STATES OF JERSEY

SCRUTINY COMMITTEE

BLAMPIED ROOM, STATES BUILDING

WASTE MANAGEMENT STRATEGY

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Present: **Deputy Phil Rondel (Review Chairman)**
Senator Ted Vibert
Senator Jean Le Maistre
Deputy Rob Duhamel
Deputy Bob Hill
Deputy Gerard Baudains

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QUESTIONS AND ANSWER SESSION FOLLOWING PRESENTATION BY M
IVAN RICHARDSON AND
MR JOHN BROOKS (VERNO LIMITED)

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on

Monday, 7th February 2005

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DEPUTY RONDEL: If you are ready, gentlemen.

MR RICHARDSON: Thank you, good morning.

DEPUTY RONDEL: Firstly, could I welcome you to this Panel hearing, and could you give your names and also the company you represent, so that it can be picked up on the tape. The proceedings are taped, but the actual question time is all that will be transcribed when the time comes. Further to that, I must read you the following, which is my statutory duty. It is important that you fully understand the conditions under which you are appearing at this hearing. You will find a printed copy of the statement that I am about to read to you on the table in front of you.

Shadow Scrutiny Panels have been established by the States to create opportunities for training States Members and Officers in developing new skills in advance of the proposed changes of government. During this shadow period, the Panel has no statutory powers and the proceedings at public hearings are not covered by Parliamentary privilege. This means that anybody participating, whether a Panel Member or a person giving evidence, is not protected from being sued or prosecuted for anything said during hearings. The Panel would like you to bear this in mind when answering questions and to ensure that you understand that you are fully responsible for any comments that you make.

Could you give us your name and your company, please?

MR RICHARDSON: Thank you. We're Verno Limited. My name is Ivan Richardson, and this is John Brooks, my colleague in the company. We thank you for inviting us here today to discuss the technologies that we support. What we would like to say is that our web address is on the screen, and if you would like to make a note of that you can go to that website to see more about what we do, but also to download the printout of this presentation if you would require it. We didn't print out vast copies of paper. We often find that it gets left behind in any case, so if you need it, you can print it off. I know it has been a long morning for you, so we have decided to keep this fairly short and economical. We would also like to admit to the fact that we are not very well practised at this sort of thing. We are a new company.

Mr Richardson gave the presentation on behalf of Verno Limited

DEPUTY RONDEL: Thank you very much indeed. In your opening gambit, you mentioned

asbestos waste. Any by-product from asbestos waste, how is that actually dealt with, please?

MR RICHARDSON: It goes into the … depending on how the asbestos waste is delivered, whether it's dust or broken material, it's first pre-treated and then delivered into the system, either into the first chamber or the second chamber. The first chamber is a melt chamber and effectively, because of the high temperatures -- and in the case of asbestos that would be above 1500 degrees Celsius -- it converts the material from asbestos to other by-products. It effectively neutralises and treats it, converts it to a benign material.

DEPUTY RONDEL: Now, odours from the plant, the materials arriving, how is that controlled, please?

MR RICHARDSON: Sorry, say again?

DEPUTY RONDEL: Odours.

MR RICHARDSON: Odours. Well, odours from the waste material arriving at the plant would be treated within the closed environment in much the same way as Compact Power described, by recirculating the air. But, within the system itself, the gasification system, all odours are eliminated, again by virtue of the high temperature.

DEPUTY RONDEL: Thank you. Senator Vibert?

SENATOR VIBERT: I wonder if I could deal with the in-vessel composting section first and then move on to second section of the presentation. It would appear that we would have in Jersey, if we were to take all household putrescibles and our green waste component that we currently have, which is quite high -- I am sure you have seen the figures -- mainly because of the pride that people have in their gardens and a system we have here of branchaging, where the parishes actually … the public have to cut their hedges and all the rest of it. So we do get a very high amount of green waste. Looking at the figures, if you took all that together, we would be looking at possibly about 40,000 tonnes of available material to go into an in-vessel composting section. How many vessels would that require to handle, say, 40,000 tonnes and could you give us an indication of what the cost of that would be?

MR RICHARDSON: Okay, sure. In fact, is it possible to find that screen image?

MR BROOKS: Yes, we can go back.

MR RICHARDSON: The image that we have shown actually describes a 40,000 tonne a year plant.

SENATOR VIBERT: Is that the one in Cambridge?

