Multi-PageTMNL Hydro 2004 Capital Budget Application

	Page 1		Page 2
1	(9:00 a.m.)	1	A. The existing exciter was installed when the
2	CHAIRMAN:	2	end (phonetic) was installed, it was written
3	Q. Ms. Henley Andrews, how are you this morning?	3	off over the life of the plant which is
4	HENLEY ANDREWS, Q.C.:	4	approximately 50 years.
5	Q. Fine thank you, ready to roll.	5	Q. 50 years?
6	CHAIRMAN:	6	A. For the initial installation, yes.
7	Q. Do we have any preliminary matters?	7	Q. And is that the exciter that's being replaced?
8	MR. KENNEDY:	8	A. The exciter that's being replaced, that
9	Q. No, Chair, there's no preliminary matters.	9	information is contained at IC-15.
10	CHAIRMAN:	10	Q. Yes.
11	Q. Thank you, Mr. Kennedy. So if you're ready to	11	A. And, basically, the exciter is being written
12	roll as you say, Ms. Henley Andrews, let's go.	12	off over a 13 year period which is basically
13	CROSS-EXAMINATION BY JANET HENLEY ANDREWS, Q.C. (CONT'D)	13	the remaining useful life of the plant. I
14	HENLEY ANDREWS, Q.C.:	14	should not say useful life of the plant, I'm
15	Q. Good morning. Mr. Haynes, yesterday there	15	sure it's going to be useful well beyond
16	were two undertakings given and I understand	16	another 13 years.
17	from your counsel that you have the answers to	17	Q. No, now you're talking about the proposed new
18	both of those. So I'll just ask you the	18	one, right?
19	question and you can give the answer. When	19	A. Yes.
20	unit number 7 was installed at Bay D'Espoir,	20	Q. I'm talking about the one that's there right
21	how many years was it to be depreciated?	21	now.
22	MR. HAYNES:	22	A. The one that was installed originally was in
23	A. You mean the initial installation or what	23	installed in 1977 and the Hydro plant was
24	we're proposing.	24	depreciated over a 50 year period.
25	Q. No, the one that's there now.	25	Q. 50 years. You were also going to check out
	Page 3		Page 4
1	Page 3 why the number on page B-9 has changed from	1	Page 4 O. Well, the report says excellent.
1 2	Page 3 why the number on page B-9 has changed from 3,200 barrels of oil per day at Holyrood.	1 2	Page 4 Q. Well, the report says excellent. A. Okay.
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1	O. Section B of that, Mr. O'Reilly.	1	A. 2000, ves.
2	HENLEY ANDREWS, Q.C.:	2	Q. So, basically, since 1995 with respect to the
3	Q. Page B-15 of the application.	3	unit number 7 exciter, there was a unit trip
4	GREENE, Q.C.:	4	in 1997 and a unit trip in 2000.
5	Q. It's not in that particular report, it's	5	A. That's possibly correct. I'm not sure if
6	section B to the application, and project B-16	6	there have been other trips for other reasons.
7	of section B.	7	O. Well this is Hydro's evidence.
8	HENLEY ANDREWS, O.C.:	8	A. Yes it is, but that is based on the exciter.
9	0. Do you have that? No. Okay, we're getting	9	There are other things that cause units to
10	there. See I can't read the screen. so I'm	10	trip besides exciters.
11	relying on the hard copies. If you look at	11	0. No. no. we're focused on the exciter for the
12	page B-15 under "Operating Experience" -	12	purpose of the capital project?
13	A. Yes.	13	A. Yes.
14	O You need to scroll down Mr O'Reilly Thank	14	O If we go back to that 2000 report Mr
15	you It indicates that the most recent renair	15	O'Reilly and in particular if look at page 6
16	on the exciter was a fan failure in September	16	of that report section 3.1 discusses unit
17	of 2000	17	number 7
18	ΛV_{PS}	19	
10	Λ . 105. Λ And that resulted in a unit trip	10	O Now units 1 through 6 were replaced in the
20		20	period from 1995 to 1998
20	A. 105. O If you look at page B-5 and 6 of the current	20	A I believe
21	application or particularly B 5 under	21	A. I believe.
22	"Operating Experience" again the indication	22	Q. And they ie the same types of exciters:
23	is the most recent repair on the excitor is	23	A. NO. O. But they perform the same function?
24	the fan failure in September of 2000	24	Q. But they perform the same function?
23		25	A. 105.
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1	Q. And if you go back to page 2 of the same	1	parts that General Electric has identified as
2	report, it says that The original excitation	2	obsolete and no longer manufacture?
3	systems for these units were replaced due to	3	
4	age, the limited supply of critical spare	4	Q. And the first item is a field temp simulation
5	parts in stores inventory and a limited	5	card.
6	product support from the original equipment	6	A. Yes.
7	manufacturer.	7	Q. Or something like that. Now, the reference in
8	A. Yes.	8	the paragraph after that is that Hydro doesn't
9	Q. Were any of the six exciters that were	9	have a spare field temp simulation card, but
10	replaced, the same type of exciter as the one	10	it does have a spare over voltage suppression
11	on unit number /?	11	card, correct?
12	A. NO.	12	A. Yes, that's correct.
13	Q. So there were no spare parts that could be -	13	Q. What does it mean in the next sentence when it
14	A. I can't state specifically there were	14	says that "General Electric will offer a
15	absolutely no cards but basically the exciters	15	return and repair option for the obsolete
16	on units numbered 1 to 6 are an earlier	16	cards"?
17	vintage. They are Silcomatic Mark III and	17	A. It means that they will attempt to repair it
18	number / is a Silcomatic Mark IV. And usually	18	if they can get the sub component parts from
19	with those changes in products from the vendor	19	some manufacturer. But they have no
20	there s a significant change in design. I	20	guarantees, there's no express warranty that
21	doubt that there's any card	21	would actuallythat they would guarantee, you
22	interchangeability.	22	know, a substitutable part.
23	Q. But you don't know?	23	Q. It then goes on to say that "General Electric
- ·			
24	A. Not for sure, but I doubt it very much.	24	will continue to provide technical support on

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1	exciter in the near future, but they can't	1	GE. Their practice is to recall some retired
2	guarantee parts availability.	2	individual and bring it back and start from
3	A. No.	3	scratch to do it.
4	Q. In the following paragraph where it says, "In	4	Q. My question is has Hydro investigated the cost
5	the event that cards become obsolete, re-	5	of a re-engineered field temp sim card?
6	engineering may be required", what does that	6	A. No, we have not, but that is only one of many
7	mean?	7	cards that we would have to do that same thing
8	A. It means that you identify the misthe	8	for.
9	example that's used there is for power supply	9	Q. But the only parts that are identified as
10	for a Silcomatic I Exciter, I and II exciter.	10	obsolete and no longer manufactured are these
11	You go back and you go back to a General	11	two up above, the field temp sim card and the
12	Electric, presumably, or some other vendor and	12	over voltage suppression card.
13	say you need a power supply which meets this	13	A. At the time of writing that report, that's
14	specification. And they would actually go and	14	correct.
15	design a power supply or a component for your	15	Q. Well there's nothing in the justification
16	particular application. And our experience	16	that's contained in your 2004 Capital Budget
17	has not been all that great with re-	17	to indicate that there's anything else that's
18	engineering some of these components.	18	obsolete.
19	\$20,000, I've heard numbers as high as	19	A. No, there's not, but the support for the
20	\$100,000 for some specific cards. If you get	20	product has diminished. I don't have any
21	back down a specific card that you insert into	21	particular record from a manufacturer that
22	a card rack, you know, you have to go back and	22	corresponds with engineering of M (phonetic)
23	do the function. Most of it's propriety	23	basically from the supplier. His
24	information. You can't necessarily get it	24	understanding is there is very little support
25	fuerra e de els sur la sur la sur de la sur la sur de la sur la sur de		
25	from somebody else. You have to go back to	25	left for the Silcomatic Mark IV. There is
25	rom somebody else. You have to go back to Page 11	25	left for the Silcomatic Mark IV. There is Page 12
1	rom somebody else. You have to go back to Page 11 some but there's no assurances. One of the	1	Page 12 A I don't think so but I cannot affirmatively
1 2	Page 11 some, but there's no assurances. One of the reasons that Newfoundland and Labrador Hydro	25 1 2	A. I don't think so but I cannot affirmatively A. So but I cannot affirmatively
1 2 3	Page 11 some, but there's no assurances. One of the reasons that Newfoundland and Labrador Hydro proposed replacing these critical components	25 1 2 3	Page 12 A. I don't think so but I cannot affirmatively answer that particular question.
1 2 3 4	Page 11 some, but there's no assurances. One of the reasons that Newfoundland and Labrador Hydro proposed replacing these critical components is that if we do get a failure that we cannot	1 2 3 4	Page 12 A. I don't think so but I cannot affirmatively answer that particular question. Q. You're still getting technical support from General Electric?
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1 2 3 4 5 6 7	Page 11 some, but there's no assurances. One of the reasons that Newfoundland and Labrador Hydro proposed replacing these critical components is that if we do get a failure that we cannot manage, then basically we have no alternative. We cannot enter into emergency purchase contracts from somebody else to replace 150	25 1 2 3 4 5 6 7	Page 12 A. I don't think so but I cannot affirmatively answer that particular question. Q. You're still getting technical support from General Electric? A. In as far as they can provide it but there's no assurance of replacement components. When an exciter fails if you have a major fail in
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	Page 13		Page 14
1	sources?	1	the cost of stocking enough components for a
2	A. I don't think there was, I cannot say for sure	2	five year period?
3	but I would suggest that if we are going to	3	A. Some components are unavailable, so, you know,
4	buy those from other sources, we are buying	4	if you stock up, you know, several thousand
5	some product or some retired equipment from	5	dollars worth of components or a hundred
6	some other vendor who has already decided that	6	thousand dollars worth of components and
7	this particular equipment is obsolete and no	7	there's a card or two that you cannot get or
8	longer worth keeping in service. So we are	8	you have a limited number of spares that are
9	buying an aged component which I would suggest	9	available, it really doesn't buy us a lot in
10	would not be as reliable as a new one, has no	10	the long run.
11	assurance of working, and our experience when	11	Q. Then that assumes that the filed temp sim card
12	we've done thiswe've done this on other	12	in particular was not available from another
13	systems by the way, for EMS system and other	13	source.
14	things, we have bought equipment from other	14	A. Yes, or that there may only one spare of
15	utilities that has been retired from service	15	others.
16	and our experience has been mediocre. It's	16	Q. And you do have a spare of the over voltage
17	not been stellar by any stretch.	17	suppression card?
18	Q. If you look at the last paragraph of that e-	18	A. At that time we did and I suspect we still do,
19	mail -	19	yes.
20	A. Yes.	20	Q. The field temp simulator card that's in the
21	Q. It indicates that possibly after review of the	21	unit at the present time, is that the original
22	cost of stocking enough components for a five	22	card?
23	year period, you may want to consider	23	A. I really have no idea. If it was a suggested
24	contacting Paul Martin for a quote on a	24	spare by the manufacturer on purchase of the
25	replacement exciter. Did Hydro investigate	25	unit we would have in all likelihood bought
			-
	Page 15		Page 16
1	Page 15 the recommended spare parts which would imply	1	Page 16 A. Yes.
1 2	Page 15 the recommended spare parts which would imply we've used one, but I'd have to gohave to	1 2	Page 16 A. Yes. Q. "And that in most cases the components can
1 2 3	Page 15 the recommended spare parts which would imply we've used one, but I'd have to gohave to have somebody go back to 34 years of records,	1 2 3	Page 16 A. Yes. Q. "And that in most cases the components can remain in service beyond their expected
1 2 3 4	Page 15 the recommended spare parts which would imply we've used one, but I'd have to gohave to have somebody go back to 34 years of records, 35 years, I'm sorry, to 1977 when, you know,	1 2 3 4	Page 16 A. Yes. Q. "And that in most cases the components can remain in service beyond their expected service life."
1 2 3 4 5	Page 15 the recommended spare parts which would imply we've used one, but I'd have to gohave to have somebody go back to 34 years of records, 35 years, I'm sorry, to 1977 when, you know, it was installed, to determine that. The	1 2 3 4 5	Page 16 A. Yes. Q. "And that in most cases the components can remain in service beyond their expected service life." A. Yes.
1 2 3 4 5 6	Page 15 the recommended spare parts which would imply we've used one, but I'd have to gohave to have somebody go back to 34 years of records, 35 years, I'm sorry, to 1977 when, you know, it was installed, to determine that. The records may or may not be available.	1 2 3 4 5 6	Page 16 A. Yes. Q. "And that in most cases the components can remain in service beyond their expected service life." A. Yes. Q. So if you had a card in the beginning and a
1 2 3 4 5 6 7	Page 15 the recommended spare parts which would imply we've used one, but I'd have to gohave to have somebody go back to 34 years of records, 35 years, I'm sorry, to 1977 when, you know, it was installed, to determine that. The records may or may not be available. Q. And you do have a spare over volt suppression	1 2 3 4 5 6 7	Page 16 A. Yes. Q. "And that in most cases the components can remain in service beyond their expected service life." A. Yes. Q. So if you had a card in the beginning and a spare, then it would imply that you should get
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rage 17	Page 18
1 27 years, therefore we have to replace it. I 1 were to fail and spares were r	not available, it
2 mean you have to look at the risk of having 2 could result in a lengthy outa	ge."
3 that machine, if that particular exciter 3 A. Yes.	
4 failed and its unavailability as it states in 4 Q. What do you mean by length	y outage?
5 the last sentence of the first paragraph, "The 5 A. If the parts were unavailab	le, we can't
6 exposure to the risk of failure and extended 6 operate the exciter. Basical	ly, there are
7 down time should be understood." We need to 7 certain things you can operate	te the exciter
8 avoid that. We do not have any alternate 8 without. You can lose a con	ponent. You can
9 supplies of power and energy and any loss of a 9 lose one thyristor and you c	an continue to
10 hydraulic plant forces more fuel consumption 10 operate. If you lose a contr	ol card, you
11 at Holyrood and so on. We can't go and buy it 11 can't operate. If you don't	nave a spare,
12 from Hydro Quebec or Nova Scotia Power. 12 then we have to either find a	card, reverse
13 Q. Well, the electronic is now 25 years old, 13 engineer or replace the ex	citer. And
14 correct? 14 replacing the exciter is a	long-term
15 A. 26 years old, I assume, 1977. 15 deliverable item because it'	s specifically
16 Q. And it hasn't failed yet. 16 designed for that specific ge	nerator. It's
17 A. I could not say whether components have not 17 notthe Exciter on Unit No.	7 is not the same
18 failed. I mean there's been a couple of 18 as the Exciter on Unit No. 1	to 6. It has
19 failures there of certain things. 19 different voltages and diffe	erent current
20 Q. Now, there's a reference in your project 20 capabilities. It's designed fo	r the specific
21 proposal to lengthy outage. 21 generator that was installed.	•
22 A. To lengthy outage, yes. 22 Q. But you've already had a	approved, the
23 Q. And it's on page B-6. 23 engineering.	
24 A. Yes. 24 A. Yes, to do the specification	and to go down
25 Q. The second paragraph it says that, "If parts 25 through and basically p	repare the
Page 10	Page 20
specifications so that we can be in a position 1 early in 2004 and to install t	nis vou know
2 to award for delivery during our maintenance 2 before September or Octobe	er typically if
3 season in 2004 3 there's any maintenance	i, typically li
4 O And if a card had to be re-engineered how 4 O And if you were to get a car	t re-engineered
5 long would you expect the outage to be? 5 it would be less than six mor	ths?
6 A L could not say that that would depend on the 6 A That depends on the available	ility of parts
7 card that failed it would depend on the 7 components and people And	that would -
8 availability of resources by GE or whomever 8 O Have you had cards for of	her things re-
9 O Well let's go at it a different way and that 9 engineered in the past?	ier unings ie
10 is that if it failed and you were to replace 10 A. They did have a power supp	olv card which I
11 the exciter -	lone I think
12 A Yes. 12 that was in the report you alr	eady referred me
13 O And assuming that you had to start the 13 to I don't know if it said the	time frame
14 engineering at that point, how long would it 14 O. And I'm not necessarily refer	ring now to this
15 take towould it be a year?	
	r about any time
16 A. I would suggest that if you were prepared to 16 you may have had, would it	be normally less
16A. I would suggest that if you were prepared to16you may have had, would it17go to tender or direct order without going to17than six months?	be normally less
16A. I would suggest that if you were prepared to16you may have had, would it17go to tender or direct order without going to17than six months?18tender, it would probably be in the period of18A L can't say. It depends on	be normally less
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16A. I would suggest that if you were prepared to go to tender or direct order without going to tender, it would probably be in the period of six months, if the particular factory had a16 17you may have had, would it than six months?18tender, it would probably be in the period of six months, if the particular factory had a16you may have had, would it than six months?20space available on the shop floor to provide the pro	the card, it cr, the Governor,
16A. I would suggest that if you were prepared to go to tender or direct order without going to16you may have had, would it17go to tender or direct order without going to tender, it would probably be in the period of six months, if the particular factory had a16you may have had, would it18tender, it would probably be in the period of 	the card, it cr, the Governor, And if you were coach you would
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16A. I would suggest that if you were prepared to go to tender or direct order without going to tender, it would probably be in the period of six months, if the particular factory had a space available on the shop floor. You know that is also a matter of availability of shop space to fabricate that supply.16 than six months?you may have had, would it than six months?18A. I can't say. It depends on depends on whether its excite a computer. It's wide open. 2119A. I can't say. It depends on depends on whether its excite 	the card, it er, the Governor, And if you were roach you would d re-engineer all ave a long term
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	Page 21		Page 22
1	to the failure of a card, the one I guess that	1	surplus capacity for meeting its peak until
2	can't be replaced at the present time, that	2	what year?
3	would result in 150 megawatts out of service?	3	A. I guess 2009 we show aI believe we show a
4	A. That's correct.	4	I'm sorry, that's the energy balance.
5	Q. Now I'd like you to go to Hydro's general rate	5	Q. Yes, that's the energy balance and the actual
6	application, this year's one, 2003 one, and	6	peaking capacity would be when?
7	your own evidence. Table 8 which is at page	7	A. I'm sorry, I'm -
8	37.	8	Q. Never mind. So right now Hydro has 150 extra
9	HUTCHINGS, Q.C.:	9	megawatts.
10	Q. Which volume would that be?	10	A. We plan a system based on loss of load
11	HENLEY ANDREWS, Q.C.:	11	expectation.
12	Q. I think it's Volume 1, that's what I'm looking	12	Q. Yes.
13	at.	13	A. And basically the generation is added or
14	CHAIRMAN:	14	purchase contracts with whomever are entered
15	Q. Would you give us the reference again, Ms.	15	into as required to ensure that we have that.
16	Henley Andrews, it's the -	16	That covers off a certain probability of
17	HENLEY ANDREWS, Q.C.:	17	failure of equipment that we can basically
18	Q. Yes, it's Volume 1 of this year's general rate	18	that we can supply our firm load and backstop
19	application.	19	basically any other load that we buy because
20	CHAIRMAN:	20	there's no assurances, I guess, that they're
21	Q. Yes.	21	going to be there. And if we were to change
22	HENLEY ANDREWS, Q.C.:	22	the reliability or the availability of any
23	Q. It's Tab 8 on page 37. Do you have that	23	machines that we presently have, we would have
24	there? Yes, okay, that's fine. If you look	24	to go back and reconsider that.
25	at that table, Hydro is projected to have	25	Q. No, no, and I realize that. I'm not going to
	D 00		
	Page 23		Page 24
1	Page 23 get into a loss of load expectation discussion	1	Page 24 with 150 megawatts removed, that number would
1 2	Page 23 get into a loss of load expectation discussion but what I'm saving to you is that if you lost	1 2	Page 24 with 150 megawatts removed, that number would change.
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1 2 3 4	Page 23 get into a loss of load expectation discussion but what I'm saying to you is that if you lost 150 megawatts at Bay D'Espoir for a year - A. Yes.	1 2 3 4	Page 24 with 150 megawatts removed, that number would change. Q. It would change. And the table would change. But are you suggesting to me that it would
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1 2 3 4 5 6	Page 23 get into a loss of load expectation discussion but what I'm saying to you is that if you lost 150 megawatts at Bay D'Espoir for a year - A. Yes. Q. Customers would not have their power affected. A. I couldn't agree with that because if you knew	1 2 3 4 5 6	Page 24 with 150 megawatts removed, that number would change. Q. It would change. And the table would change. But are you suggesting to me that it would change to the degree that you'd have a problem with that target in 2005?
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$ \begin{array}{c} 1\\2\\3\\4\\5\\6\\7\\8\\9\\10\\11\\12\\13\\14\\15\\16\\17\\18\\19\\20\\21\\22\\23\\24\end{array} $	 Page 23 get into a loss of load expectation discussion but what I'm saying to you is that if you lost 150 megawatts at Bay D'Espoir for a year - A. Yes. Q. Customers would not have their power affected. A. I couldn't agree with that because if you knew that you were going to have 150 megawatts unavailable for one year, you have a higher you're still going to continue with the failure of probabilities of the other units and you will likely have other interruptions through the year because you're already starting off knowing that you're 150 megawatts shy. Now that can happen, obviously, if we have a major unit failure. But this is one that we think that we can prevent by being proactive on a replacement of aging and unsupported components. Q. But in answer to my question, if you look at the loss of load hours and you look at your own information in table 8 with respect to the capability of your system, right now in 2003 and also in 2004 and 2005, your LOLH is much higher than your target. 	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	 Page 24 with 150 megawatts removed, that number would change. Q. It would change. And the table would change. But are you suggesting to me that it would change to the degree that you'd have a problem with that target in 2005? A. 150 megawatts is a significant load on our system. I really can'tobviously I can't regenerate that table, that's not my capability or expertise at all. But 150 megawatts out of our system is a significant load, if you operate that way for a year and you have, you know, a failure at Holyrood, we will be in a difficult situation to meet customers' expectation of load. Q. So can you tell me that it would be a problem in 2005? A. Not without regenerating that particular table, I can't do that. It's not the way that we plan, it's not the utility practice to plan and operate a system that way. The load forecast is based on weather, you know, there's some normalization done, there are cold days, there are unexpected increases in

