's allowing things to carry on but with a view to thinking well actually not everything's perhaps as it ought to be because that affects loyalty. That Schedule 9 is a key document.

I guess that's a very tricky job then, a balancing act of maintaining transparency, clarity but at the same time not losing that kind of control and if you only look on the main things and rubber stamp them you miss that.

And that's the difficulty of taking things out of context as well. It would have been very easy for a pressure group to get hold of this and say this is a crap site and why are we pushing

to authorise it but a lot of thought had to be put into the basis of future organisation and it will be interesting the next time round to see how they resolved that. If it's resolved all very well but if they haven't then what are our decisions going to be then.

But that's a typical issue assessment form.

Okay.

When you look at these criteria so you take them forward to new forms, partly met resolutions [inaudible 101:46] failing the review plan and criteria met. Failed are perhaps the worst because it's saying we're concerned. Observations, reservations, we can handle those, we can do something with those if they're not issues but failed might be the ones. And that's where we're looking for recommendations and how they might take them forward both for the Agency and BNFL so reactions from ourselves and BNFL.

So it's a huge resource, all the review reports, meeting minutes of the core groups. As I say, we didn't have meetings with BNFL then. We've got two overview reports here, we've got the overview report from Goldstones which is this one, a very very detailed report, and that's got everything. That was a huge tone that I think we had to look at in great detail to produce this document which is the one that you've seen on the web.

So that's the database as it stands. We've tried to keep it going, I'm not sure whether we have. It's not great at the moment, it's a bit cumbersome, I'm sure there are better ways of creating information on the database now but it was what was available now, it's on folio essentially. It's not easy, it's not intuitive but it's what was available ten years ago.

Exactly and it's important stuff isn't it, it's the only records you really have?

Yeah it records things going back to the earliest PC documentation. So the final output was in 2005 so, yeah, there's one piece of documentation that I don't think it had and there was a set of meeting minutes just before that one which was the very first dialogue and it didn't get onto the database because it was only ever handwritten meeting minutes.

The reason Phases 1 and 2 came into being, as I said, because they were going to produce draft first issue documents to us on all these scientific areas and then we'd comment on them. Here we are, second issue peer review comments from HMIP. Look we're not clear on years, it still got into the minutes. The idea was then these would be updated into Phase 2 type documents and that's why historically it became Phase 1 and Phase 2 and then Phase 3 final and safety case for submission but in actual fact Phases 1 and 2 sort of happened like that but things did change. You see there, commercial and confidence issues, that discussion right back in '96 was never resolved.

So it really is an ongoing process then that's changing all the time. For the next stage I suppose you won't be doing the same processes in the same way?

No I think it should be on more formal footing now because, as you see from the decision document, you've got the requirement there to produce a new safety case in 2011. There is stuff that's coming to us now that will eventually feed into that and we're gearing ourselves up to commenting on that but I don't know whether this stuff will follow the same process.

That's the current Site Inspector. So I hope that has been helpful.

Definitely.

Anything else?

No it's fine.

Anything else I mentioned? The GRA, have you seen that?

No.

Because there's the revision as well, the consultation. There we go, so that's the [inaudible 107:48] and that's the near surface one. [inaudible 107:53] taking that to the next stage but I'd be surprised if they didn't send you a copy of that.

I got the decision document.

Because that is how it was then so it might be useful for you to have that, it does set out the regulatory process and the policies, so 919, links, glossary. Yeah it explains the regulatory framework and the Radioactive Substances Act. So that's how it was then so that's the basis of that whole project then, this revision is for the next round. So I think if I make a note to send you that.

That would be really good.

But yeah, the revisions are there.

Okay, thank you very much

End of Part 2 – 02:02:16]

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