MR RICHARDSON: That is the Cambridge plant. So that treats 40,000 tonnes of biodegradable waste, mostly green waste, for Cambridge County Council. This is one bank of clamps, as we call them, and in fact that is duplicated on the other side. So you would need eight clamps operating 5½ days a week. In fact, they don't even operate 365 days a year, so the normal working week or working year would treat your 40,000 tonnes of putrescible and green waste.

SENATOR VIBERT: And what would the cost of an eight clamp system be? I mean ball park figures. That is all you can give us.

MR RICHARDSON: Certainly.

MR BROOKS: It depends if you are including … if you start from a totally new system.

DEPUTY RONDEL: Can you speak into the microphone, please?

MR BROOKS: If you start from a totally fresh piece of ground and you require all the way from the cement base and ----

SENATOR VIBERT: Yes, assume that that is what we would be doing.

MR BROOKS: Including the front loader and everything, it's about 900,000 or a million for a 40,000 tonne a year system. That is the shed, the pre-sorting shed, the shredders, a trummel to grade the compost at the end.

SENATOR VIBERT: So, are you telling the Panel that, for a million pounds ball park figure, Jersey could actually deal with 40,000 tonnes of its waste?

MR BROOKS: That's not the operational cost. That is the set-up capital cost.

SENATOR VIBERT: That's the capital cost.

MR RICHARDSON: There would of course be some feasibility and a bit of consultancy on top of that.

SENATOR VIBERT: Sure.

MR RICHARDSON: And we would recommend, as part of the package, we would also apply a

marketing campaign and effective educational campaign within the community, so there would be other add-on costs, but for significantly less than you are being quoted currently for the composting systems or for a solution to nearly 50% of your waste stream we are talking of figures well below £2 million.

SENATOR VIBERT: Right, and would that include an element of training; and how long does it take to train operatives?

MR RICHARDSON: Certainly, it does include training. The training would take place in Cambridgeshire and here in Jersey. To train up a team to run that 40,000 tonne a year facility would probably take us around six weeks and then a further eight weeks on site getting the system up and running and operating. Then there would be a continual report back and involvement in that facility for as long as necessary, but certainly within the year.

SENATOR VIBERT: Can you give us an indication of how many people there are employed at Cambridge running the Cambridge plant?

MR RICHARDSON: At Cambridge there are six people operating this plant.

MR BROOKS: They can do it with three basically, which is how it is specified, but they have found to run the whole system, including washing down the wheels of the vehicles -- I mean, everything from start to finish -- it's about five or six.

SENATOR VIBERT: Can I move on to the plasma technology, if I may? From some of the stuff that I have read, it would appear that in fact the system is operating in Canada and in Montreal.

MR RICHARDSON: Yes, it is. In fact, the company that supplies the technology and has done all the research over 12 years now, but particularly over the last seven years with the United States' Navy, have two facilities operating in Montreal. There is a further facility in the north of Canada that treats wood ash from a wood burning power generation plant and there are on-board systems on a Navy ship and a cruise liner, the *Fantasy* cruise liner, which is part of the Carnival Cruiseline fleet. That has been operating for some 18/19 months now without incident very effectively.

SENATOR VIBERT: So I take it basically this is being pushed forward by the Canadians. Are the Canadian Government involved?

MR RICHARDSON: The Canadian Government have in fact supported and funded the research and development of the technology. They also provide guarantees, but they are also in the process of preparing to, or in fact looking for a joint venture partner to install a larger facility and are making some CAN$16 million available as a partnership project to set up a large facility somewhere outside of Canada in order to promote the technology.

SENATOR VIBERT: So if we were to look at that system for, say, a 40,000 tonne facility here, would it be possible that the Canadian Government might be prepared to kick in some funds to produce a reference plant here on the Island?

MR RICHARDSON: They certainly would. 40,000 tonnes would take us above the figures they are talking. They are talking about a 25 tonne a day facility, but certainly the discussions are underway with the company and the Canadian Government to fund the development of a fixed facility for demonstration purposes.

SENATOR VIBERT: Thank you.

DEPUTY RONDEL: Deputy Duhamel?

DEPUTY DUHAMEL: Thank you. Again, within your brochure you indicate that you have got 160 active commercial scale gasification plants and 417 gas plants. Given those numbers and from what you've told us, why, given that there seem to be huge advantages in, for example, not having unusable residues from your processes, why has this process not been more widely adopted so far?