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Multi-Page[™]NL Hydro 2004 Capital Budget Application

	Page 25		Page 26
1	into consideration many factors.	1	Cat Arm, which is B-10. Now if we look at the
2	Q. Let's just look at Tab $\frac{1}{8}$ again for a minute.	2	project justification, it says that the
3	Your forecast peak in 2004 is 1,602 megawatts.	3	Governor on unit 2 at Cat Arm is the original
4	A. Yes.	4	equipment put in service in 1984.
5	O. And your net capacity in 2004 is 1919.	5	A. That's correct.
6	A. Yes.	6	O. And it serves to regulate the speed of the
7	O. So there is a 317 megawatt surplus in capacity	7	generating unit and the Governor Controls are
8	to meet peak in 2004.	8	analogue electronic type that's been
9	A. And a loss of load expectation -	9	manufactured since 1974. "And the replacement
10	O. That's right.	10	is required due to the manufacturer's decision
11	A of 1.1 hours.	11	to discontinue repair or replacement of
12	O. Now the first time thatwhen you go onto	12	electronic cards by the end of 2004."
13	2005, your peak only increases by five	13	A. Yes.
14	megawatts.	14	0. Does Hydro have replacement electronic cards?
15	A. That's the forecast increase, yes.	15	A. We have some.
16	0 And for 2006 it increases by another six	16	O When did Hydro become aware that the
17	megawatts So you're not forecasting any	17	manufacturer was going to discontinue the
18	great increases in your peak requirements over	18	repair or replacement of the cards?
10	the next number of years	10	A Just one second. If you refer back to the
20	A No it's a gradual modest increase in load	20	report that you were referring to before I
20	O Has Hydro evaluated the cost of obtaining a	20	don't know the page number, but it's a letter
21	re-engineered replacement card?	21	fromit's an e-mail to Glen Winsor regarding
22	A L believe L answered that L don't think we	22	the Cat Arm Exciters from Derek Monk and
23	have	23	besically says "Resically the availability
24	Nave.	24	of sparse for the DDC Excitors at Cat Arm are
23	Q. So let's move on to the Governor Controls at	25	of spares for the BBC Exciters at Cat Arm are
	D 47		D
	Page 27		Page 28
1	Page 27 nil. I was in contact with my colleagues in	1	Page 28 Q. And the recommendation that's contained in
1 2	Page 27 nil. I was in contact with my colleagues in Switzerland at the time. At the time, 1983,	1 2	Page 28 Q. And the recommendation that's contained in that e-mail in the third paragraph is that
1 2 3	Page 27 nil. I was in contact with my colleagues in Switzerland at the time. At the time, 1983, the exciters were designed and built by BBC in	1 2 3	Page 28 Q. And the recommendation that's contained in that e-mail in the third paragraph is that "it's suggested to eventually upgrade the two
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Multi-Page[™]NL Hydro 2004 Capital Budget Application

	Page 29		Page 30
1	sorry?	1	Controls during a regular planned outage?
2	Q. B-11, the very first paragraph in this year's	2	A. Typically it would extend the outage by some
3	Capital Budget.	3	degree, not necessarily, it depends on the
4	A. Yes.	4	machine, it depends on the pre-packaging by
5	Q. It says that the report recommended that the	5	the vendor and the amount of re-use of
6	Governor Controls for one unit should be	6	cabinets and so on. But this is the control
7	replaced in 2004?	7	section only, so there may be some increase,
8	A. Yes.	8	it may be a week or two.
9	Q. Now, there's a planned outage of that unit in	9	Q. So these Governor Controls or for Unit No. 2,
10	2004?	10	they've been in place for 19 years?
11	A. Typically there's a planned outage for all	11	A. Well since the commissioning of the plant.
12	machines, at least once a year for -	12	Q. Well it says it's in service since 1984 and
13	Q. Okay, so there'd also be a planned outage for	13	this is 2003, so that's roughly 19 years. Do
14	that unit in 2005?	14	you know when the manufacturer decided to
15	A. Yes.	15	discontinue manufacturing spare parts?
16	Q. Will the work to replace the Governor Controls	16	A. I'm not sure of the date.
17	extend the planned outage beyond the norm?	17	Q. Is that something that Hydro would generally
18	A. It depends on how much work is done up front	18	receive information from its suppliers?
19	and how much can be done when the machine is	19	A. It often depends on the supplier. On some
20	energized, when workers can get in and do	20	suppliers, they have a very good record of
21	certain preliminary work. It depends on the	21	letting the customer know what their long-
22	availability. That particular plan is not	22	termWestinghouse, for instance, or Emerson
23	laid out as yet.	23	Controls basically have a very good system in
24	Q. But in the normal course of doing this kind of	24	place, if you will, to advise the users of
25	work to replace something, like the Governor	25	their equipment when their equipment is not
	Page 31		Page 32
1	Page 31 going to be supported and they have kind of a	1	Page 32 Q. And if you look at the service history, there
1 2	Page 31 going to be supported and they have kind of a time frame of continuous support after they	1 2	Page 32 Q. And if you look at the service history, there have been four cards and three power supplies
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	Page 33		Page 34
1	incident -	1	A. The most -
2	A. The second incident took place in October of	2	Q. To a person who is not familiar with the
3	'02 and in June of '03.	3	technical side of it, it just seemed odd that
4	Q. And were they on Unit 2 Governor Controls?	4	the Governor Controls would be replaced on the
5	A. Yes, they were on Unit 2.	5	unit that's had the least trouble with the
6	Q. Because when I look at the service history,	6	Governor Controls.
7	page 5 of 15 on that report that's attached	7	A. Yes, but, you know, as the page 5 indicates
8	that we were just talking about.	8	too that the last problem was on Unit No. 2.
9	A. Yes.	9	All the prior problems were 1995 and prior.
10	Q. Most of the problems, well as a matter of	10	Q. Yeah, but look at what the problem was. The
11	fact, six of the seven problems occurred on	11	second needle doesn't cut in until the first
12	Unit 1?	12	is 100 percent. That doesn'tthat, to me,
13	A. That's correct.	13	isn't quite the same as a defective power
14	Q. And so the question that I had was why would	14	supply and there's a lotthere's power supply
15	you have chosen replacing the Governor	15	replaced twice -
16	Controls on Unit 2?	16	A. Yes.
17	A. Unit No. 2 basically is scheduled out next	17	Q. For Unit No. 1. Anyway, I just raise the
18	year to replace both the Exciter and the	18	question because it just struck me as odd.
19	Governor Controls. I think the spare parts	19	A. It's the opinion of the generation engineer
20	will become available will be available. I	20	and the plant personnel that the one to do
21	don't know any particular reason why they	21	first was No. 2. I don't take exception to
22	chose Unit No. 2, except the Governor was out	22	their recommendation.
23	and the Exciter are both slated repair for one	23	Q. Now if we look at page 7no, sorry, it's a
24	outage, as opposed to two separate outages.	24	wrong reference. So does Hydro still have
25	O. It's just that, you know -	25	spares for both units?
			spares for both units:
	Page 35		Page 36
1	Page 35 A. We have some spares, I don't know the actual	1	Page 36 that we do talk about is the increase risk of
1 2	Page 35 A. We have some spares, I don't know the actual quantities.	1 2	Page 36 that we do talk about is the increase risk of spill if the unit is not available and that is
1 2 3	Page 35 A. We have some spares, I don't know the actual quantities. Q. The question is that if Hydro still has spares	1 2 3	Page 36 that we do talk about is the increase risk of spill if the unit is not available and that is a significant cost because basically all the
1 2 3 4	Page 35 A. We have some spares, I don't know the actual quantities. Q. The question is that if Hydro still has spares for both units, why is it considered necessary	1 2 3 4	Page 36 that we do talk about is the increase risk of spill if the unit is not available and that is a significant cost because basically all the incremental energy from all of these Hydro
1 2 3 4 5	Page 35 A. We have some spares, I don't know the actual quantities. Q. The question is that if Hydro still has spares for both units, why is it considered necessary to replace the Governor Controls now?	1 2 3 4 5	Page 36 that we do talk about is the increase risk of spill if the unit is not available and that is a significant cost because basically all the incremental energy from all of these Hydro plants is not free, but it is very, very low
1 2 3 4 5 6	Page 35 A. We have some spares, I don't know the actual quantities. Q. The question is that if Hydro still has spares for both units, why is it considered necessary to replace the Governor Controls now? A. Because there is little future support. The	1 2 3 4 5 6	Page 36 that we do talk about is the increase risk of spill if the unit is not available and that is a significant cost because basically all the incremental energy from all of these Hydro plants is not free, but it is very, very low kilowatt hour rate. The alternative is to
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1	1 450 57		Page 38
1	review.	1	the report that are quotes fromand I can't
2	Q. Now, presumably if spare parts can be obtained	2	speak to the nuance of these systems, but
3	from this Governor Control System to be used	3	Atlas H mod (phonetic), Atlas HC, and Micronet
4	on the other, then Hydro has internal	4	HC, there are three systems that were reviewed
5	resources who can take care of the repairs?	5	as potential replacements and the estimate
6	You're not anticipating difficulty getting the	6	that was put forward was based on what they
7	repairs done?	7	thought would be an appropriate replacement
8	A. If we have the spare components.	8	system that meets the needs of that particular
9	Q. Yes.	9	Governor.
10	A. If we have the spare cards, but we do notwe	10	Q. Now if you look at one of the attachments to
11	don't get down to board level and replace	11	that report, and it's in Appendix D, the first
12	specific components on cards to any great	12	page and it's dated July 26, 2000?
13	degree, particularly with these -	13	A. Yes.
14	Q. No, but I'm saying that as long as you have	14	Q. And from Keith Pomeroy to Rick Legg (sic.) of
15	the spare parts -	15	Hydro?
16	A. If it's determined that we have an adequate	16	A. Rick Leggo, ves.
17	supply of spare parts, then that will be	17	O. Okay, sorry. And it says, "we've prepared a
18	reviewed and will be a factor in the decision	18	budget offer which we'll send by courier with
19	whether we put forward in future years	19	some literature about the DTL Governor System
20	replacement of the second Governor.	20	and a reference list. And the basics of the
21	0. Now you got a quote from Sulzer Hydro on	21	budgets in Canadian dollars are design.
22	replacement of the Governor Controls?	22	program and supply to DTL 595 digital
23	A When they did their preliminary estimates they	23	Governors including installation and
23	had quotesno not Sulzer Sulzer no longer	23	commissioning and documentation \$150,000,00
25	do that I don't believe We have quotes in	25	ner lot "
		-0	Perrow
	D 20		D 40
	Page 39		Page 40
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Discoveries Unlimited Inc., Ph: (709)437-5028

July 8, 2003

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20 goes to electronic, that support horizon is 21 diminished	
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1/1 tauting the state of the	
22 O Are there other systems besides the type of 22 consequences of not being able to repair the	
22 Governor Controls that you're looking at? 23 unit on time to a consideration but not	
24 A For that particular unit you mean? 24 necessarily affecting the calculation would b	
25 O Yes	
Page 43	ge 44.
1 because we can't turbine the water. 1 Exciters were installed in 1984?	
2 Q. And nave youwhat's the cost of doing 2 A. with the original plant, yes.	
3 nothing? 3 Q. And the performance of the Exciters over th	
4 A. The cost of doing nothing is basically just to 4 last five years is described as excellent.	
5 increaseyou pay a higher risk of failure and 5 A. Yes, and a very few failures.	
6 unavailability to meet customer load and 6 Q. And there has been, according to your curren	
7 obviously the cost of generating through 7 submission, only one problem since that tim	
8 Holyrood, for instance. 8 and that was in September of 2001 when the	;
9 Q. And have you projected what your maintenance 9 field breaker repeatedly open and closed?	_
10 costs would be expected to be? 10 That's under "Operating Experience" on page	B-
11 A. Not specifically no, not that I'm aware of. 11 12?	
12 Q. Now if we go to B-12, that's the Exciter at 12 A. Yes.	
13Cat Arm?13Q. And that has been repaired?	
14 A. That's correct. 14 A. Yes.	
15 Q. And that's a 518.5well, \$518,500.00 project? 15 Q. And do you know what the cost was to repa	r
16 A. Yes. 16 it?	
17 Q. And you're proposing to replace the Static 17 A. I'm sorry, I don't know if I answeredno, I	
18 Exciter Unit 2 with ABB Unitrol F Model? 18 don't know the cost to repair the breaker.	
19 A That's correct	
1^{17} Q. DO you know now long it took to repair :	
20Q. If we go to the 2003 Capital Budget, Appendix20A. No, I don't offhand.	
171819191919191910 <td>r I</td>	r I
 Q. If we go to the 2003 Capital Budget, Appendix G which we've referred to before, Tab 1, and in particular go to page 5. This report was G. Do you know how long it took to repair? Q. Do you know if the unit was out of service for any period of time as a result of that repair? 	r
 Q. If we go to the 2003 Capital Budget, Appendix G which we've referred to before, Tab 1, and in particular go to page 5. This report was done in 2000? A. No, I don't offhand. Q. Do you know if the unit was out of service for any period of time as a result of that repair? A. It would have been out of service long enough 	r 1
 Q. If we go to the 2003 Capital Budget, Appendix G which we've referred to before, Tab 1, and in particular go to page 5. This report was done in 2000? A. I believe that's correct. If a G, Do you know how long it took to repair? A. No, I don't offhand. Q. Do you know if the unit was out of service for any period of time as a result of that repair? A. It would have been out of service long enoug to effect the repair, however long that took. 	r 1

Multi-PageTMNL Hydro 2004 Capital Budget Application

	Page 45		Page 46
1	two Exciters, is that correct? If you look at	1	A. You mean than replacing the exciters?
2	page 8 ofpage 7 of the report, the 2000	2	Q. Yes.
3	report, Section 3.3.	3	A. Such as? We would have to have an exciter,
4	A. Of thewhich report, I'm sorry?	4	obviously.
5	Q. In the 2003 Capital Budget Hearing, Section G,	5	Q. Have you looked at the cost associated, the
6	Tab 1.	6	maintenance cost associated with keeping the
7	A. Yes. Page?	7	existing exciter?
8	Q. Page seven.	8	A. No, we haven't specifically, we've only talked
9	A. Yes.	9	about it in generality, basically you increase
10	Q. So, you can see that in Section 3.3, the	10	your spares, you increase your training and
11	second paragraph, Hydro generation, procured	11	your troubleshooting costs are doubled and
12	spare parts in 1999 for the exciters.	12	there's a limited number of staff there and we
13	A. Yes.	13	do have some desire to have a minimum number
14	Q. And are those spare parts still in inventory?	14	of different types, but there's not specific
15	A. They would have to be.	15	dollar value assigned. There obviously is an
16	Q. So, both of these exciters were expected to be	16	increase in training, orientation,
17	in service until 2011, isn't that right?	17	troubleshooting expertise required for each
18	A. On average, I guess, that's what we've agreed,	18	different type.
19	yes.	19	Q. Okay, but Hydro procured spare parts for both
20	Q. And Unit No. 1 was replaced in 2002.	20	exciters in 1999.
21	A. Yes.	21	A. Yes.
22	Q. And that too would have generated spare parts,	22	Q. And Hydro procured, effectively got additional
23	isn't that correct?	23	spare parts since 2002 as a result of the
24	A. Yes, that's correct.	24	replacement of the first Cat Arm exciter.
25	O. Has Hydro explored any other options?	25	A. That's the logical assumption, yes.
			in The state together assumption, yes:
	Page 47		Page 48
1	Page 47 Q. So, the maintenance capability is there, isn't	1	Page 48 Q. Now, if we go on to B14 which is the upgrades
1 2	Page 47 Q. So, the maintenance capability is there, isn't it?	1 2	Page 48 Q. Now, if we go on to B14 which is the upgrades of controls of the spherical valve No. 3 at
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	Page 49		Page 50
1	possible and then basically run from Holyrood.	1	to how many failures we've had on number 5 and
2	It moves around, but in the winter, we'd like	2	number 6, I can't answer. That's detail I
3	to have all machines available to meet peak	3	don't have.
4	load, that's our prime goal.	4	Q. Who manufactured this system?
5	Q. Now, it says that there's 28 maintenance	5	A. I have no idea who manufactured the original
6	events for this control system in the last	6	system. The system's been changed to a, I
7	five years.	7	think, PLC controlled and we were replacing
8	A. Yes.	8	the valves and the piping. I don't know a
9	Q. And I noted that in 2003 when we were dealing	9	particular vendor, it was probably supplied by
10	with the system for the unit 1, there'd been	10	GE at the time or Dominion Bridge, probably,
11	36 maintenance events in five years. So, this	11	but the new system is basically PLC controlled
12	one -	12	and replacing the piping and the valving.
13	A. For that particular one that was proposed last	13	(10:15 a.m.)
14	year, yes.	14	Q. So, if you look at the project justification,
15	Q. That's right. So, this one has a somewhat	15	is says the control system for spherical valve
16	better performance than that.	16	number 3 is obsolete and unreliable. When did
17	A. Yes.	17	it become obsolete?
18	Q. The other two units at Bay D'Espoir as shown	18	A. I don't know when it became obsolete.
19	as being scheduled for future years, is their	19	Q. Because on most of your other projects, when
20	maintenance history any better than for this	20	there's a reference to something being
21	unit?	21	obsolete, there's specific detail with respect
22	A. I don't specifically know. I know that just	22	to the manufacturer's support and parts.
23	since the report was done, we've have two	23	A. It's usually a much smallerlarger piece of
24	other failures on unit number 3 and we've had	24	equipment whereby we have a specific vendor
25	one failure on unit number 5, but to respond	25	who sold a package, this basically is pipes,
	· · · ·	<u> </u>	
	Page 51		Page 52
1	Page 51	1	Page 52
1	Page 51 valves and control systems and so. It was	1	Page 52 that occurred?
1 2 3	Page 51 valves and control systems and so. It was probably put together from sources from several different vendors to actually make	1 2 3	Page 52 that occurred? A. Yes, when we have a maintenance event in the spherical values, the value-the unit would
1 2 3	Page 51 valves and control systems and so. It was probably put together from sources from several different vendors to actually make that	1 2 3	Page 52 that occurred? A. Yes, when we have a maintenance event in the spherical valves, the valvethe unit would not be operating. It depends on whether it
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	Page 53		Page 54
1	Q. So, you don't know of any since 1967?	1	on one machinein Bay D'Espoir you have two
2	A. I'm not aware.	2	generators on one penstock. So, in the
3	Q. And on option C, the loss of all six units in	3	powerhouse there are these two large five or
4	powerhouse number one, if the spherical valve	4	six foot diameter valves which basically allow
5	or the seals fail while the door is open for	5	you to isolate the machine. We provide,
6	maintenance resulting in flooding with	6	obviouslythe work permit system, we have to
7	potential for loss of life. Are the spherical	7	ensure the employees a safe working
8	values and the seals inspected?	8	environment the isolation is done and we rely
0	A Ves	0	on the control system to close that
9	A. Its.	9	• Vec
10	Q. How often are they hispected?	10	Q. 105.
11	A. They would be done at least off the annual	11	A. Because the other machine can be operated and
12	inspection.	12	if you open the scroll cage doors and if the
13	Q. So, if there's a seal showing sign of wear,	13	valve were to let go or the control system
14	then presumably it can be replaced?	14	were to fail, the water would come in and
15	A. I would think, yes.	15	would actually flood that particular area and
16	Q. So, have you ever had this type of thing	16	possibly the powerhouse. It would be a
17	occur?	17	possible, but rare, hopefully never to happen,
18	A. The seal iswhat the control system does, the	18	event.
19	valve closes and the seals come in to actually	19	Q. Okay. And it certainly hasn't happened in the
20	stop the flow of water. So, it's not a static	20	past?
21	piece of equipment, basicallyI don't	21	A. No, we've had floods in the powerhouse. We've
22	remember if it's there, whatever, but	22	actually flooded the powerhouse or portions of
23	basically I think there's water that goes into	23	the powerhouses before, but not to the extent
24	some kind of a thing that actually expands it	24	of that particular event there
25	so there's not discharge. If you are working	25	O Okay And as you indicated you've had 28
	so more s not discharge. If you are working	20	Q. Only? This us you maleuted, you ve mud 20
			D 54
	Page 55		Page 56
1	Page 55 problems with this unit in, 28 maintenance	1	Page 56 costs have been roughly \$11,000.00. I did not
1 2	Page 55 problems with this unit in, 28 maintenance events for this control system and there were	1 2	Page 56 costs have been roughly \$11,000.00. I did not specifically ask the question, what were 2002
1 2 3	Page 55 problems with this unit in, 28 maintenance events for this control system and there were more than that for the previous control	1 2 3	Page 56 costs have been roughly \$11,000.00. I did not specifically ask the question, what were 2002 number, but it's still an ongoing issue. And
1 2 3 4	Page 55 problems with this unit in, 28 maintenance events for this control system and there were more than that for the previous control system, but none of them resulted in these	1 2 3 4	Page 56 costs have been roughly \$11,000.00. I did not specifically ask the question, what were 2002 number, but it's still an ongoing issue. And since mid February, it's been roughly
1 2 3 4 5	Page 55 problems with this unit in, 28 maintenance events for this control system and there were more than that for the previous control system, but none of them resulted in these types of very serious problems?	1 2 3 4 5	Page 56 costs have been roughly \$11,000.00. I did not specifically ask the question, what were 2002 number, but it's still an ongoing issue. And since mid February, it's been roughly \$11,000.00.
1 2 3 4 5 6	Page 55 problems with this unit in, 28 maintenance events for this control system and there were more than that for the previous control system, but none of them resulted in these types of very serious problems? A. No, they would result in unavailability of the	1 2 3 4 5 6	Page 56 costs have been roughly \$11,000.00. I did not specifically ask the question, what were 2002 number, but it's still an ongoing issue. And since mid February, it's been roughly \$11,000.00. Q. And what would be the anticipated maintenance
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Multi-Page[™]NL Hydro 2004 Capital Budget Application

	Page 57		Page 58
1	of snowclearing in small areas. It's	1	A. Yes.
2	basically used on a very, very frequent basis	2	Q. Now, am I correctbecause when I go back and
3	and there was not specific evaluation done.	3	forth between the reports, there's some
4	So, it would be very unlikely that the, for	4	slightly different terminology that if a
5	the amount of requirement to have for that	5	report refers to stage one, then it's
6	machine, it would be cost effective to lease	6	referring to units one and two. And if it
7	and we need it available for any dyke or dam	7	refers to stage two, it's looking at unit
8	event that comes up on a short-term notice.	8	three.
9	O. Do you know how many hours of use there are on	9	A. Yes.
10	this?	10	O Okay Now units one and two are WDPF level
11	A I did not ask that question I doI was sure	11	6
12	that it's a very heavily used machine. It's	12	A Yes
12	used you know if not daily it's used you	12	0 And they were installed in 1988?
11	know weakly	14	A Vec
14	O Now if we go to B17 that's upgrading the	14	A. 105. O. And unit number three is WDPE level 7 and it
15	Q. Now, if we go to B17, that's upgrading the	15	yes installed in 1002
10	is for 1.5 million dollars in 2004 with an	10	A That's correct
1/	is for 1.5 minion donars in 2004 with an	1/	A. That S context. O Now, there was $$476,000,00$ spent on units one
18	million in 2005 right?	18	Q. Now, there was \$470,000.00 spent on units one and two in 20002. Let me, refer you to BU 10
19	million in 2005, right?	19	and two in 2000 ? Let me refer you to PU-19, 1000/2000 and L thigh that Mr. Q2Diallacker
20	A. Yes.	20	1999/2000 and 1 think that Mr. O Rielly has
21	Q. For a total of 2.5 million?	21	that on the system and if he doesn t, I have
22	A. Yes.	22	copies. If we go to the generation budget -
23	Q. The first paragraph says that there's obsolete	23 I	MR. O'RIELLY:
24	distributed control systems on each of the	24	Q. There appears to be five pages in the
125	three units?	25	document. Ms. Greene. (Inaudible) supporting
			contained, initial circular (initial circular of supporting
	Page 59		Page 60
1	Page 59 documents.	1	Page 60 now?
1 2	Page 59 documents. HENLEY ANDREWS, Q.C.:	1 2	Page 60 now? A. Yes, I believe.
1 2 3	Page 59 documents. HENLEY ANDREWS, Q.C.: Q. Okay. So, you don't have the attachments.	1 2 3	Page 60 now? A. Yes, I believe. Q. If you go to page A-5, you can see in line 3
1 2 3 4	Page 59 documents. HENLEY ANDREWS, Q.C.: Q. Okay. So, you don't have the attachments. MR. O'RIELLY:	1 2 3 4	Page 60 now? A. Yes, I believe. Q. If you go to page A-5, you can see in line 3 under thermal plant construction projects,
1 2 3 4 5	Page 59 documents. HENLEY ANDREWS, Q.C.: Q. Okay. So, you don't have the attachments. MR. O'RIELLY: Q. It doesn't appear that way.	1 2 3 4 5	Page 60 now? A. Yes, I believe. Q. If you go to page A-5, you can see in line 3 under thermal plant construction projects, purchase and install distributed processing
1 2 3 4 5 6	Page 59 documents. HENLEY ANDREWS, Q.C.: Q. Okay. So, you don't have the attachments. MR. O'RIELLY: Q. It doesn't appear that way. HENLEY ANDREWS, Q.C.:	1 2 3 4 5 6	Page 60 now? A. Yes, I believe. Q. If you go to page A-5, you can see in line 3 under thermal plant construction projects, purchase and install distributed processing units for Unit 1 and 2 WDPF system, Holyrood.
1 2 3 4 5 6 7	Page 59 documents. HENLEY ANDREWS, Q.C.: Q. Okay. So, you don't have the attachments. MR. O'RIELLY: Q. It doesn't appear that way. HENLEY ANDREWS, Q.C.: Q. Well then, it's a good thing I have a copy.	1 2 3 4 5 6 7	Page 60 now? A. Yes, I believe. Q. If you go to page A-5, you can see in line 3 under thermal plant construction projects, purchase and install distributed processing units for Unit 1 and 2 WDPF system, Holyrood. A. Yes.
1 2 3 4 5 6 7 8	Page 59 documents. HENLEY ANDREWS, Q.C.: Q. Okay. So, you don't have the attachments. MR. O'RIELLY: Q. It doesn't appear that way. HENLEY ANDREWS, Q.C.: Q. Well then, it's a good thing I have a copy. CHAIRMAN:	1 2 3 4 5 6 7 8	Page 60 now? A. Yes, I believe. Q. If you go to page A-5, you can see in line 3 under thermal plant construction projects, purchase and install distributed processing units for Unit 1 and 2 WDPF system, Holyrood. A. Yes. Q. Four hundred and seventy-six thousand dollars?
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A. Um-hm. 24 A. Um-hm. 25 O. So in 2001 when it was active you could be a set of that	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Page 63 also retired? A. Yes. Q. WDPF level 8 was current in 2001, and it's now described as active? A. Yes. Q. And if we go to the preceding page, the transition to active status marks the ten-year product support commitment? A. Yes. Q. And my understanding is that WDPF level 8 will be supported until 2012? A. That's likely. Q. Yes, that's also in - A. Yes. Q the thing. And the PCH platform at the bottom is now described as maintained. It was active in 2001? A. That's my understanding. Q. And again, if we go to the preceding page, active means that it's been functionally replaced by the most current product, but remains available with published pricing,	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Page 64 still buy it. It just wasn't the most up to date? A. Just the PCH. Q. But it's no longer active. It's now still supported until January of 2005, but it's no longer available for purchase? A. Yes. Q. So if we look at page 3 again, given the understanding of the ten-year product support commitment expiration date, if level 7 is maintained to January of 2003, then it would have gone to maintained status in January of 1993, correct? A. I would assume. Q. Now you only put the Unit 3 system in place in 1992? A. Yes. Q. So at that time, it would have been active? A. I don't know that offhand, but - Q. But do you know whether, at that time, it was the most up-to-date system? A. I suspect at that particular time it probably
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25 Q. SO III 2001, when it was active, you could 125 question to Mr. Downton, who was actually at	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Page 63 also retired? A. Yes. Q. WDPF level 8 was current in 2001, and it's now described as active? A. Yes. Q. And if we go to the preceding page, the transition to active status marks the ten-year product support commitment? A. Yes. Q. And my understanding is that WDPF level 8 will be supported until 2012? A. That's likely. Q. Yes, that's also in - A. Yes. Q the thing. And the PCH platform at the bottom is now described as maintained. It was active in 2001? A. That's my understanding. Q. And again, if we go to the preceding page, active means that it's been functionally replaced by the most current product, but remains available with published pricing, normal lead times and complete support? A. Um-hm.	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Page 64 still buy it. It just wasn't the most up to date? A. Just the PCH. Q. But it's no longer active. It's now still supported until January of 2005, but it's no longer available for purchase? A. Yes. Q. So if we look at page 3 again, given the understanding of the ten-year product support commitment expiration date, if level 7 is maintained to January of 2003, then it would have gone to maintained status in January of 1993, correct? A. I would assume. Q. Now you only put the Unit 3 system in place in 1992? A. Yes. Q. So at that time, it would have been active? A. I don't know that offhand, but - Q. But do you know whether, at that time, it was the most up-to-date system? A. I suspect at that particular time it probably was. Matter of fact, if you don't mind, I wouldn't mind redirecting part of that