MR RICHARDSON: I think there is a historical element, in that it has taken some time and there have been some misdirections in the development of the technology. There are companies currently developing and selling plasma gasification technologies that take a different approach to the Canadian company. One of the reasons why we're working with the Canadian company is that we recognise that their approach to pre-treatment, in the way that they feed the waste into the gasification system, was much, much more successful, more economic on the one hand, in terms of the energy used, and cleaner in terms of what comes out the other end.

There have been a number of wrong turns, in terms of the companies in the United States that have been developing the technology. Without going into the details of the difference

between the two, I think that has inhibited development. But, having said that, it has been very, very aggressively taken up in Japan. There are significant numbers of plants in Japan operating now and many planned. I think it is fair to say there are probably more large scale plasma gasification facilities in Japan than anywhere else. I have recently read research material that is suggesting that Malaya are also taking up this technology very aggressively and we know that Singapore are looking seriously at it as the next stage beyond major mass burn incineration which they have decided to move away from over the next 20 years.

Historically it has been a very expensive process to run because electricity is expensive. In freer markets, and in particular in the UK and Europe now, electricity costs have been driven down and so the play-off, the economics of it, have changed in the last five years. So that is what is driving it down into the marketplace. Before that, relative to mass burn incineration and wholesale landfill, it has been an expensive option. But, with legislation driving prices up in the landfill market and the electricity prices coming down, the opportunity is opening up for this type of technology and other gasification technologies.

MR BROOKS: But also it is fair to say that, up till now, if somebody had gone out, if a government had gone out, looking for a technology to deal with their waste, they would have looked at a one-stop shop -- landfills or incinerators, 100 tonne enormous systems -- and this gasification system doesn't work effectively against a large incinerator. It only works well within a proper waste hierarchy and so now that it is becoming more … the direction is more mainstream in finding alternative technologies, such as composting (if you consider that an alternative technology), plasma is starting to fit in better and its uptake now within the last five years has enormously accelerated compared with the drop off in incinerator sales, as an example. So why it hasn't been up till now is because it's not a one-stop shop. You don't go out and buy a piece of plasma equipment and put everything in it. It just isn't economically viable to do that, but it is becoming more so now.

DEPUTY DUHAMEL: Okay.

DEPUTY RONDEL: Right. Could I ask you about the odours from your in-vessel composting. You were mentioning you open the roof of the units. What odours were omitted, given ours are

currently being done on the edge of town here and it is Windrow?

MR BROOKS: There is a very short period of odours being released, but, unlike Windrow's, it is just for an hour or so whilst the barriers are being unloaded. For some reason or another, the odours from in-vessel composting don't seem to be as bad as just a standard Windrow. I think if people come and smell the systems as they are being unloaded, even with prevailing winds and in hot conditions in August when we were standing next to one, they are not that bad at all, and that is standing right next to a barrier. I don't really know why, and we can find out why, but the type or the way that the pathogens are killed and the timed temperature of the first barrier once it is loaded, by the time it is being unloaded into the second barrier, the smell just doesn't seem to pervade. I think it is the way that, in Windrows, the compost cools down on the outside and has a graduate heat towards the inside and there is a heat level that causes most of the smell for some reason. So, when you turn it, you are revealing all that in the Windrow system. You only unload a barrier once a week though, so there is a few hours per week that the smell is produced and it's not that bad.

MR RICHARDSON: And odours arise while it's going through the composting process, so that is actually while it's in the clamp with the roof closed over it and the pumps recirculate the heat and the air and the moisture within the system so it's all contained and closed. The only real odour problem after the event is when it's on the maturation pads and it has been described as "a bit like a good cigar", or a bad cigar -- it depends on how you look at it.

MR BROOKS: By the time it gets to maturation it has done most of its pathogen kill and it's the pathogens that cause the smells. Inside the in-vessel system, due to the air being drawn from above the composter and put back in for all sorts of reasons, it acts as its own natural biofilter by the very nature and the second barrier, if there is a real smell problem, it has been suggested -- and this hasn't been done yet -- that there could be a third barrier, so the maturation effectively is done in a third barrier as opposed to a Windrow system. But, by the time it gets to Windrows, at maturation on the third stage, most of the pathogen kill has taken place and that is what is causing the smell.

DEPUTY RONDEL: Senator Vibert?

SENATOR VIBERT: We also have a problem in Jersey of agricultural waste, i.e., particularly potatoes and of course tomato and what do they call it?

SENATOR LE MAISTRE: Corms.

SENATOR VIBERT: Corms when they have finished all the plants and they are laying on the ground. I take it that that doesn't present a problem?

MR RICHARDSON: It doesn't ultimately present a problem. Where there is a lot of moisture, and that is the case with potatoes and tomatoes, they do need to be treated in a slightly different way and managed into the system. Ultimately it can be done. In fact, a test is being undertaken in Cambridgeshire right now on potato waste, in fact for the very reason that we thought that might be something that would be useful to know about. It is a matter of mixing that waste in the right way before it goes into the clamp with other wastes, and in this respect we also can use paper and cardboard, because that is an organic material. So when it is segregated in the waste stream and you have got paper and cardboard waste that perhaps it is not economic to shift off the Island, it is very possible that that very cardboard and paper waste or material can be used jointly with potato and tomato by-products and leftovers within the clamp.

MR BROOKS: Also the Cambridge system is part of the sales process effectively for the composting system. So they are quite happy to do, when they have spare barriers, which happens at quite a bit of the year -- it's mainly the middle of the summer that causes all the barriers to be in full use -- they are quite happy to do test runs on different products, which is a perfect way of seeing how … you know, if it is potatoes, then maybe it will be mixed with hedge clippings and we will find the percentages that work well and do a couple of test runs before the systems are implemented.

SENATOR VIBERT: Finally, has the Department taken any interest in your technology? Have you had any requests from them to discuss with them?

MR BROOKS: Yes. We are meeting with representatives this evening, or later on after the second session, with the composting. That seems to have caused some interest. The plasma hasn't caused any interest yet.

SENATOR VIBERT: So you haven't actually met them yet?

MR BROOKS: No, we haven't.

MR RICHARDSON: We haven't.

SENATOR VIBERT: Can I just ask whether it was as a result of you contacting them and almost asking "Look, we have the technology. We really do think you need to find out about it"?

MR RICHARDSON: We've been more pushy than we've ever been in our lives.

MR BROOKS: I think "harassment" probably would be the word.

DEPUTY RONDEL: Deputy Hill?

DEPUTY HILL: Yes. I've got to go almost back to basics, but Deputy Duhamel and I some years ago - -about 10 or 11 years ago -- we were looking into the satellite Windrow system, setting it up around the Island. You will probably remember, Senator Le Maistre. But I am a little bit confused here. I can understand where you are going to put your waste product, your veg etc, but are you telling me that the dustmen would come along and they would tip everything out from there or how does the process work, because ----

MR BROOKS: There is a sorting shed.

DEPUTY HILL: Because some stuff won't rot away, will it? Tins and that won't go, although I can understand paper.

SENATOR LE MAISTRE: No, no, this is green waste and ----

DEPUTY RONDEL: Could you please let Verno answer the question, Senator?

SENATOR LE MAISTRE: Yes.

MR BROOKS: The composting system is part of an integrated waste management system, so that if biodegradable waste is collected from the -- I can't remember what you called it, the cutting of the hedges ----

DEPUTY HILL: The branchage.

MR BROOKS: Yes, and the ----

DEPUTY HILL: That is only a couple of times a year.

MR BROOKS: That wouldn't then be added into the waste stream. It would be diverted to the composting facility along with composting bins that have to be put around the communities and so on. It is the same as a proper waste structure. To allow that to be source segregated is the

best method and there is a sorting shed. As the biodegradable waste arrives at the composting facility, anything that snuck into the process gets taken out, but it's not … or if there is a MRF that is sorting waste, then anything that is diverted to the biodegradable, to the composting, will go. It is a number of different streams that will end up in a sorting shed and, in the sorting shed, it gets mixed correctly for the barriers.

MR RICHARDSON: And shredded and then placed into the barrier.

DEPUTY HILL: And you are saying that about half a dozen employees that would cater for all the whole lot?

MR BROOKS: Yes. Well, in Cambridge there is a running system that has been going for a few years and I think they have five people and one standby that run 40,000 tonnes a year currently.

DEPUTY HILL: Just six?

MR BROOKS: Yes, you can see the facility.