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	Page 65		Page 66
1	the plant during that time, if his memory can	1	level 6 system implemented in 1988. The
2	serve him, and I apologize, Eric, but he was a	2	existing DCS on stage 2 is WDPF level 7,
3	plant engineer at the time and who oversaw	3	implemented in 1992," and it shows "active
4	this installation. Eric, I'm sorry to put you	4	technology, but was used primarily to maintain
5	on the spot. Do you recall if that was the	5	consistency with stage 1."
6	most active at that time?	6	A. That's what it says.
7	MR. DOWNTON:	7	Q. Okay. So it was available for purchase, but
8	A. I haveno.	8	was not the most recent product, according to
9	MR. HAYNES:	9	their definition?
10	A. Okay. Sorry.	10	A. That would be a reasonable assumption.
11	MR. DOWNTON:	11	Q. Okay.
12	A. It was fifteen years.	12	A. And if you go back to page 2 of the vendor
13	Q. Okay. Well let's go to -	13	document, it does say "for active products,
14	MR. HAYNES:	14	these products are intended for expansion of
15	A. There would be a desire though, at that	15	existing systems where the need for product
16	particular plant, given the complexity, to	16	consistency outweighs the features,
17	have the systems the same, you know, the same-	17	performance, and longer term potential of the
18	-install a system to ease operational	18	current product." So it was a logical
19	maintenance and so on.	19	approach at the time.
20	O Okay So let's go to Section G of the	20	O Or you believe it would have been yes
21	Application Appendix 2 or Tab 2 page 1 So	21	A L believe it was the best based on the
22	that will answer the question for you. If you	22	maintenance and the criticality of Holyrood in
23	look at the very first paragraph the second	23	our generation links
24	sentence says "the existing DCS on stage 1 is	24	O Now it was roughly a half million dollars
25	a Westinghouse distributed processing family	2 4 25	four hundred and seventy-six thousand dollars
25	a westinghouse distributed processing family	25	Tour numerou and seventy six thousand donars,
	Page 67		Page 68
1	and in 2000, to purchase and install DPUs for	1	all part of the installation in 1988 and 1992.
2	Units 1 and 2 -	2	That will be retained so that we don't have to
3	A. Additional DPUs for Units 1 and 2.	3	go and replacement all that. That is one of
4	Q. Okay. But they were obsolete at that time,	4	the reasons why we think it'swhy we
5	weren't they?	5	obviously think it's preferred to go to the
6	A. They would have in theI assume they would	6	Ovation, because we can reuse all that
7	have been in the active or maintained product	7	equipment, as opposed to turfing that out and
8	category.	8	replacing the whole. So you know, at the end
9	Q. Now -	9	of this particular project, we will haveall
10	A. But it was not thought to haveI would assume	10	this equipment will be on the maintained and
11	that it was not thought appropriate to upgrade	11	currentthe maintained, sorry, get the right
12	that whole system at that particular time.	12	word here, will be a current product line.
			······································
13	Q. Now when I look at the justification for this	13	Q. Now -
13 14	Q. Now when I look at the justification for this project, it says that "the manufacturer has	13 14	Q. Now - A. The Ovation will be continued for some period
13 14 15	Q. Now when I look at the justification for this project, it says that "the manufacturer has informed Hydro that parts of the DCS are	13 14 15	Q. Now -A. The Ovation will be continued for some period of time.
13 14 15 16	Q. Now when I look at the justification for this project, it says that "the manufacturer has informed Hydro that parts of the DCS are obsolete and the system is no longer	13 14 15 16	Q. Now -A. The Ovation will be continued for some period of time.Q if you look at page 4 of the vendor document
13 14 15 16 17	Q. Now when I look at the justification for this project, it says that "the manufacturer has informed Hydro that parts of the DCS are obsolete and the system is no longer supported." So is the whole system obsolete	13 14 15 16 17	 Q. Now - A. The Ovation will be continued for some period of time. Q if you look at page 4 of the vendor document -
13 14 15 16 17 18	Q. Now when I look at the justification for this project, it says that "the manufacturer has informed Hydro that parts of the DCS are obsolete and the system is no longer supported." So is the whole system obsolete or just parts of it?	13 14 15 16 17 18	 Q. Now - A. The Ovation will be continued for some period of time. Q if you look at page 4 of the vendor document - A. Yes.
 13 14 15 16 17 18 19 	Q. Now when I look at the justification for this project, it says that "the manufacturer has informed Hydro that parts of the DCS are obsolete and the system is no longer supported." So is the whole system obsolete or just parts of it?A. There are several components of the system.	13 14 15 16 17 18 19	 Q. Now - A. The Ovation will be continued for some period of time. Q if you look at page 4 of the vendor document - A. Yes. Q that's a discussion of the life cycle
 13 14 15 16 17 18 19 20 	 Q. Now when I look at the justification for this project, it says that "the manufacturer has informed Hydro that parts of the DCS are obsolete and the system is no longer supported." So is the whole system obsolete or just parts of it? A. There are several components of the system. Our plan is to reuse the input/output. If you 	13 14 15 16 17 18 19 20	 Q. Now - A. The Ovation will be continued for some period of time. Q if you look at page 4 of the vendor document - A. Yes. Q that's a discussion of the life cycle evaluation report for Units 1 and 2?
 13 14 15 16 17 18 19 20 21 	 Q. Now when I look at the justification for this project, it says that "the manufacturer has informed Hydro that parts of the DCS are obsolete and the system is no longer supported." So is the whole system obsolete or just parts of it? A. There are several components of the system. Our plan is to reuse the input/output. If you go to page 3 of the vendor document there that 	13 14 15 16 17 18 19 20 21	 Q. Now - A. The Ovation will be continued for some period of time. Q if you look at page 4 of the vendor document - A. Yes. Q that's a discussion of the life cycle evaluation report for Units 1 and 2? A. Yes.
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 13 14 15 16 17 18 19 20 21 22 23 	 Q. Now when I look at the justification for this project, it says that "the manufacturer has informed Hydro that parts of the DCS are obsolete and the system is no longer supported." So is the whole system obsolete or just parts of it? A. There are several components of the system. Our plan is to reuse the input/output. If you go to page 3 of the vendor document there that was in the IC-27 - Q. Yes. 	 13 14 15 16 17 18 19 20 21 22 23 	 Q. Now - A. The Ovation will be continued for some period of time. Q if you look at page 4 of the vendor document - A. Yes. Q that's a discussion of the life cycle evaluation report for Units 1 and 2? A. Yes. Q. Up at the top. And it shows that there are ten DPUs, two engineer MMIs, eight operator
 13 14 15 16 17 18 19 20 21 22 23 24 	 Q. Now when I look at the justification for this project, it says that "the manufacturer has informed Hydro that parts of the DCS are obsolete and the system is no longer supported." So is the whole system obsolete or just parts of it? A. There are several components of the system. Our plan is to reuse the input/output. If you go to page 3 of the vendor document there that was in the IC-27 - Q. Yes. A it says that the Q line I/O, input/output 	 13 14 15 16 17 18 19 20 21 22 23 24 	 Q. Now - A. The Ovation will be continued for some period of time. Q if you look at page 4 of the vendor document - A. Yes. Q that's a discussion of the life cycle evaluation report for Units 1 and 2? A. Yes. Q. Up at the top. And it shows that there are ten DPUs, two engineer MMIs, eight operator MMIs, and one HDR?

	Page 69		Page 70
1	Q. Now with respect to the DPUs, it says "the	1	Q. And similarly, if you look at the classic
2	short term planning recommendation is upgrade	2	engineer MMI, the short term planning
3	to 486 level DPU, and a long term planning	3	recommendation is upgrade to PCH for WEStation
4	recommendation is consider migration to	4	engineer's station and a long term planning
5	Ovation."	5	recommendation is to consider migration to
6	A. Yes.	6	Ovation.
7	O. Have you considered upgrading to the 486 level	7	A. Um-hm.
8	DPU?	8	o. Right?
9	A I think the 486 is more along the lines of I	9	A Yes
10	iust don't remember now I did read that	10	0 And when you look at this page 5 similarly
11	information One is an 88: one is a 286 and	11	for the operator MMI and the HDR short term
12	one is a 486 I don't know if the 486 is a	12	planning_there's a short term planning
12	level 8 WDDE level 8 I suspect it is	12	recommendation and a long term planning
13	O Okay I think it is okay but	13	recommendation and the long term is
14	Q. Okay. I unink it is, okay, but -	14	considered migration to Ovation
15	A. But it has a very finite time horizon. It's	15	Lim hm
10	alleady been classified as a product they will not continue in excess of ten years	10	A. UII-IIII.
17	O Dut if you look at it, and you look at WDDE 0	1/	Q. Kigiit?
18	Q. But II you look at II, and you look at wDPF 8,	18	A. Yes.
19	it's currently active, because we just	19	Q. And what Hydro is proposing to do is to
20	discussed that, and its maintenance support is	20	migrate to Ovation?
21	guaranteed to 2012.	21	A. Yes.
22	A. Yes.	22	Q. Now on WEStation, which is mentioned down
23	Q. So it's guaranteed for eight years beyond	23	below, it says current support status,
24	2004, correct?	24	current, ten years' support commitment, no
25	A. Yes.	25	expiration date set yet. There is a reference
	D 71		
	Page /1		Page 72
1	to sourcing issues and short term planning	1	Page 72 Q. So gradually move to Level 8?
1 2	Page /1 to sourcing issues and short term planning recommendations, upgrade to PCI Bios on work	1 2	Page 72 Q. So gradually move to Level 8? A. Yes. And if you look in the table of values,
1 2 3	to sourcing issues and short term planning recommendations, upgrade to PCI Bios on work station if replacements of S Bios is needed,	1 2 3	Page 72 Q. So gradually move to Level 8? A. Yes. And if you look in the table of values, you'll see the varying cash flows there and
1 2 3 4	to sourcing issues and short term planning recommendations, upgrade to PCI Bios on work station if replacements of S Bios is needed, and no long term planning recommendations."	1 2 3 4	Page 72 Q. So gradually move to Level 8? A. Yes. And if you look in the table of values, you'll see the varying cash flows there and different capital expenditures for the next
1 2 3 4 5	to sourcing issues and short term planning recommendations, upgrade to PCI Bios on work station if replacements of S Bios is needed, and no long term planning recommendations." So if wewith respect to units 1 and 2 and 3,	1 2 3 4 5	Page 72 Q. So gradually move to Level 8? A. Yes. And if you look in the table of values, you'll see the varying cash flows there and different capital expenditures for the next number of years.
1 2 3 4 5 6	to sourcing issues and short term planning recommendations, upgrade to PCI Bios on work station if replacements of S Bios is needed, and no long term planning recommendations." So if wewith respect to units 1 and 2 and 3, has Hydro analyzed the cost of upgrading on	1 2 3 4 5 6	Page 72 Q. So gradually move to Level 8? A. Yes. And if you look in the table of values, you'll see the varying cash flows there and different capital expenditures for the next number of years. Q. Okay. Now in looking at the gradually
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1 2 3 4 5 6 7 8	to sourcing issues and short term planning recommendations, upgrade to PCI Bios on work station if replacements of S Bios is needed, and no long term planning recommendations." So if wewith respect to units 1 and 2 and 3, has Hydro analyzed the cost of upgrading on the short term planning recommendations rather than migrating?	1 2 3 4 5 6 7 8	 Page 72 Q. So gradually move to Level 8? A. Yes. And if you look in the table of values, you'll see the varying cash flows there and different capital expenditures for the next number of years. Q. Okay. Now in looking at the gradually migrating to Level 8, do you consider that or is that analysis the same as following the
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1 2 3 4 5 6 7 8 9 10	 Page /1 to sourcing issues and short term planning recommendations, upgrade to PCI Bios on work station if replacements of S Bios is needed, and no long term planning recommendations." So if wewith respect to units 1 and 2 and 3, has Hydro analyzed the cost of upgrading on the short term planning recommendations rather than migrating? (11:00 a.m.) A. What we did, we looked at three options, from 	1 2 3 4 5 6 7 8 9 10	 Page 72 Q. So gradually move to Level 8? A. Yes. And if you look in the table of values, you'll see the varying cash flows there and different capital expenditures for the next number of years. Q. Okay. Now in looking at the gradually migrating to Level 8, do you consider that or is that analysis the same as following the short term planning recommendation? A. I did not go down to that level of detail or
1 2 3 4 5 6 7 8 9 10 11	 Page /1 to sourcing issues and short term planning recommendations, upgrade to PCI Bios on work station if replacements of S Bios is needed, and no long term planning recommendations." So if wewith respect to units 1 and 2 and 3, has Hydro analyzed the cost of upgrading on the short term planning recommendations rather than migrating? (11:00 a.m.) A. What we did, we looked at three options, from a long term costing point of view for this 	1 2 3 4 5 6 7 8 9 10 11	 Page 72 Q. So gradually move to Level 8? A. Yes. And if you look in the table of values, you'll see the varying cash flows there and different capital expenditures for the next number of years. Q. Okay. Now in looking at the gradually migrating to Level 8, do you consider that or is that analysis the same as following the short term planning recommendation? A. I did not go down to that level of detail or examine that. They put forward an alternative
1 2 3 4 5 6 7 8 9 10 11 12	 Page /1 to sourcing issues and short term planning recommendations, upgrade to PCI Bios on work station if replacements of S Bios is needed, and no long term planning recommendations." So if wewith respect to units 1 and 2 and 3, has Hydro analyzed the cost of upgrading on the short term planning recommendations rather than migrating? (11:00 a.m.) A. What we did, we looked at three options, from a long term costing point of view for this particular project. We looked at the carry on 	1 2 3 4 5 6 7 8 9 10 11 12	 Page 72 Q. So gradually move to Level 8? A. Yes. And if you look in the table of values, you'll see the varying cash flows there and different capital expenditures for the next number of years. Q. Okay. Now in looking at the gradually migrating to Level 8, do you consider that or is that analysis the same as following the short term planning recommendation? A. I did not go down to that level of detail or examine that. They put forward an alternative to carry on and make the best of it of moving
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Multi-Page[™]NL Hydro 2004 Capital Budget Application

	Page 73		Page 74
1	A. Not down to each individual particular sub-	1	lot of other resources just keeping track and
2	component. That is way downthat's very,	2	doing an annual review. It's notthe viable
3	very deep.	3	alternative is to move to the Ovation system.
4	O. But I'm not asking you to go down into each	4	which will have long term support by the
5	individual component. What I'm saving to you	5	vendor and assure us of continued good
6	is that which of the alternatives, presented	6	operation of the plant.
7	on page 5 of Hydro's net present cost	7	O. Well, the thing is that what you are proposing
8	analysis, if any, reflects the cost of	8	here is a Capital Budget item for 2004, right?
9	following the manufacturer's short term	9	A. That's correct.
10	planning recommendations?	10	O. And under the legislation, as we explored
11	A. Just one second, please. If you refer to page	11	vesterday, the Board has to not only be
12	4 of the report -	12	satisfied that it's reasonably necessary, but
13	0. Yes.	13	also that it's the least cost option, correct?
14	A - that's in Tab 3 and on the first complete	14	A And it assuresves and it assures reliable
15	paragraph it is a gradual migration and	15	operation of the plant
16	basically there are a number of things in	16	O Okay Now the manufacturer has made a
17	there from the point of view of we're going to	17	recommendation short term planning
18	have mixed and matched components. There are	18	recommendations and long term planning
10	obviously some savings in training because we	10	recommendations correct?
20	can delay that. The parts procurement may not	20	
20	be guaranteed over the life of the expansion	20	A. And its short term planning recommendation is
21	depending on their particular plans. You	21	to upgrade some things to 486 level DBU and
22	know it's not a viable alternative for us to	22	other things to PCH or WEStation correct?
23	take at Holyrood We'll spend all our time	23	A Ves
24	doing that particular job and then require a	24	A. 105. And can you tell me if alternative two on page
23		2.5	Q. And can you ten me n alternative two on page
1	Page /5		Page /6
	5 analyzes the east of fallowing the	1	an derive to each of these substance the
2	5 analyzes the cost of following the	1	go down to each of these subsystems, the
2	5 analyzes the cost of following the manufacturer's recommendations for short term	1 2 2	go down to each of these subsystems, the manned machine interface, et cetera, et
2 3	5 analyzes the cost of following the manufacturer's recommendations for short term planning? And if you can't, that's fine, but I'm asking can you tall ma?	1 2 3	go down to each of these subsystems, the manned machine interface, et cetera, et cetera, and specifically ask the question if they were phased in as specifically per pages
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	Page 77			Page 78
I	Q. Now if we look at page 6 of the manufacturer's	1		that it is, then there's eight years remaining
2	report, and you can see that it talks about	2		after 2004, right, because it's being
3	the system migration alternatives.	3		supported to 2012. And as I understand the
4	A. Yes.	4		material, Ovation is expected to have a life
5	Q. That's from IC-27, I'm sorry, page 6. So it	5		of ten to fifteen years?
6	talks about the fourththe third bullet is	6	A.	At least, ves.
7	that the migration alternatives are WEStation	7	0.	So we're looking at eight years versus ten to
8	or Ovation platforms. Do you have that?	8	ς.	fifteen vears?
9	A Yes	9	Δ	And possibly longer depending on where
10	• And the fourth bullet under system migration	10	11.	they're going They're still_they are still
10	alternatives is to ungrade to WEStation and	10		salling that particular product to new
11	later upgrade to Overline if a gradual	11		installations
12	microtion is desired	12	0	Instantions.
13	migration is desired.	13	Q.	But now, but you see the thing is that high
14	A. Yes.	14		very well be true, but for the purpose of
15	Q. And then there's a discussion below that of	15		doing the cost analysis, you have to pick a
16	the benefits of upgrading to the WEStation	16		number of years, right?
17	platform, and it talks about the life of the	17	A.	We've done the -
18	current system being extended and that it does	18	Q.	To do a net present value.
19	provide a migration path to Ovation, right?	19	A.	- we've done the economic evaluation to 2020,
20	A. Yes.	20		as we normally do most things for Hydro, for
21	Q. The Q line I/O was fully supported, whatever	21		the Holyrood plant of late.
22	that is, and all the various other things that	22	Q.	Okay. But 2020 is because that's the expected
23	WEStation platform can offer, right?	23		life of the Holyrood plant, right?
24	A. Yes.	24	A.	Well, the plant will last, I'm sure, longer
25	Q. Now if WDPF8 is WEStation, and we believe	25		than that, but that is a number that we've
	Page 79			Page 80
1	been using for most things that we're doing	1		and analyze migration annually, which is the
2	now. ves.	2		worst case, which is you know along the
3	O Okay And you would agree that the net	3		lines I think of what you're proposing we
4	present value calculations are affected or do	4		have to spend a significant amount of money in
5	you know whether the net present value	5		2010 and 2011
6	you know whether the net present value			2010 ulla 2011.
0	calculations are affected by the life that you	61	(11.1)	15 a m)
7	calculations are affected by the life that you choose for the individual pieces of equipment?	6 ((11:1	15 a.m.) Let's go to page 2 now change direction a
7 8	calculations are affected by the life that you choose for the individual pieces of equipment?	6 (7 8	(11:1 Q.	15 a.m.) Let's go to page 2 now, change direction a little bit and go to page 2 of Section G at
7 8	calculations are affected by the life that you choose for the individual pieces of equipment?A. The net present value calculation that we do here we basically look at the capital cost.	6 (7 8	(11:1 Q.	15 a.m.) Let's go to page 2 now, change direction a little bit and go to page 2 of Section G at number 2, which is your internal report on the
7 8 9	calculations are affected by the life that you choose for the individual pieces of equipment?A. The net present value calculation that we do here, we basically look at the capital cost and the operating maintenance cost throughout	6 (7 8 9	(11:1 Q.	15 a.m.) Let's go to page 2 now, change direction a little bit and go to page 2 of Section G at number 2, which is your internal report on the life cycle planning alternatives
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7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	 calculations are affected by the life that you choose for the individual pieces of equipment? A. The net present value calculation that we do here, we basically look at the capital cost and the operating maintenance cost throughout the expected life of the product, the thing. The thing that will change mostly, the long term net present value analysis is if you have to spend more money in the future period of time. Q. Depending on your options? A. Yes. And if you go to the intermediate level in 2014, they anticipate, and in one case 2010, I don't have the colours thing in front of me, but I think it's theif you go to alternative two, which is gradual migration, it is anticipated in 2014 you will actually spend a significant piece of net present value dollars to buy you more time. If you go with 	6 (7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	(11:1 Q. A. Q.	15 a.m.) Let's go to page 2 now, change direction a little bit and go to page 2 of Section G at number 2, which is your internal report on the life cycle planning alternatives. Yes. And if we go to the very last paragraph on that page, it talks about existing cabinets, et cetera, preserved when upgrading to level 8 or migrating to Ovation, and it saves equipment and labour costs and reduces outage time. It says "labour related to commissioning I/O terminations can usually match equipment costs. Upgrading or migrating is more cost efficient than implementing a DCS from a different supplier." Yes. What is the cost of implementing a DCS from a different supplier?

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	Page 81		Page 82
1	worked out the detail, because we would have	1	A. Well, I guess, when we went in 1988, 1992,
2	to replace all the I/O cabinets and so on, and	2	there used to be a Bailey system, and I guess
3	that would beI think basically his	3	at that particular time, that particular
4	experience and what he has there, clearly	4	system was competitive with the vendors.
5	indicates that that would be just not economic	5	Q. We know that this technology is changing?
6	to do. You would have to go back -	6	A. Oh yes.
7	Q. So that we don't have -	7	Q. And that's why you're looking at this upgrade
8	A and field test every input back over, all	8	in the first place.
9	over again, which for thousands of inputs to	9	A. I would not support going outwhat they have
10	the DCS, this would be an inordinate amount of	10	proposed makes perfect sense to me, based on
11	labour on the part of the technicians at the	11	my experience, and it makes perfect sense to
12	plant and extend the outage a considerable	12	the engineering department and to the plant
13	amount of time.	13	operating personnel to take this approach.
14	O. But in terms of the cost of implementing a DCS	14	0. How does the Board determine whether it's
15	from a different supplier, we don't have that.	15	least cost?
16	do we?	16	A. We have provided three scenarios to extend the
17	A. We have not evaluated that option. It was	17	life of the system. This is a least cost.
18	clearly in their view in their experience, it	18	O But you haven't looked at the cost of getting
19	was clearly the most logical route for life	19	something other than Emerson Westinghouse?
20	extension was to replace it with the Ovation	20	A In this particular case no We don't think
20	system from the current supplier for reuse of	20	it's justified or worth doing
21	so many common parts	21	• And at the moment you don't know whether
22	O But if you don't investigate it then you	22	you've investigated the cost of the short term
23	don't over know whether your assumptions are	23	planning recommondations by Emerson
24	correct do you?	24	Wastinghouse?
23		23	westinghouse :
	Page 83		Page 84
1	A. I think we'veI don'tI cannot confirm that,	1	Q. And we know that WPDF 8, its status is
2	but I would suspect we've covered that off in	2	currently active, so its products are
3	alternativein the gradual migration in	3	available?
4	alternative two and three, particularly number	4	A. Yes.
5	three, where we basically just go along and we	5	Q. So you wouldn't be purchasing used and/or last
6	extend it as we go, all of which are more	6	buy spares if you were migrating to that
7	expensive than just replacing it with a	7	system, right, because the components are
8	current supported system used by over sixteen	8	still available for purchase? Active is
9	thousand other particular generators.	9	system products that have been functionally
10	Q. The net present value calculations, if we go	10	replaced by the most current product, but
11	back to page 6 of that report, you can see	11	remain available with published pricing,
12	that option two includes the purchase of used	12	normal lead times and complete support.
13	and/or last buy spares.	13	A. Okay.
14	A. Yes, that's onthis is the vendor's document	14	Q. So -
15	or our document?	15	A. They may be new, yes.
16	Q. Your document.	16	Q. And you can see that and in that option for
17	A. Page 6?	17	alternative two, it says that between 2004 and
18	Q. Page 6.	18	2011, the capital costs are to purchase and
19	A. Paragraph?	19	install parts of a WDPF level 8 system?
20	Q. Paragraph, the first paragraph, "capital costs	20	A. Yes.
21	for alternative two -	21	Q. And that 2015 capital costs is to purchase and
22	A. Okay.	22	install new equipment for stage one and
23	O include the purchase of used and/or last buy	23	allocate the retired WDPF level 8 equipment as
24	spares."	24	spares for stage two?
25	A. Yes.	25	A. Yes.

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	Page 85		Page 86
1	Q. So that option does not appear to include what	1	Q. Now if we look at Option one and page 6 of
2	the manufacturer has recommended for the short	2	your internal analysis, the fourth paragraph,
3	term, does it?	3	the last sentence says "an Ovation system,
4	A. Well, I have undertaken to find out that	4	with minor software upgrades, will serve the
5	information and get back to you.	5	plant over this time frame," which is until
6	Q. And similarly, if you look at alternative	6	2020, "unless an foreseeable major
7	three, it includes the purchase again of used	7	technological advancement stops production of
8	and/or last buy spares. So if we go down a	8	compatible components for spare parts," right?
9	little further, on page 6, or actually and	9	A. Yes.
10	even in relation to page 5, you would agree	10	Q. And the history with Emerson Westinghouse is
11	that the net present value calculation	11	that that's fairly likely, isn't it?
12	includes a lot of assumptions?	12	A. As with any vendor, although they have done a
13	A. They always do. We will not know the	13	very good job of letting us know when changes
14	definitive price for any of this until we go	14	are, and they publish it on their web site, so
15	to tender. It's based on engineering	15	we know what their plans are. We have some
16	judgment, experience, from the people who are	16	assurance that we have, at least, a ten to
17	doing the work.	17	fifteen year horizon of maintainability. The
18	Q. Okay. But you would agree that the	18	Holyrood plant basically is a 500 megawatt
19	manufacturer, Emerson Westinghouse, has	19	plant and Hydro is not prepared to dicker and
20	indicated that you can go to WEStation and	20	jeopardize the reliability of that plant.
21	then migrate to Ovation?	21	It's crucial for Newfoundland and Labrador
22	A. They say that in their documentation, yes.	22	Hydro to meet its winter peak.
23	Q. And that that system provides a migration	23	Q. So 2020 is sixteen years from 2004, and if we
24	path?	24	look at your justification for the project at
25	A. Yes.	25	page B-18, it says that based on the
			F - 8
	Page 87		Page 88
1	Page 87 information from the vendor, if new	1	Page 88 Q. Do you know what the cost of that was?
1 2	Page 87 information from the vendor, if new technology, would have guaranteed support for	1 2	Page 88 Q. Do you know what the cost of that was? A. Not offhand.
1 2 3	Page 87 information from the vendor, if new technology, would have guaranteed support for ten years and it's expected that with minor	1 2 3	Page 88 Q. Do you know what the cost of that was? A. Not offhand. Q. Can you find out? (UNDERTAKING) Because your
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1 2 3 4 5 6	Page 87 information from the vendor, if new technology, would have guaranteed support for ten years and it's expected that with minor software upgrades, it will serve the plant for the next fifteen years? A. Yes.	1 2 3 4 5 6	Page 88 Q. Do you know what the cost of that was? A. Not offhand. Q. Can you find out? (UNDERTAKING) Because your budgets weren't approved by the Board until 1997. I don't have that information available. Then in 1999 and 2000, opacity
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$ \begin{array}{c} 1\\2\\3\\4\\5\\6\\7\\8\\9\\10\\11\\12\\13\\14\\15\\16\\17\\18\\19\\20\end{array} $	 Page 87 information from the vendor, if new technology, would have guaranteed support for ten years and it's expected that with minor software upgrades, it will serve the plant for the next fifteen years? A. Yes. Q. Which would bring it to 2019? A. Yes. Q. But in your analysis of the alternative, there's no major capital outlay factored in for 2020. A. No. Q. I'm going to move on to the Ambient Monitoring System at B-19. Am I correct in interpreting this project as installing fine particulate and NOx and SOx monitoring at the existing Ambient Monitoring stations? A. Fine particulate and NOx. SOx is already there. Q. Okay. Now according to the information that's 	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	 Page 88 Q. Do you know what the cost of that was? A. Not offhand. Q. Can you find out? (UNDERTAKING) Because your budgets weren't approved by the Board until 1997. I don't have that information available. Then in 1999 and 2000, opacity meters were installed on the stacks to monitor visible emissions which it says is smoke density of the exit gases? A. Yes. Q. Now according to PU-32 in 1998-99, the amount budgeted for 1999 to do that was four hundred and three thousand dollars. But when I looked at the budget for 2000, I couldn't find anything in the 2000 budget to deal with opacity meters. Are you aware of any specific project in 2000? A. Not offhand, no. Q. Can you check that as well? (UNDERTAKING) And then in 2002, you got approval, and that's for
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	Page 89		Page 90
1	Q. And to manage emissions through the control of	1	A. And fine particulate, I believe.
2	the combustion process?	2	Q. Yes. And the cost of that was a hundred and
3	A. Yes.	3	eighty-four thousand dollars?
4	Q. And that's not yet completed?	4	A. Yes.
5	A. That is near completion. That was delayed	5	Q. And based upon F-5, four thousand dollars of
6	because we were late getting our approval. It	6	that has been spent as of May 31st of 2003?
7	will be operational in the fall. The units	7	A. I think there's more now. The contract has
8	are shut down at the moment.	8	been awarded, so it's in progress.
9	Q. And I'm sure you will recall that during the	9	Q. So you are in the process of acquiring that
10	2002 hearing, the necessity for that was hotly	10	Mobile Ambient Monitoring station?
11	contested?	11	A. Yes. The contract has been awarded.
12	A. I wouldn't use those words. The	12	Q. And the justification for that Mobile Ambient
13	justification, it was a justified project.	13	Monitoring station was that it could be moved
14	O. And that cost eight hundred and one thousand?	14	from place to place to facilitate monitoring
15	A. That's the estimate, yes.	15	those various things at different locations?
16	O. So excluding the 1996 expenditure that you've	16	A. Over a longer period of time, the intention is
17	indicated that you'll get, and you're checking	17	to install that at Seal Cove for someI won't
18	out for 2000, we got four hundred and three	18	say months, for some years, and if at some
19	thousand in 1999 and eight hundred and one	19	point in time, we rationalize that or solve
20	thousand in 2002, and in the 2003 Capital	20	those particular issues, it may be moved to
21	Budget, there is a Mobile Ambient Monitoring	21	other areas where there's a lot of customer
22	station to monitor fine particulate, including	22	complaints.
23	NOX?	23	0. Now, if youin 2003 you also requested and
24	A Yes	24	got approval for the cost of \$150,000 for a
25		2.	
	O Okay And SOX?	25	study to investigate technologies to reduce
25	Q. Okay. And SOX?	25	study to investigate technologies to reduce
25	Q. Okay. And SOX? Page 91	25	Page 92
1	Q. Okay. And SOX? Page 91 air emissions including particulates from the	1	Page 92 1997 there was a lot of assumptions made with
1 2	Q. Okay. And SOX? Page 91 air emissions including particulates from the Holyrood thermal plant?	1 2	Page 92 1997 there was a lot of assumptions made with respect to relationships between SO2 and NO 2
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	Page 93		Page 94
1	not yet installed, right?	1	the next several years, right?
2	A. I'm sorry?	2	A. It's insignificant.
3	Q. My question had been do you have any results	3	Q. Pardon me?
4	yet from the mobile unit, the mobile Ambient	4	A. It's insignificant. It's a significant amount
5	Monitoring Unit?	5	of energy, but on the whole Holyrood pictures,
6	A. No, we don't. We had a temporary system	6	in the middle of the winter we would run that
7	installed a few years ago. We had several	7	plant for 500 megawatts with Granite Canal,
8	excursions above the regulations.	8	with these power purchase contracts -
9	Q. Yeah. So you don't have any results from that	9	Q. The overall amount of fuel that is going to be
10	yet?	10	burned at Holyrood, based upon your 2003
11	A. No. And I don't think we need it to enhance	11	general rate application, will be
12	these projects.	12	significantly less in the next couple of years
13	Q. And if weand that mobile system was	13	than it has been in the last couple of years
14	justified on the basis that it was movable,	14	as a result of these two projects?
15	could be moved from place to place?	15	A. No. I'm sorry, that's not correct. It will be
16	A. It could be moved, yes. But it was not	16	a little bit less because of those projects.
17	envisaged to move it on a monthly or, you	17	It will be significantly less because it's
18	know, a quarterly basis. It would be	18	based on average inflow conditions. The last
19	installed in Seal Cove so we'd get a good	19	two years we have not had average water
20	operating history of how many times we have an	20	situations. The average production in
21	inversion, how many times we exceed the air	21	Holyrood in the last two years have been
22	quality regulations in a local area.	22	exceptionally high records.
23	Q. Now, when we look at Granite Canal and the	23	Q. So you're tell me that notwithstanding the
24	power purchase agreements coming on stream,	24	document that we looked at earlier, which is
25	the use of Holyrood is going to decrease for	25	your evidence of in the 2003 general rate
23	the use of Horytood is going to decrease for		your evidence of in the 2005 general face
23	Page 95		Page 96
1	Page 95 application thatI mean, my understanding	1	Page 96 Q. Well -
1 2	Page 95 application thatI mean, my understanding with Holyrood is that Holyrood hasis	1 2	Page 96 Q. Well - A. It's in the GRA and Schedule 2. If I could
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	Page 97		Page 98
1	A. It will reduce some of the emissions, yes, on	1	combustion process, that also, in part, helps
2	an annual basis. Not necessarily on a daily	2	to quantify emissions?
3	or weekly or monthly basis, depending on how	3	A. The total discharge to the environment; not
4	the plant is utilized.	4	necessarily impingement on the ground level.
5	Q. Now, if we go to page B-21, it says that the	5	Q. That's right. No, not the ground level; I
6	current emissions are by and large below the	6	acknowledge that. But it does, nevertheless
7	statutory limits?	7	that 2002 project on the monitoring system is
8	A. Yes.	8	intended or was intended at the time to
9	Q. And that a health risk assessment report by	9	monitor emissions at the stacks, but also to
10	Cantox in 1999 concluded that further	10	allow Hydro to manage the emissions?
11	quantification of admissionsof emissions is	11	A. There is some flexibility, as was stated in
12	required?	12	that particular justification. The primary
13	A. Yes.	13	justification besides that was economics
14	Q. And some of that is what was included in the	14	because we would make the boiler process a
15	2003 Capital Budget projects, correct?	15	little bit more efficient because the operator
16	A. Being the mobile site?	16	had immediate feedback as to what the
17	Q. Yes.	17	combustion process -
18	A. Yes, that would provide one point of	18	Q. Okay. That's right.
19	impingement data.	19	A was doing.
20	Q. Then on top of that the 2002 project, which	20	Q. So the thing is that that would be you'd
21	was the continuous emission monitoring system,	21	manage the emissions through the control of
22	which is also going to be completed this year?	22	the combustion process?
23	A. Yes.	23	A. Yes.
24	Q. At the stacks and the management of the	24	Q. And that may or may not have an impact of
25	emissions through the control of the	25	emissionson emissions at the ground level,
	Dece 00		
	Page 99		Page 100
1	right?	1	Page 100 A. Yes, there are.
1 2	right? A. Well, we won't know that, obviously, until we	1 2	Page 100 A. Yes, there are. O. One of them is continuous emissions
1 2 3	right? A. Well, we won't know that, obviously, until we get X number of years of data or some -	1 2 3	Page 100 A. Yes, there are. Q. One of them is continuous emissions monitoring?
1 2 3 4	right?A. Well, we won't know that, obviously, until we get X number of years of data or some -O. Yeah. But, if you see a big difference in one	1 2 3 4	Page 100 A. Yes, there are. Q. One of them is continuous emissions monitoring? A. Yes.
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$ \begin{array}{c} 1\\2\\3\\4\\5\\6\\7\\8\\9\\10\\11\\12\\13\\14\\15\\16\\17\\18\\19\\20\\21\\22\end{array} $	 right? A. Well, we won't know that, obviously, until we get X number of years of data or some - Q. Yeah. But, if you see a big difference in one year, you may see differences or you may not see differences over a short period of time, correct? A. Because there are so many - Q. You just don't know yet? A. There are so many variables. Q. That's right. So, if we go to IC-28, this was the answer to our question about copies of orders of the Department of Environment requiring that monitoring capability be expanded. The answer is that there hasn't been an order to expand the sites to include NOx and fine particulate? A. Not a direct order, as such, no. Q. No. And then there's a reference in a letter dated March 31st of 1999 from Derrick Maddocks? A. Yes. 	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	 Page 100 A. Yes, there are. Q. One of them is continuous emissions monitoring? A. Yes. Q. And although it says, "We would encourage Hydro to consider this, but we don't view it as a requirement at this time," that has been approved? A. Yes. Q. And that will be done? A. Yes. Q. And then it says on particulate monitoring they are satisfied with the TSP program operated by Hydro for the past number of years. And then in the next paragraph it says that they'd like the program re-configured to monitor fine particulate? A. Um-hm. Q. But you've already put in place the funds for at least one station to monitor fine particulate which is the mobile station, right?
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$ \begin{array}{c} 1\\2\\3\\4\\5\\6\\7\\8\\9\\10\\11\\12\\13\\14\\15\\16\\17\\18\\19\\20\\21\\22\\23\\24\end{array} $	 Page 99 right? A. Well, we won't know that, obviously, until we get X number of years of data or some - Q. Yeah. But, if you see a big difference in one year, you may see differences or you may not see differences over a short period of time, correct? A. Because there are so many - Q. You just don't know yet? A. There are so many variables. Q. That's right. So, if we go to IC-28, this was the answer to our question about copies of orders of the Department of Environment requiring that monitoring capability be expanded. The answer is that there hasn't been an order to expand the sites to include NOx and fine particulate? A. Not a direct order, as such, no. Q. No. And then there's a reference in a letter dated March 31st of 1999 from Derrick Maddocks? A. Yes. Q. Right. And if we go to IC-29, we can see that in that letter there are a number of things 	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	 Page 100 A. Yes, there are. Q. One of them is continuous emissions monitoring? A. Yes. Q. And although it says, "We would encourage Hydro to consider this, but we don't view it as a requirement at this time," that has been approved? A. Yes. Q. And that will be done? A. Yes. Q. And then it says on particulate monitoring they are satisfied with the TSP program operated by Hydro for the past number of years. And then in the next paragraph it says that they'd like the program re-configured to monitor fine particulate? A. Um-hm. Q. But you've already put in place the funds for at least one station to monitor fine particulate which is the mobile station, right? A. One new station, yes. Q. And if we go to the minutes from the December