MR RICHARDSON: It was developed, just as an aside, by a very clever local farmer in conjunction with a major waste management company in the Cambridge area, and I'm sure you know farmers don't like spending money if they don't need to. They developed a very, very low cost system and we are extremely proud of it even though we didn't develop it. They are even more proud of it. The design was meant to be economic and effective and they came up with the system.

MR BROOKS: Basically the system needs time and so you can't throw employees at it to speed it up. It needs to reach the Government's regulations of time and temperature to reach a certain temperature, which it produces itself due to the organic breakdown, that temperature. So the actual process cannot be speeded up; it just can be expanded to cope with more product so that more employees don't, more workers don't, speed the process up.

DEPUTY HILL: No, fine.

MR RICHARDSON: In fact, what we see **here** are the clamps, which are duplicated on the other side. One man can move all of those clamps from one side to the other with a front end loader, and that is all he does all day long. He drives in and out, in and out. That is just one

guy. In the sorting shed there are three men and on the maturation pad there are another two. The only other person is a part-time manager who checks to make sure that all the temperatures are being recorded properly, that the temperature gauges are being placed properly and that the database is run, checked and continually reported on, so that is effectively what you have got.

MR BROOKS: The biggest problem with this -- and Ivan touched on it, and this is what you will be asked, or we are asked -- is what do you do with the compost? It is an extremely efficient process. It makes a very good compost. But then you do end up with a by-product of compost and what has happened over the last five years, say, is an infrastructure for using this compost and scientific evidence to show that it does actually supply a genuine marketable product, and that is the challenge of compost -- not actually making the compost, not even collecting it, collecting the biodegradable by-products; it is selling and marketing that and that is where we are adding value to the process.

DEPUTY RONDEL: Senator Vibert?

SENATOR VIBERT: When we were in Norway, the Panel Members that went to Norway, their big difficulty with the in-vessel composting system that they were developing was that it was very much a new science to them to do it inside and they had to build this enormous building and it cost something like £10 million to actually do it and they're still not getting it right. One of the things they said to us is, you know, that it is a difficult job to do. I visited the Cambridge plant and I knew in fact that it was very simple the way you've done it. I made the point to them in Norway and to the Panel Members and I put this to you. In fact what you have is a very simple, natural system with very little engineering so there was very little that I saw there that could ever go wrong with the project.

MR RICHARDSON: Absolutely. The history of the development of this particular system is that originally it was one of those very complicated processes and it didn't work. The engineering was breaking down, the system didn't seem to be delivering correctly and the first team, including a very, very highly regarded academic, were relieved from their posts and the people who were involved in the project went back to basics again. This is when our farmer became involved. When I say he was a farmer, he runs an engineering company and a

commodity broking business and a very large farming conglomerate north of Cambridgeshire. Then, with his team of engineers, he took a very pragmatic approach to developing the system and ironed out one or two of the problems and realised that the main issue was keeping the roofs, designing a system of roofing that would come over and go back very quickly and very effectively and be very reliable over a long period of time. I think that as much by accident as by application they have come up with a system that works. We have had this discussion with them and we jokingly say that they stumbled across it, and it winds them up a little bit, but, to a certain extent, that is what has happened, but it is an effective system as you have seen on your visit to that location and others have been visiting regularly now. We think that this system has got huge merits. It is great that it is in situ and it is working and it is processing 40,000 tonnes of waste a year. We know it works and that is why we are so confident about presenting it and recommending it.

MR BROOKS: Can I just add to that?

SENATOR VIBERT: Yes.

MR BROOKS: This system is not good, the same as any composting system, without people who understand how to run it. The actual guy who runs the digger, the front loader that empties the barrier from barrier to barrier, is a very skilled person. He has learned just by the smell of the compost or by the look of it or the texture, whether there is any problems in that barrier, and that is why it works so well, because the people that will need to be trained up and mirror the people in Cambridge will become very experienced at knowing whether this is working well or not. Yes, there are some very good design features with this -- how low the roof is and the distance between the compost -- we could bore you for hours on why it ended up looking like this, but in the end, the individuals that run this process know when a good or bad batch comes into the sorting shed, know whether someone has put their carpet in there or not. They seemed to have a sixth sense and the whole thing runs beautifully as a result.