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	Page 101		Page 102
1	IC-29, TL, who I gather is Terry LeDrew?	1	meeting the DM and KD, who seem to be
2	A. That's correct.	2	described as Ken Dominie and Derrick Maddocks,
3	Q. Indicated that Hydro was planning on	3	under Holyrood air emissions noted the need to
4	instituting pollution prevention measures	4	reduce emissions. And then they talk about
5	which is the CEM and the particulate screens,	5	they go down through discussing the 25,000
6	and they've already been dealt with?	6	tonnes and steps that Hydro has taken in terms
7	A. Not the particulate screens.	7	of fuel specs related to sulphur, right?
8	A. No. Well, the CEM has?	8	A. Yes.
9	A. CEM, yes.	9	Q. And when you see on page 7 of 9 that you, I
10	Q. Before enhancing the existing monitoring	10	think, yeah, you indicated that the new fuel
11	equipment. And again, the CEM's, the reducing	11	contract is flexible and you can order any
12	emissions thing is dealt with. And also	12	sulphur contract with a premium on 28 days'
13	advises, on page 5 of 9, that monitors were	13	notice?
14	installed in the stack to monitor effluent	14	A. Yes.
15	opacity, which we've seen as one of the	15	Q. So you can actually give further reductions
16	projects?	16	A. On SOx only, yes.
17	A. Um-hm.	17	Q. Yes, okay. Now, it says down the fourth line
18	O. And that MGL, a fuel additive, is currently	18	from the bottom that there was discussion on
19	being used and is reducing particulate	19	air monitoring for fine particulate and NOX.
20	emission. And that trials are planned to	20	And then two lines down, that Derrick Maddocks
21	evaluate the use of a combustion catalyst to	21	suggested one site this year, which is 2002,
22	reduce particulate emissions. Has that been	22	and two in each of the next two years, but it
23	done?	23	was only as a suggestion?
24	A. I'm not certain.	24	A. That's all.
25	O. So then when we get to the May 8th, 2002	25	O. Okay. And the meeting July 5th of 2002 says
	Page 102		Page 104
1	that you distributed a draft brief entitled	1	apprinction of pollution control againment on
1	that you distributed a draft brief entitled,	1	combination of pollution control equipment on the back and or it maybe just mean simply
1 2 2	that you distributed a draft brief entitled, "SO2 emissions at Newfoundland and Labrador Hydro's Holyrood Congrating Station" And it	1 2 2	combination of pollution control equipment on the back end or it maybe just mean simply
1 2 3	that you distributed a draft brief entitled, "SO2 emissions at Newfoundland and Labrador Hydro's Holyrood Generating Station". And it	1 2 3	combination of pollution control equipment on the back end or it maybe just mean simply buying a cleaner fuel.
1 2 3 4	that you distributed a draft brief entitled, "SO2 emissions at Newfoundland and Labrador Hydro's Holyrood Generating Station". And it says a final copy of the brief is attached, but there is no final copy of the brief that's	1 2 3 4	 combination of pollution control equipment on the back end or it maybe just mean simply buying a cleaner fuel. Q. Okay. So can you provide a copy of that brief? (UNDERTAKING)
1 2 3 4 5	that you distributed a draft brief entitled, "SO2 emissions at Newfoundland and Labrador Hydro's Holyrood Generating Station". And it says a final copy of the brief is attached, but there is no final copy of the brief that's attached	1 2 3 4 5	 combination of pollution control equipment on the back end or it maybe just mean simply buying a cleaner fuel. Q. Okay. So can you provide a copy of that brief? (UNDERTAKING) A. I. don't know, if we will have a copy of the
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	Page 105		Page 106
1	we're doing and the study that we're doing	1	Q. So what's the cost of doing nothing with
2	this year is we're trying to look at the whole	2	respect to fine particulate and NOx monitoring
3	gambit of pollution and how best to do it,	3	at those stations in 2004?
4	whether it's buying a different quality of	4	A. The cost of doing nothing?
5	fuel, both for the SOxsulphur content and	5	Q. Yeah.
6	other content was dry of particulates, whether	6	A. I guess we will eventually getwe have to
7	we should be putting it back inand give us	7	negotiate with the Provincial Government an
8	an order of magnitude of cost. The cost of -	8	operating certificate for the plant, because
9	Q. But my question is, is there anything in this	9	we do not meet the current legislation on
10	minute -	10	emissions, on all emissions, so we have to
11	A. On that particular meeting of July 5th?	11	negotiate that with the government. They may-
12	Q. Yes.	12	-the more information that we have, the better
13	A. No. It's mostly to deal with the priorities	13	we are able to make a case for rational and
14	and the SOx situation at Holyrood.	14	logical expenses from the point of view of
15	Q. Now, when you get to page 2 of that document,	15	controlling emissions.
16	which is page 9 of 9 of IC-29, it says it was	16	Q. But there is no cost, is there, of doing
17	agreed that the next meeting would be in	17	nothing, because you are at the moment -
18	September, 2002?	18	A. No, there is no cost except that we have less
19	A. Yes.	19	information to make viable future Capital
20	Q. Did that meeting occur?	20	Budget proposals.
21	A. We have regular meetings with the Department	21	Q. But you still don't have the information, any
22	of Environment.	22	information, from the projects that were
23	Q. Okay. So there are no minutes for those?	23	approved in 2002 and 2003, right?
24	A. I presume there was nothing in there pertinent	24	A. No, we don't. But I don't think that's
25	to this discussion	25	relevant What we're trying to establish is
25	to this discussion.	25	relevant. What we re trying to establish is
25	Page 107	25	Page 108
1	Page 107 our total environmental footprint at Holyrood	1	Page 108 prepared to discuss.
1 2	Page 107 our total environmental footprint at Holyrood plant, which is one of the biggest polluters	1 2	Page 108 prepared to discuss. Q. But I'm just talking about if a mobile ambient
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	Page 109		Page 110
1	A. As we speak.	1	A. I'm not exactly sure. I guess presumably they
2	Q. Yeah. At a cost of nearly \$2 million?	2	want to have a better planning horizon from
3	A. Roughly.	3	the point of view of planning the job, getting
4	Q. Is it going to be completed in 2003?	4	better prices, possibly, for the vendor. The
5	A. Oh, yes, absolutely.	5	sooner we goyou know, the sooner we do the
6	Q. Now, for the 2003 budget all of the expenses,	6	preliminary work and go to tender, not rushing
7	including the engineering and the work itself	7	a closing time of tender is usually the better
8	will propose to be done in one year, in other	8	price we'll get.
9	words, with a one year project? If you look	9	Q. But you know that theI mean, you wouldthe
10	back at B-32 in the 2003 Capital Budget?	10	bigger job that you were doing was stack No.
11	A. Yes.	11	1?
12	Q. So for the second stack I noticed that the	12	A. I don't know if it was a bigger job there.
13	engineer cost is lower than for the first one.	13	Comparable job.
14	So can I assume that a certain amount of the	14	Q. Well, the same job?
15	work done in connection with stack No. 1 can	15	A. Comparable jobs.
16	be carried over into the work for stack No. 2?	16	Q. But it had a bigger engineering component?
17	A. I presume the specification would be largely	17	A. Yes. And it would have been done very early
18	reusable, because basically it's a different	18	in the year withand depending on the number
19	unit, it's a different physical location in	19	of resources we had in the engineering
20	the plant. There are a few other things that	20	department, what other jobs were on the go,
21	have to be considered, but by and larger,	21	how much time they had to spend at it.
22	that's reasonable.	22	Q. And since you're not planning to do any of the
23	Q. So why can't all the expenditures for stack	23	installation of stack No. 2 in 2004, it's just
24	No. 2 be put in the 2005 Capital Budget since	24	the engineering part, there's no real reason
25	that's the year you plan to do the work?	25	why it couldn't all be done in 2005, is there?
	Page 111		Page 112
1	Page 111 A. It's better to plan it on a two year basis.	1	Page 112 electrothe hydraulic governor. I'm not sure
1 2	Page 111 A. It's better to plan it on a two year basis. You have more time to plan, you can utilize	1 2	Page 112 electrothe hydraulic governor. I'm not sure which particular components on a critical path
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1 2 3 4	Page 111 A. It's better to plan it on a two year basis. You have more time to plan, you can utilize your engineering resources a bit better rather than cramming it all into one year and hiring	1 2 3 4	Page 112 electrothe hydraulic governor. I'm not sure which particular components on a critical path there right now, but they look at the whole to minimize the outage time. We're trying to
1 2 3 4 5	Page 111 A. It's better to plan it on a two year basis. You have more time to plan, you can utilize your engineering resources a bit better rather than cramming it all into one year and hiring more temporaries or consulting when we could	1 2 3 4 5	Page 112 electrothe hydraulic governor. I'm not sure which particular components on a critical path there right now, but they look at the whole to minimize the outage time. We're trying to assure 75 percent availability of the thermo
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1 2 3 4 5 6 7 8 9 10 11 12 13	 Page 111 A. It's better to plan it on a two year basis. You have more time to plan, you can utilize your engineering resources a bit better rather than cramming it all into one year and hiring more temporaries or consulting when we could do it in house. It also depends on the average - Q. But it's not going to affect reliability if you put it all in 2005, right? A. As long as it doesn't lengthen the window. It will affect availability if it lengthens the outage window. Q. But if you could do stack No. 1 in the 2003 	1 2 3 4 5 6 7 8 9 10 11 12 13	Page 112 electrothe hydraulic governor. I'm not sure which particular components on a critical path there right now, but they look at the whole to minimize the outage time. We're trying to assure 75 percent availability of the thermo units. Q. But again, from what I understand of the project, only \$78,500 of it is proposed to be done in 2004? A. Yes. So we can plan the job, get ready to execute in 2005. Q. And the maintenance history for stack No. 2 isn't as bad as for stack No. 1, right?
1 2 3 4 5 6 7 8 9 10 11 12 13 14	 Page 111 A. It's better to plan it on a two year basis. You have more time to plan, you can utilize your engineering resources a bit better rather than cramming it all into one year and hiring more temporaries or consulting when we could do it in house. It also depends on the average - Q. But it's not going to affect reliability if you put it all in 2005, right? A. As long as it doesn't lengthen the window. It will affect availability if it lengthens the outage window. Q. But if you could do stack No. 1 in the 2003 capital year, there's nothing peculiar, is 	1 2 3 4 5 6 7 8 9 10 11 12 13 14	 Page 112 electrothe hydraulic governor. I'm not sure which particular components on a critical path there right now, but they look at the whole to minimize the outage time. We're trying to assure 75 percent availability of the thermo units. Q. But again, from what I understand of the project, only \$78,500 of it is proposed to be done in 2004? A. Yes. So we can plan the job, get ready to execute in 2005. Q. And the maintenance history for stack No. 2 isn't as bad as for stack No. 1, right? A. That may be, but they're both of the same
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$ 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \\ 13 \\ 14 \\ 15 \\ 16 \\ $	 Page 111 A. It's better to plan it on a two year basis. You have more time to plan, you can utilize your engineering resources a bit better rather than cramming it all into one year and hiring more temporaries or consulting when we could do it in house. It also depends on the average - Q. But it's not going to affect reliability if you put it all in 2005, right? A. As long as it doesn't lengthen the window. It will affect availability if it lengthens the outage window. Q. But if you could do stack No. 1 in the 2003 capital year, there's nothing peculiar, is there, about stack No. 2 that would make it impossible to do that in the 2005 capital 	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	 Page 112 electrothe hydraulic governor. I'm not sure which particular components on a critical path there right now, but they look at the whole to minimize the outage time. We're trying to assure 75 percent availability of the thermo units. Q. But again, from what I understand of the project, only \$78,500 of it is proposed to be done in 2004? A. Yes. So we can plan the job, get ready to execute in 2005. Q. And the maintenance history for stack No. 2 isn't as bad as for stack No. 1, right? A. That may be, but they're both of the same vintage, they both see approximately the same number of operating hours.
$ \begin{array}{c} 1\\2\\3\\4\\5\\6\\7\\8\\9\\10\\11\\12\\13\\14\\15\\16\\17\end{array} $	 Page 111 A. It's better to plan it on a two year basis. You have more time to plan, you can utilize your engineering resources a bit better rather than cramming it all into one year and hiring more temporaries or consulting when we could do it in house. It also depends on the average - Q. But it's not going to affect reliability if you put it all in 2005, right? A. As long as it doesn't lengthen the window. It will affect availability if it lengthens the outage window. Q. But if you could do stack No. 1 in the 2003 capital year, there's nothing peculiar, is there, about stack No. 2 that would make it impossible to do that in the 2005 capital year? 	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	 Page 112 electrothe hydraulic governor. I'm not sure which particular components on a critical path there right now, but they look at the whole to minimize the outage time. We're trying to assure 75 percent availability of the thermo units. Q. But again, from what I understand of the project, only \$78,500 of it is proposed to be done in 2004? A. Yes. So we can plan the job, get ready to execute in 2005. Q. And the maintenance history for stack No. 2 isn't as bad as for stack No. 1, right? A. That may be, but they're both of the same vintage, they both see approximately the same number of operating hours. Q. Well, when I look at the report that was done
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	 Page 111 A. It's better to plan it on a two year basis. You have more time to plan, you can utilize your engineering resources a bit better rather than cramming it all into one year and hiring more temporaries or consulting when we could do it in house. It also depends on the average - Q. But it's not going to affect reliability if you put it all in 2005, right? A. As long as it doesn't lengthen the window. It will affect availability if it lengthens the outage window. Q. But if you could do stack No. 1 in the 2003 capital year, there's nothing peculiar, is there, about stack No. 2 that would make it impossible to do that in the 2005 capital year? A. Possibly. But you have to look at the whole. 	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	 Page 112 electrothe hydraulic governor. I'm not sure which particular components on a critical path there right now, but they look at the whole to minimize the outage time. We're trying to assure 75 percent availability of the thermo units. Q. But again, from what I understand of the project, only \$78,500 of it is proposed to be done in 2004? A. Yes. So we can plan the job, get ready to execute in 2005. Q. And the maintenance history for stack No. 2 isn't as bad as for stack No. 1, right? A. That may be, but they're both of the same vintage, they both see approximately the same number of operating hours. Q. Well, when I look at the report that was done on the two stacks and the information that was
$ \begin{array}{c} 1\\2\\3\\4\\5\\6\\7\\8\\9\\10\\11\\12\\13\\14\\15\\16\\17\\18\\19\end{array} $	 Page 111 A. It's better to plan it on a two year basis. You have more time to plan, you can utilize your engineering resources a bit better rather than cramming it all into one year and hiring more temporaries or consulting when we could do it in house. It also depends on the average - Q. But it's not going to affect reliability if you put it all in 2005, right? A. As long as it doesn't lengthen the window. It will affect availability if it lengthens the outage window. Q. But if you could do stack No. 1 in the 2003 capital year, there's nothing peculiar, is there, about stack No. 2 that would make it impossible to do that in the 2005 capital year? A. Possibly. But you have to look at the whole. These particular stack remediation work is 	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	 Page 112 electrothe hydraulic governor. I'm not sure which particular components on a critical path there right now, but they look at the whole to minimize the outage time. We're trying to assure 75 percent availability of the thermo units. Q. But again, from what I understand of the project, only \$78,500 of it is proposed to be done in 2004? A. Yes. So we can plan the job, get ready to execute in 2005. Q. And the maintenance history for stack No. 2 isn't as bad as for stack No. 1, right? A. That may be, but they're both of the same vintage, they both see approximately the same number of operating hours. Q. Well, when I look at the report that was done on the two stacks and the information that was contained in the 2003 budget, it certainly
$ \begin{array}{c} 1\\2\\3\\4\\5\\6\\7\\8\\9\\10\\11\\12\\13\\14\\15\\16\\17\\18\\19\\20\end{array} $	 Page 111 A. It's better to plan it on a two year basis. You have more time to plan, you can utilize your engineering resources a bit better rather than cramming it all into one year and hiring more temporaries or consulting when we could do it in house. It also depends on the average - Q. But it's not going to affect reliability if you put it all in 2005, right? A. As long as it doesn't lengthen the window. It will affect availability if it lengthens the outage window. Q. But if you could do stack No. 1 in the 2003 capital year, there's nothing peculiar, is there, about stack No. 2 that would make it impossible to do that in the 2005 capital year? A. Possibly. But you have to look at the whole. These particular stack remediation work is done on a major unit overhaul, which we do 	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	 Page 112 electrothe hydraulic governor. I'm not sure which particular components on a critical path there right now, but they look at the whole to minimize the outage time. We're trying to assure 75 percent availability of the thermo units. Q. But again, from what I understand of the project, only \$78,500 of it is proposed to be done in 2004? A. Yes. So we can plan the job, get ready to execute in 2005. Q. And the maintenance history for stack No. 2 isn't as bad as for stack No. 1, right? A. That may be, but they're both of the same vintage, they both see approximately the same number of operating hours. Q. Well, when I look at the report that was done on the two stacks and the information that was contained in the 2003 budget, it certainly seems to indicate that the more urgent one was
$ \begin{array}{c} 1\\2\\3\\4\\5\\6\\7\\8\\9\\10\\11\\12\\13\\14\\15\\16\\17\\18\\19\\20\\21\end{array} $	 Page 111 A. It's better to plan it on a two year basis. You have more time to plan, you can utilize your engineering resources a bit better rather than cramming it all into one year and hiring more temporaries or consulting when we could do it in house. It also depends on the average - Q. But it's not going to affect reliability if you put it all in 2005, right? A. As long as it doesn't lengthen the window. It will affect availability if it lengthens the outage window. Q. But if you could do stack No. 1 in the 2003 capital year, there's nothing peculiar, is there, about stack No. 2 that would make it impossible to do that in the 2005 capital year? A. Possibly. But you have to look at the whole. These particular stack remediation work is done on a major unit overhaul, which we do eachroughly, at the moment, every six years. 	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	 Page 112 electrothe hydraulic governor. I'm not sure which particular components on a critical path there right now, but they look at the whole to minimize the outage time. We're trying to assure 75 percent availability of the thermo units. Q. But again, from what I understand of the project, only \$78,500 of it is proposed to be done in 2004? A. Yes. So we can plan the job, get ready to execute in 2005. Q. And the maintenance history for stack No. 2 isn't as bad as for stack No. 1, right? A. That may be, but they're both of the same vintage, they both see approximately the same number of operating hours. Q. Well, when I look at the report that was done on the two stacks and the information that was contained in the 2003 budget, it certainly seems to indicate that the more urgent one was stack No. 1?
$ \begin{array}{c} 1\\2\\3\\4\\5\\6\\7\\8\\9\\10\\11\\12\\13\\14\\15\\16\\17\\18\\19\\20\\21\\22\\\end{array} $	 Page 111 A. It's better to plan it on a two year basis. You have more time to plan, you can utilize your engineering resources a bit better rather than cramming it all into one year and hiring more temporaries or consulting when we could do it in house. It also depends on the average - Q. But it's not going to affect reliability if you put it all in 2005, right? A. As long as it doesn't lengthen the window. It will affect availability if it lengthens the outage window. Q. But if you could do stack No. 1 in the 2003 capital year, there's nothing peculiar, is there, about stack No. 2 that would make it impossible to do that in the 2005 capital year? A. Possibly. But you have to look at the whole. These particular stack remediation work is done on a major unit overhaul, which we do eachroughly, at the moment, every six years. No. 6 will be done on a six yearwe're 	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	 Page 112 electrothe hydraulic governor. I'm not sure which particular components on a critical path there right now, but they look at the whole to minimize the outage time. We're trying to assure 75 percent availability of the thermo units. Q. But again, from what I understand of the project, only \$78,500 of it is proposed to be done in 2004? A. Yes. So we can plan the job, get ready to execute in 2005. Q. And the maintenance history for stack No. 2 isn't as bad as for stack No. 1, right? A. That may be, but they're both of the same vintage, they both see approximately the same number of operating hours. Q. Well, when I look at the report that was done on the two stacks and the information that was contained in the 2003 budget, it certainly seems to indicate that the more urgent one was stack No. 1? A. That's quite possible.
$ \begin{array}{c} 1\\2\\3\\4\\5\\6\\7\\8\\9\\10\\11\\12\\13\\14\\15\\16\\17\\18\\19\\20\\21\\22\\23\\\end{array} $	 Page 111 A. It's better to plan it on a two year basis. You have more time to plan, you can utilize your engineering resources a bit better rather than cramming it all into one year and hiring more temporaries or consulting when we could do it in house. It also depends on the average - Q. But it's not going to affect reliability if you put it all in 2005, right? A. As long as it doesn't lengthen the window. It will affect availability if it lengthens the outage window. Q. But if you could do stack No. 1 in the 2003 capital year, there's nothing peculiar, is there, about stack No. 2 that would make it impossible to do that in the 2005 capital year? A. Possibly. But you have to look at the whole. These particular stack remediation work is done on a major unit overhaul, which we do eachroughly, at the moment, every six years. No. 6 will be done on a six yearwe're calling for a six year overhaul in 2005. At 	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	 Page 112 electrothe hydraulic governor. I'm not sure which particular components on a critical path there right now, but they look at the whole to minimize the outage time. We're trying to assure 75 percent availability of the thermo units. Q. But again, from what I understand of the project, only \$78,500 of it is proposed to be done in 2004? A. Yes. So we can plan the job, get ready to execute in 2005. Q. And the maintenance history for stack No. 2 isn't as bad as for stack No. 1, right? A. That may be, but they're both of the same vintage, they both see approximately the same number of operating hours. Q. Well, when I look at the report that was done on the two stacks and the information that was contained in the 2003 budget, it certainly seems to indicate that the more urgent one was stack No. 1? A. That's quite possible. Q. I'm just about finished with Mr. Haynes, and
$ \begin{array}{c} 1\\2\\3\\4\\5\\6\\7\\8\\9\\10\\11\\12\\13\\14\\15\\16\\17\\18\\19\\20\\21\\22\\23\\24\\\end{array} $	 Page 111 A. It's better to plan it on a two year basis. You have more time to plan, you can utilize your engineering resources a bit better rather than cramming it all into one year and hiring more temporaries or consulting when we could do it in house. It also depends on the average - Q. But it's not going to affect reliability if you put it all in 2005, right? A. As long as it doesn't lengthen the window. It will affect availability if it lengthens the outage window. Q. But if you could do stack No. 1 in the 2003 capital year, there's nothing peculiar, is there, about stack No. 2 that would make it impossible to do that in the 2005 capital year? A. Possibly. But you have to look at the whole. These particular stack remediation work is done on a major unit overhaul, which we do eachroughly, at the moment, every six years. No. 6 will be done on a six yearwe're calling for a six year overhaul in 2005. At that particular timefor instance, this year, 	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	 Page 112 electrothe hydraulic governor. I'm not sure which particular components on a critical path there right now, but they look at the whole to minimize the outage time. We're trying to assure 75 percent availability of the thermo units. Q. But again, from what I understand of the project, only \$78,500 of it is proposed to be done in 2004? A. Yes. So we can plan the job, get ready to execute in 2005. Q. And the maintenance history for stack No. 2 isn't as bad as for stack No. 1, right? A. That may be, but they're both of the same vintage, they both see approximately the same number of operating hours. Q. Well, when I look at the report that was done on the two stacks and the information that was contained in the 2003 budget, it certainly seems to indicate that the more urgent one was stack No. 1? A. That's quite possible. Q. I'm just about finished with Mr. Haynes, and then Mr. Hutchings would take over. So, I

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1	you'd bear with me, it would probably be good	1	A. No. And it would only make it look better, if
2	if I could finish up my couple of questions.	2	anything. It wouldn't be less than we already
3	Is that fine, Mr. Chairman?	3	had.
4	CHAIRMAN:	4	Q. Now, if we take a look at P.U.B. 9, the answer
5	Q. How much time do you think you will need, Ms.	5	to the question is that Hydro uses historical
6	Henley Andrews?	6	prices realized from previous tenders. What
7	HENLEY ANDREWS, Q.C.:	7	do you mean by "historical prices"?
8	Q. I don't expect to be any longer than five	8	A. If we've done similar work before from recent
9	minutes.	9	tenders or evaluations. This is B 9?
10	CHAIRMAN:	10	Q. Yeah, P.U.B. 9.
11	Q. Okay.	11	A. P.U.B. 9, I'm sorry. Okay. We have a
12	HENLEY ANDREWS, Q.C.:	12	depending on our capital and operating
13	Q. Does Hydro expect any improved operational	13	program, engineering departments and TRO and
14	efficiencies as a result of the replacement of	14	generation engineering do maintain, you know,
15	the Holyrood control system?	15	a record of what the contracts were, what
16	A. There may be some. There were none talked	16	pricing is for various labour contracts,
17	there were none reflected in the economic	17	supply contracts, and it's an engineering
18	evaluation. There'd beI think they expect	18	judgment what the anticipated cost is.
19	some boiler efficiency improvements based on a	19	Q. Okay. Well, how farwhen you say you use
20	faster processing and some purchases on that	20	historical prices, how old a price would you
21	particular system have indicated that, but	21	be prepared to use?
22	it's not been quantified or taken into	22	A. I'm sure that they would escalate those
23	consideration in the economic evaluation.	23	numbers or if there was any doubt, they would
24	It's a -	24	go back for a quick evaluation by a vendor
25	Q. So it hasn't been quantified?	25	just give them a ball park number. The
	Page 115		Page 116
1			
	estimates are basically plus or minus ten	1	decide whether their estimates that they have
$\begin{vmatrix} 1 \\ 2 \end{vmatrix}$	estimates are basically plus or minus ten percent. And the detailed engineering for	1 2	decide whether their estimates that they have in their back pocket, for the lack of a better
1 2 3	estimates are basically plus or minus ten percent. And the detailed engineering for most projects is not completed until we get	1 2 3	decide whether their estimates that they have in their back pocket, for the lack of a better word, are useful, or if they need to get a re-
1 2 3 4	estimates are basically plus or minus ten percent. And the detailed engineering for most projects is not completed until we get approval and we actually get into writing	1 2 3 4	decide whether their estimates that they have in their back pocket, for the lack of a better word, are useful, or if they need to get a re- -preliminary quotation from a vendor. And
1 2 3 4 5	estimates are basically plus or minus ten percent. And the detailed engineering for most projects is not completed until we get approval and we actually get into writing specification and doing the detailed design	1 2 3 4 5	decide whether their estimates that they have in their back pocket, for the lack of a better word, are useful, or if they need to get a re- -preliminary quotation from a vendor. And that is often ongoing by the engineering
1 2 3 4 5 6	estimates are basically plus or minus ten percent. And the detailed engineering for most projects is not completed until we get approval and we actually get into writing specification and doing the detailed design drawings, etcetera.	1 2 3 4 5 6	decide whether their estimates that they have in their back pocket, for the lack of a better word, are useful, or if they need to get a re- -preliminary quotation from a vendor. And that is often ongoing by the engineering department who are conversing with these
1 2 3 4 5 6 7	estimates are basically plus or minus ten percent. And the detailed engineering for most projects is not completed until we get approval and we actually get into writing specification and doing the detailed design drawings, etcetera. (12:00 p.m.)	1 2 3 4 5 6 7	decide whether their estimates that they have in their back pocket, for the lack of a better word, are useful, or if they need to get a re- -preliminary quotation from a vendor. And that is often ongoing by the engineering department who are conversing with these vendors, I won't say on a daily basis, but
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	Page 117		Page 118
1	operate our system that we expect that we	1	compliancies with respect to our ISO 14,000
2	would cause injury over X number of operating	2	program.
3	hours. We don't operate that way; we never	3	Q. But in terms of the establishing a set of
4	have, as do most Canadian utilities.	4	targets, that has not yet been done?
5	Q. So you don't have any target levels of safety	5	A. Can you give me a for instance?
6	for reliability?	6	Q. For example, what would be your target with
7	A. Safety for reliability? We have target	7	respectat the present time, with respect to
8	reliability for generators, we want to make CE	8	NOx emissions at Holyrood?
9	-	9	A. We don't have a NOX. We have SOX of less than
10	Q. Okay. So, well, you don't have any target	10	25,000 tonnes per year for Hydro as a whole,
11	levels of safety?	11	or metric tonnes per year.
12	A. We have a target level of safety that we want	12	Q. Those are my questions. And Mr. Hutchings
13	all injuryCEA, the Canadian Electrical	13	will follow after the break.
14	Association monitor several safety trends, if	14	CHAIRMAN:
15	you will, of Canadian utilities, and we	15	Q. Okay. We'll break for 15 minutes and come
16	subscribe to that. And basically we want all	16	back for Mr. Hutchings.
17	injury frequency ratewe have a target number	17	(12:05 p.m. Break)
18	for that, which I don't know offhand, but	18	(RESUMED AT 12:20 P.M.)
19	there is a number that we would like to meet	19	CHAIRMAN:
20	or beat; beat, hopefully.	20	Q. Mr. Hutchings, are you ready to proceed?
21	Q. And you don't haveyou haven't established	21	HUTCHINGS, Q.C.:
22	target levels for environmental impacts, have	22	Q. Yes, thank you, Mr. Chairman. Gentlemen, most
23	you?	23	of my questions, I think will be directed to
24	A. We have internal target levels for	24	Mr. Downton and he will be free to farm them
25	environmental reporting the number of non	25	out as he sees fit and give Mr. Haynes a
	Page 119		Page 120
1	little rest after his contributions Mr	1	this simply people loading new software on
2	Downton, I want to start with looking at B- 59	2	various machines?
3	which is a project entitled "Corporate	3	A Basically in the case of ID Edwards we will
4	men is a project change corporate		
-	Applications Environment". In light of the	4	be moving from what JD Edwards calls CUME 12
5	Applications Environment". In light of the withdrawal of the project that was going to	4	be moving from what JD Edwards calls CUME 12 version of their World software to CUME 14.
5 6	Applications Environment". In light of the withdrawal of the project that was going to deal with migration from JD Edwards, is it	4 5 6	be moving from what JD Edwards calls CUME 12 version of their World software to CUME 14, which is the latest release and what is
5 6 7	Applications Environment". In light of the withdrawal of the project that was going to deal with migration from JD Edwards, is it still intended to upgrade the JD Edwards	4 5 6 7	be moving from what JD Edwards calls CUME 12 version of their World software to CUME 14, which is the latest release and what is involved in this particular initiative will be
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1	Page 121		rage 122
	services is only for the hardware and the way	1	for rolling out of client software, as well as
2	that IBM works is that the software is	2	providing from a security perspective, some
3	separate again and that's why the O/S 400	3	built in, what we call Spam Software to reduce
4	release is in here.	4	the impact on unsolicited junk e-mail is
5	Q. So you're going to be upgrading the software	5	having on the organization.
6	on the AS 400 in 2004 and when then will that	6	Q. That's probably worth something. How many
7	hardware be replaced?	7	person hours are involved in this project?
8	A. In 2004.	8	A. I'd have to go back in and generate the detail
9	Q. Okay, and will the software from the AS 400 be	9	from the project management and engineering
10	compatible with your new server?	10	numbers.
11	A. Yes, it will.	11	Q. I mean, certainly JD Edwards I would
12	Q. Okay. So, is there something more involved in	12	understand is a somewhat specialized system,
13	this project than simply installing an upgrade	13	but something like Lotus Notes, I would think
14	for each of these programs on various	14	that most users of the program themselves
15	machines?	15	could simply install an upgrade on their
16	A. Well basically installing an upgrade and the	16	machine?
17	upgrade will bring additional functionality	17	A. No, that's not the way it's done. Basically
18	and features that we don't currently have now	18	you would take the upgrade, you would
19	and also provide fixes for current problems	19	basicallyvou have to ensure that before vou
20	that we have now. In particular, the Lotus	20	do an upgrade that all of the Lotus Notes
21	Notes will provide collaboration	21	databases that you currently have are tested
22	functionality, also resolve some issues we	22	and can be migrated to a new version, make any
23	have with calendering featuring, also, I	23	changes if necessary and then basically.
24	guess, improve performance to the end-user and	24	again, run that through a test and then deploy
25	also provide significant administrative tools	25	the software and that's not done by the
	n		D 104
	Page 123		Page 124
1			
~	client, that's done by the system	1	Q. I mean, what could make them non-compatible?
2	administrators in IS & T.	1 2	Q. I mean, what could make them non-compatible?A. Basically there's always feature sets,
2 3	client, that's done by the system administrators in IS & T. Q. I mean, don't you have a record of what	1 2 3	Q. I mean, what could make them non-compatible?A. Basically there's always feature sets, software changes included in any roll out and
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	Page 125		Page 126
1	of one World and to do an assessment on what	1	doing itself, correct? There's nothing to do
2	additional improvement from a process	2	with Hydro's operations? These are all
3	perspective we can implement and at the same	3	totally foreign events?
4	time, to look at the technology issues that	4	A. That's right, yes. These are all foreign
5	would be entertained as part of the migration	5	events that we do try to keep informed on, so
6	and also to do a detailed costing of it. So	6	that we make proper decisions.
7	the impact that, I guess, deferring that	7	Q. But from the point of view of this Board here,
8	particular initiative will have on this,	8	looking at whether or not this Migration
9	basically they're not related.	9	Assessment Study was necessary in 2004,
10	(12:30 p.m.)	10	obviously it wasn't, wouldn't you agree?
11	Q. So what's happened in respect of that JDE	11	A. I'm not sure the -
12	Migration Assessment Study is that there's	12	Q. You're not doing it.
13	been an external event as a result of which	13	A. I'm not doing it, no.
14	you've chosen not to proceed with the project?	14	Q. No, and it has nothing to do with your own
15	A. Yeah, well I guess what has happened is that	15	operations, nothing has happened within Hydro
16	Peoplesoft and JD Edwards, I guess, came	16	to make you decide not to do it, correct?
17	together and, to form one company, and I guess	17	A. I'm not sure what the question is. I guess
18	that put a certain amount of apprehension on	18	from our perspective to go andthe real,
19	the horizon as far as what the future of One	19	again, the focus of the Migration Study was to
20	World will be. And then, of course, Oracle	20	do an assessment on migrating to One World and
21	came in and they basically wanted to buy out	21	to do a business and a technology assessment,
22	Peoplesoft, so right now, it's in a state of	22	and based on the uncertainty in that
23	flux for 2004.	23	environment at this particular time, we felt
24	Q. But these are all things that are totally	24	it prudent to not move forward with that
		25	
25	external to any consideration of what Hydro is	25	particular initiative.
25	Page 127	25	particular initiative. Page 128
25	Page 127 O And presumably you know in a year's time	1	particular initiative. Page 128 which based on our assessment this upgrade
25 1 2	Q. And presumably, you know, in a year's time, perhaps you know Peoplesoft and Oracle and	25 1 2	particular initiative. Page 128 which, based on our assessment, this upgrade will resolve
25 1 2 3	Q. And presumably, you know, in a year's time, perhaps, you know, Peoplesoft and Oracle and everything will have settled down and you will	1 2 3	particular initiative. Page 128 which, based on our assessment, this upgrade will resolve. O. Of the enhancements that are shown here in
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	Page 129		Page 130
1	Q. You'd have no interest, presumably, in	1	Q. So what is described in this attachment is not
2	administration of 401 ks which don't exist in	2	solving the problem that you have relative to
3	this country. What are the specific problems	3	asset management, does it?
4	that you said you thought you might solve by	4	A. I don't know without doing a detailed analysis
5	implementing this release?	5	on it.
6	A. We're basically having some issues with	6	Q. As regards to the Showcase update, are there
7	regards to assets and work management. As far	7	any of the enhancements from Attachment 2 that
8	as what is in the system, I don't have the	8	are going to provide any specific benefits to
9	exact details.	9	Hydro?
10	Q. And these are the ones dealt with on page 2 in	10	A. I guess some of the obvious ones will be more
11	terms of simplification of management of fixed	11	efficient database maintenance. Basically,
12	assets?	12	again, this is an application that runs on the
13	A. No, that'ssorry, say that again, on page?	13	I series or AS 400, a FASTR calculation as far
14	Q. Page 2 of the attachment No. 1, talks about	14	as the S base where we use the cube (phonetic)
15	simplification of management of fixed assets.	15	to support our CAPM Application.
16	A. Page 2 of Attachment 1?	16	Q. Is there an inadequate turn-around time now on
17	Q. Yes. Attachment 1 to IC-30.	17	those batch operations?
18	A. Okay, I've got Attachment 1, and could you	18	A. Basically we're looking for improvements to
19	read that out?	19	complete the calculations and I guess the
20	Q. It's on the screen there under heading "Fixed	20	issue with most of these products is that if
21	Assets, simplified management of fixed	21	you do not keep current, then basically you'll
22	assets." And then it talks about depreciation	22	find that you will not be able to get support
23	and omitting entries and so on.	23	from the vendors.
24	A. Well we're looking at more along the lines of	24	Q. Do each of the first three upgrades have to be
25	configuration issues for the assets.	25	installed individually on particular work
	Page 131		Page 132
1	stations or are they simply network	1	applications, they are not part of the
2	installations?	2	corporate image, so basically someone would
3	A. JD Edwards, Showcase and Lotus Notes, they	3	have to go to the desktop and actually load in
4	basically, from my understanding, they	4	the new version of software.
5	basically will be installed on a server, but	5	Q. Can you determine for me the number of person
6	they also have implications on client software	6	hours that are contemplated for completion of
7	as well.	7	that project?
8	Q. Yes, but it doesn't require a visit to each		1 5
0		8	A. I can take that as an undertaking, if you
)	work station to perform a separate	8 9	A. I can take that as an undertaking, if you want.
10	work station to perform a separate installation?	8 9 10	A. I can take that as an undertaking, if you want.Q. Yes, okay, thank you. (UNDERTAKING) Moving on
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10 11 12	work station to perform a separate installation?A. Well, the way I would phrase it is each one of those will have an impact on the client PC.	8 9 10 11 12	A. I can take that as an undertaking, if you want.Q. Yes, okay, thank you. (UNDERTAKING) Moving on to B-60, this appears to me to be essentially three somewhat related projects combined into
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1	and with the current initiatives in place,	1	and then there are other foreseens which may
2	working on business process changes, we	2	come about as part of their regulatory
3	basically see that the focus for allotment	3	process.
4	number one, if you want to call it that, would	4	Q. In IC31 you've provided a breakdown of costs
5	be related to asset and work management and	5	for each of the three categories in the
6	work order routing improvements. And that's	6	proposed project. How did you come up with
7	consistent withwhere other utilities	7	the breakdown for minor enhancements?
8	worldwide are focusing for 2003/2004.	8	A. I basically made an estimate based on the fact
9	O So you have particular things in mind to do	9	we would be looking at three minor
10	under this heading of unforeseen modifications	10	enhancements that we typically done before and
	at this point?	11	the cost of those enhancements will run
12	A Well basically as part of the business	12	anywhere from 25 to \$40,000,00 each So
12	process improvement we do know that we are	12	really it's an estimate based on doing three
13	working on various areas and we besidely see	13	minor enhancements
14	the possibility for work to have to be done in	14	O Okay So where's the allowance for the
15	these particular areas and L guass than some	15	Q. OKay. So, where s the anowance for the
10	inose particular areas and 1 guess then some	10	Well begiesly as far as I'm concorred in
1/	is really uniforeseen.	1/	A. well, basically, as far as 1 in concerned, in
18	Q. So, it's not correct to say that all of the	18	an unforeseen and a minor ennancement, we have
19	items that come under that heading are, in	19	to base an unforeseen on something, so we
20	fact, unforeseen; some of them are actually	20	based it on the fact it would be considered
21	planned.	21	the same size as a minor enhancement.
22	A. Well, they're unforeseen in a sense that we,	22	Q. Okay. You identified three minor enhancements
23	based on what we see happening in the	23	that you expect to do anyway.
24	business, there are possibilities that some of	24	A. I mean, I identified three, I guess all I'm
125	this may happen and some of it may not happen	25	coving is that whathar the three of those takes
<u> </u>	this may nappen and some of it may not nappen	20	saying is that whether the three of those take
	Page 135	20	Page 136
1	Page 135 place and I have an unforeseen, at this point	1	Page 136 20, 30, \$40,000.00 items and then come back to
1 2	Page 135 place and I have an unforeseen, at this point in time, I really don't know, it's basically	1 2	Page 136 20, 30, \$40,000.00 items and then come back to the Board and see a \$200,000.00that's not
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1 2 3 4	Page 135 place and I have an unforeseen, at this point in time, I really don't know, it's basically all unforeseen. Q. My concern here, to some extent, is related to	1 2 3 4	Page 136 20, 30, \$40,000.00 items and then come back to the Board and see a \$200,000.00that's not appropriate, that's not being upfront and clear with the Board. The million dollars is
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	Page 157		Page 138
1	orders, then basically I would cut a work	1	Q. And there is no methodology in place that will
2	order and track the cost related to that.	2	allow the board to look back afterwards and
3	Q. Okay. In terms of reporting back to Board as	3	say what was spent on the unforeseen
4	to what you've done, if they choose to approve	4	modifications, what was spent on the
5	85.5 thousand dollars for minor enhancements,	5	continuing design of the internet or what was
6	how do you report to the Board as to whether	6	spent on the Enterprise Project Management
7	that was spent and what it was spent on?	7	software?
8	A. Well, basically, I guess in the reporting, I	8	A. If the Board has a specific question, then
9	don't think that we report to that level of	9	that level of detail can be provided.
10	detail. We report to the level of detail that	10	Q. Enhancements to the internet and intranet, how
11	the monies were expended under the -	11	does the money sought under this particular
12	MR. HAYNES:	12	heading relate to the several other projects
13	A. Capital job costs.	13	that I would regard in generic terms as being
14	MR. DOWNTON:	14	enhancements to the intranet or internet
15	A capital job costs.	15	including the Evergreen Project, the Secure
16	Q. You'll have one capital job cost presumably	16	Remote Access Project, the Centralized
17	for application enhancements, is that correct?	17	Monitoring System, I mean, all of these are
18	A. Yes.	18	enhancements to your intranet or internet, are
19	Q. So, all of this gets lumped in together	19	they not?
20	whether it's the Enterprise Management	20	A. Basically, with regards to the intranet, what
21	Software application of some unforeseen	21	we are looking at in that particular portion
22	modification?	22	is to build additional sites which don't exist
23	A. Well basically, yes, three of those have been	23	right now for different divisions within the
24	submitted as one capital job cost. I guess	24	Company. And likewise, the internet would be
25	that's consistent with what we've done before.	25	a total redesign of the internet because of
	Page 139		Page 140
1	existing inability to do we'll say content	1	O So it's a question of transparency in terms
2	management and to deal with some security	2	of what, from the point of view of a capital
3	issues we have.	3	project, you're actually doing with your
4	O. I mean how do you decide what's in this	4	internet or intranet in a given year. And the
5	project and what, for instance, is in the	5	question is why we get bits and pieces of it
6	Secure Remote Access Project?	6	in three or four different projects?
7	A. Well, I guess the work that's defined as the.	7	A. I don't understand what you mean by getting
8	say, \$226.200.00 is specific to developing the	8	bits of it in three or four different project.
9	internet and the intranet.	9	Basically the internet development costs are
10	O. But equally the Secure Remote Access Project	10	in this particular capital job costs. the
11	is the same thing, is it not?	11	secure access really has nothing to do with
12	A. The Secure Remote Access Project is a security	12	"the internet development" as such.
13	project that we're looking at providing secure	13	O. What we're talking about is secure remote
14	access to Hydro's infrastructure.	14	access to your internet thought.
15	O. Um-hm. I mean, you're doing or proposing to	15	A. We're looking at secure remote access to
16	do in the 2004 Capital Budget a number of	16	Hydro's infrastructure. Once you get into the
17	things to you intranet and internet. correct?	17	infrastructure, whether you go to an internet
18	A. Yes, and those are dealt under the	18	site or to go a file server, that basically is
19	\$226,000.00, ves.	19	determined by the level of access that you
	O. Yes, but one of the other things you're doing	20	have and what you want to do.
20		21	O. But I mean, your access is to the internet and
20 21	is Secure Remote Access.		
20 21 22	is Secure Remote Access. A. Yes.	22	intranet, is it not?
 20 21 22 23 	A. Yes. A. Yes. Q. And you're also refreshing your servers and	22 23	intranet, is it not? A. Yes, well that will be one of the things that
 20 21 22 23 24 	A. Yes.Q. And you're also refreshing your servers and software and so on.	22 23 24	intranet, is it not? A. Yes, well that will be one of the things that you will have access to. You will alsoif
 20 21 22 23 24 25 	Is Secure Remote Access.A. Yes.Q. And you're also refreshing your servers and software and so on.A. Yes.	22 23 24 25	intranet, is it not?A. Yes, well that will be one of the things that you will have access to. You will alsoif you come in from, through secure access.