SENATOR VIBERT: One of the things also that they had problems with in Norway, which I would like to put to you whether it is a problem for you, was that the way the household waste was collected was in plastic bags, so when it actually turned up at the centre everything was in

plastic bags and they had great difficulty in dealing with that, in terms of staff and having to empty the bags. So, in the end, they just left the bags in. So you had plastic mixed up with it as well. But then they switched to a disposable bag which has apparently been working very effectively and it is a very cheap method of doing it, where in fact the bag disposes when you put it in the compost. It is biodegradable. It is a biodegradable bag. I take it that that is not a problem?

MR BROOKS: No. They actually just did a test just recently with Cambridge County Council on biodegradable bags for that reason. In Cambridge, for example, and in West London and in Ireland where these run, the household composting, the biodegradable waste, is picked up in bins. They are plastic bins and they are emptied into a dust cart effectively, so the dust cart just comes and pushes out all the biodegradable waste, so there is very little plastic involved. But the biodegradable plastic broke down within the first barrier and, by the second barrier, was invisible for their test, so, no, it's not a problem.

MR RICHARDSON: One of the problems with putting biodegradable waste into plastic bags and closing them off is that you begin the process of composting immediately.

MR BROOKS: An anaerobic process which actually causes a ----

MR RICHARDSON: And so you end up with a wet material and already the process is underway and it is not ideal in any circumstances, but it doesn't work well with in-vessel composting. You need to have it mixed; you need to have it aerated; you need the moisture recirculated; and, if you manage that in the right balance, you get a very, very effective system.

SENATOR VIBERT: Thank you.

DEPUTY RONDEL: Any further questions, gentlemen? Senator Le Maistre?

SENATOR LE MAISTRE: I think turning one's attention to the residual waste really after the composting, apart from normal things that we would consider to be recyclables, are there any particular materials which this system has difficulty coping with or even the extraction mechanism prior to going into this particular system?

MR RICHARDSON: We describe the plasma gasification system of being omnivorous, and it truly is. The only issues really are how you manage the waste into the system in the first place. So pre-sorting, pre-management and preparation of the waste going into the system is fairly

important. But, in fact, it can take practically anything. In the right circumstances and under the right managed conditions, it can even take low level radioactive waste. The reason for that is, as I have said, very, very high temperatures. What is effectively happening is that the chemical bonds are being changed, altered from their original state to a completely elemental state. So, in fact, you just tear everything apart by virtue of high temperature and, once that's happened, it's very simple: it's either gas or, in the case of metals and heavy metals, they melt at the bottom and are locked into the glassy melt or aggregate material that comes out the bottom. So, in effect, it will take any waste that you will throw at it. It can take municipal solid waste straight out of the bin, if you wanted to do that with it. But that is not what we recommend as a company. We recommend that you take the biodegradable element out and all the recyclable materials out and what is left you can treat. In that way, you end up with a much smaller system anyway. You don't need a vast physical mass burn incinerator to take all the waste.

SENATOR LE MAISTRE: Is it modular, in that you can bolt on two 25,000 tonne ----

MR RICHARDSON: You can. It is modular and it is designed to be modular in that respect. In fact, they are currently putting two smaller units together which will ultimately go for test on to the next large US aircraft carrier and so already the ship board systems are being supplied as modular units in order to get volume ready. We recommend that they are put together in what we call twin units, so you would have two 25 tonne a day units operating together in one place and then you might, for instance, have a 25 tonne single unit operating in the harbour area, taking waste from ships. In the case of certain Caribbean islands where we are doing some business, the idea is to take ship board waste off cruise liners and treat it within the harbour area, so you would have one in the harbour area treating waste, industrial waste, clinical waste, hazardous waste, ship board waste and you would have another twinned unit further in the town, for instance -- in the back of the town in the case of the Cayman Islands -- where you would be treating the residual waste stream.

SENATOR LE MAISTRE: So, apart from Montreal, are you saying to us that the only place really one can see the plant in action is in Japan?

MR RICHARDSON: Er, yes. There are plants. In fact, there is a plant in Bordeaux -- it has

been there for nearly eight years -- treating ash from their own incinerators, and it is a plasma facility. There are plants dotted around the place. There are several plants in Japan treating PCBs, for instance, and there is a plant in Australia treating PCBs, but, in the case of municipal, solid waste on a reasonably large scale, those plants are mostly in Japan. There is one being built in Spain at the moment, just outside of Madrid which will take municipal solid waste, but that is not operational as yet.

DEPUTY RONDEL: Deputy Baudains?

DEPUTY BAUDAINS: Thank you. Yes, I was thinking whilst you were saying that perhaps we should make a site visit. I don't know which cruise liner we would go on for a month, but … I have basically two questions ----

SENATOR VIBERT: The Caribbean.

DEPUTY BAUDAINS: Yes. I have two questions. Firstly, compost. I think from what you are saying that you suspect that Jersey would produce more compost than it could actually get rid of. What would we do with the surplus? Would we package it and ----

MR BROOKS: Getting rid of compost is always … that's why we bring it up because we know, obviously, it's a big part of it.

DEPUTY BAUDAINS: Roughly how much do you think Jersey would be able to use of that?

MR BROOKS: You can … I mean, it is a bit of a common misconception that you can't get rid of the compost. Thinking of the actual land mass you have here, if farmers start using it as opposed to inorganic composts, or as well as inorganic composts, and it is spread on grass land during certain times of the year, compost can go on different types of ground at different times of the year and if this is managed and scheduled properly, you can get rid of all your compost. If you were doing 35,000 tonnes a year of waste, that is going to make about 20,000 tonnes a year of compost. We didn't bring all the figures, but we can bring all the figures. If you layered an inch thick on a field, the number of tonnes that that actually consumes and the regularity that it can be put there, schemes can be started that allow farmers to be paid for it initially at £1 or £2 a tonne and then slowly weaned off that as they become aware that it is a genuinely good soil improver and, yes, it all can be used in Jersey.

DEPUTY BAUDAINS: So you would suspect that we would be able to use all of it and Jersey wouldn't have to export it?

MR BROOKS: Absolutely.

DEPUTY BAUDAINS: Right.

MR RICHARDSON: But we don't deny that it is an issue. It really is an issue when you start composting on a large scale, but those issues have been confronted in Cambridgeshire. Cambridge Borough Council and County Council and the company Wasteology that we've been working with have marketed it aggressively into the community, into the farming community, and are now successful at getting rid of all the compost that they are producing on a weekly/daily/annual basis.

DEPUTY BAUDAINS: No, I was just thinking. Obviously we are in a different situation to the United Kingdom, where you move things greater distances if necessary. The only greater distance we can move things is by shipping it.

MR BROOKS: Yes, but the importation here of inorganic fertilisers would be enormously reduced once farmers are weaned off it. The instant hit of an inorganic fertiliser is what farmers go for. If they are slowly weaned on to compost that gives a longer term but equally as good but not immediate effect, then compost will become a viable product, but it does take -- it will take -- some levels of public information and training and that we are very aware of. But, yes, it definitely all can be used.

DEPUTY BAUDAINS: The second question. The plasma plant for an appropriate size for Jersey is probably 30,000 tonnes if we can deal with the sufficient composting from that. What is the ball park cost of that and does that include front end?

MR RICHARDSON: Front end?

DEPUTY BAUDAINS: Well, sorting and cleaning before treatment?

MR RICHARDSON: Right, okay, yes. This is going to be a very ball park figure. We are still working out the detailed costs, but we think that we can supply … it partly depends on how you go about the strategy, whether you have them all located together in one place or whether you disperse them or have them in slightly different places around the Island. If they are all located

in one place, so all the civil engineering and all the front end and the back end clean up is in one place -- --

DEPUTY BAUDAINS: Well, I presume it would be more economic.

MR RICHARDSON: It does tend to be, although the economics are finely balanced and the upside of reducing traffic blight and other issues about having one large location are worth considering in the process. But the cost would be certainly no more than £25 million in total for a solution that would treat all of the current and future residual waste problems for Jersey.

DEPUTY RONDEL: Senator Vibert?

SENATOR VIBERT: Well, that actually answers the question I was going to ask.

DEPUTY RONDEL: Any other questions, gentlemen? If not, I would like to thank you for attending and giving evidence.

MR RICHARDSON: Our pleasure.

DEPUTY RONDEL: Prior to closing this particular hearing, I am given to understand there is a Mr Chick Anthony here who is co-ordinating this afternoon's presentation at the Société, and if you would like to have a little chat with him in a moment when I have closed, all of you gentlemen who are present, then please do so. On behalf of the Panel, thank you very much indeed.

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