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1	you'll also have access to JD Edwards or you	1	Q. So, what do you refer to then when you refer
2	can have access to Lotus Notes.	2	to Hydro's intranet?
3	O. Yes, but your access is through the internet,	3	A. Basically, it'sright now, Hydro's intranet
4	correct?	4	consists of some of Lotus Notes databases.
5	A. No.	5	Basically, we've developed an HR site for
6	O. Is it through the intranet?	6	access to specific HR information. And I
7	A. With regards to secure access?	7	guess, on a go forward basis, what we're
8	o. Yes.	8	proposing is to add information for
9	A. You basically come in to Hydro's network and	9	environment and customer service.
10	once you're on the network, then you decide	10	O. And when you refer in this project to
11	where you go.	11	internet, are you simply referring to Hydro's
12	O. Okay. So, what's Hydro's network? What do	12	external web site?
13	vou mean when vou sav Hydro's network?	13	A. Yes.
14	A I guess when you come into our "woeful area	14	O. Okay. So, that is simply one site and that's
15	network" or Y area network. Once you gain	15	what you're talking about here when you say
16	access to the network depending on the level	16	internet?
17	of security that you have and what you've been	17	A Yes
18	granted permission to do you may have	18	0 Okay all right. If we can look for a moment
10	permission to go to Hydro's "intranet" You	19	at B62 it's a project you call security
$\frac{1}{20}$	may have canability to go to a particular file	20	program centralized log monitoring and
21	drive if you want to call it that a common	20	analysis system This I take it doesn't
$\frac{21}{22}$	drive where you basically have access to	21	relate either to the internet or the Intranet
22	specific information or you can come in and	22	as you define them is that correct?
$\frac{23}{24}$	get access to your e-mail or you can go in and	23	A That's correct
25	start up a word application	25	O Okay Now this is basically a monitoring
1	Page 143	1	Page 144
	individual user and work station setivity?		Wall from the accurity perspective we
	A No. not really intended to that degree. What	$\begin{vmatrix} 2 \\ 2 \end{vmatrix}$	A. Well, find the security perspective, we
3	A. No, not rearry intended to that degree. What	3	basically left it pludent to look at a
	is intended is to access the various security		it leid on ton of other evistent compare
5	firewalls, server security loss from the	5	Can you avalain to ma how you reached that
	somers and to bring that to gother so that we	0	Q. Can you explain to me now you reached that
	servers and to bring that together so that we	/	conclusion?
8	can monitor the security issues related to our	0	A Lawage in discussion amongst Lawage my
9	in fue stars of the	8	A. I guess in discussion amongst, I guess, my
110	infrastructure.	8 9	A. I guess in discussion amongst, I guess, my management group and the security team, we basically falt that it would be prudent to
1.1	infrastructure. Q. The material supply component for the 2004, is that simply the acquisition of the server?	8 9 10	A. I guess in discussion amongst, I guess, my management group and the security team, we basically felt that it would be prudent to
11	 infrastructure. Q. The material supply component for the 2004, is that simply the acquisition of the server? A. That is basically. I'm not sure of the detail 	8 9 10 11	A. I guess in discussion amongst, I guess, my management group and the security team, we basically felt that it would be prudent to have the security type of features on a
11 12	infrastructure.Q. The material supply component for the 2004, is that simply the acquisition of the server?A. That is basicallyI'm not sure of the detail, whether it's the server and/or some software	8 9 10 11 12	 A. I guess in discussion amongst, I guess, my management group and the security team, we basically felt that it would be prudent to have the security type of features on a separate server. A. I guess in discussion amongst, I guess, my management group and the security team, we basically felt that it would be prudent to have the security type of features on a separate server.
11 12 13	infrastructure.Q. The material supply component for the 2004, is that simply the acquisition of the server?A. That is basicallyI'm not sure of the detail, whether it's the server and/or some software, I can check on that if you would	8 9 10 11 12 13	A. I guess in discussion amongst, I guess, my management group and the security team, we basically felt that it would be prudent to have the security type of features on a separate server.Q. Is that somehow related to the sensitivity of the information that's going to be on this
11 12 13 14	 infrastructure. Q. The material supply component for the 2004, is that simply the acquisition of the server? A. That is basicallyI'm not sure of the detail, whether it's the server and/or some software, I can check on that, if you would - Q. Yaa, I'd, appreciate, it, if you, would 	8 9 10 11 12 13 14	A. I guess in discussion amongst, I guess, my management group and the security team, we basically felt that it would be prudent to have the security type of features on a separate server.Q. Is that somehow related to the sensitivity of the information that's going to be on this particular.
11 12 13 14 15	 infrastructure. Q. The material supply component for the 2004, is that simply the acquisition of the server? A. That is basicallyI'm not sure of the detail, whether it's the server and/or some software, I can check on that, if you would - Q. Yes, I'd appreciate it if you would. 	8 9 10 11 12 13 14 15	 A. I guess in discussion amongst, I guess, my management group and the security team, we basically felt that it would be prudent to have the security type of features on a separate server. Q. Is that somehow related to the sensitivity of the information that's going to be on this particular - A. The sensitivity of the information that's on
11 12 13 14 15 16	 infrastructure. Q. The material supply component for the 2004, is that simply the acquisition of the server? A. That is basicallyI'm not sure of the detail, whether it's the server and/or some software, I can check on that, if you would - Q. Yes, I'd appreciate it if you would. (UNDERTAKING). I take it from the description of the project that you're determined that you 	8 9 10 11 12 13 14 15 16	 A. I guess in discussion amongst, I guess, my management group and the security team, we basically felt that it would be prudent to have the security type of features on a separate server. Q. Is that somehow related to the sensitivity of the information that's going to be on this particular - A. The sensitivity of the information that's on that particular garger was
 11 12 13 14 15 16 17 18 	 infrastructure. Q. The material supply component for the 2004, is that simply the acquisition of the server? A. That is basicallyI'm not sure of the detail, whether it's the server and/or some software, I can check on that, if you would - Q. Yes, I'd appreciate it if you would. (UNDERTAKING). I take it from the description of the project that you've determined that you require a dedicated server for this purpose. 	8 9 10 11 12 13 14 15 16 17	 A. I guess in discussion amongst, I guess, my management group and the security team, we basically felt that it would be prudent to have the security type of features on a separate server. Q. Is that somehow related to the sensitivity of the information that's going to be on this particular - A. The sensitivity of the information that's on that particular server, yes. Q. Is that more sensitive, then exuthing also
11 12 13 14 15 16 17 18	 infrastructure. Q. The material supply component for the 2004, is that simply the acquisition of the server? A. That is basicallyI'm not sure of the detail, whether it's the server and/or some software, I can check on that, if you would - Q. Yes, I'd appreciate it if you would. (UNDERTAKING). I take it from the description of the project that you've determined that you require a dedicated server for this purpose, in that correct? 	8 9 10 11 12 13 14 15 16 17 18	 A. I guess in discussion amongst, I guess, my management group and the security team, we basically felt that it would be prudent to have the security type of features on a separate server. Q. Is that somehow related to the sensitivity of the information that's going to be on this particular - A. The sensitivity of the information that's on that particular server, yes. Q. Is that more sensitive than anything else you'yo got?
 11 12 13 14 15 16 17 18 19 20 	 infrastructure. Q. The material supply component for the 2004, is that simply the acquisition of the server? A. That is basicallyI'm not sure of the detail, whether it's the server and/or some software, I can check on that, if you would - Q. Yes, I'd appreciate it if you would. (UNDERTAKING). I take it from the description of the project that you've determined that you require a dedicated server for this purpose, is that correct? 	8 9 10 11 12 13 14 15 16 17 18 19 20	 A. I guess in discussion amongst, I guess, my management group and the security team, we basically felt that it would be prudent to have the security type of features on a separate server. Q. Is that somehow related to the sensitivity of the information that's going to be on this particular - A. The sensitivity of the information that's on that particular server, yes. Q. Is that more sensitive than anything else you've got?
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111 122 133 144 155 166 177 188 199 200 211 222	 infrastructure. Q. The material supply component for the 2004, is that simply the acquisition of the server? A. That is basicallyI'm not sure of the detail, whether it's the server and/or some software, I can check on that, if you would - Q. Yes, I'd appreciate it if you would. (UNDERTAKING). I take it from the description of the project that you've determined that you require a dedicated server for this purpose, is that correct? (1:00 p.m.) A. That's what the word says there, I'll hesingly aback to see what is in the material 	8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	 A. I guess in discussion amongst, I guess, my management group and the security team, we basically felt that it would be prudent to have the security type of features on a separate server. Q. Is that somehow related to the sensitivity of the information that's going to be on this particular - A. The sensitivity of the information that's on that particular server, yes. Q. Is that more sensitive than anything else you've got? A. I guess it's an accumulation of a lot of very sensitive data, yes. Is it, at the end of the day, is it more sensitive, then other pieces?
 11 12 13 14 15 16 17 18 19 20 21 22 22 22 	 infrastructure. Q. The material supply component for the 2004, is that simply the acquisition of the server? A. That is basicallyI'm not sure of the detail, whether it's the server and/or some software, I can check on that, if you would - Q. Yes, I'd appreciate it if you would. (UNDERTAKING). I take it from the description of the project that you've determined that you require a dedicated server for this purpose, is that correct? (1:00 p.m.) A. That's what the word says there, I'll basically check to see what is in the material supply. 	8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22	 A. I guess in discussion amongst, I guess, my management group and the security team, we basically felt that it would be prudent to have the security type of features on a separate server. Q. Is that somehow related to the sensitivity of the information that's going to be on this particular - A. The sensitivity of the information that's on that particular server, yes. Q. Is that more sensitive than anything else you've got? A. I guess it's an accumulation of a lot of very sensitive data, yes. Is it, at the end of the day, is it more sensitive than other pieces?
11 12 13 14 15 16 17 18 19 20 21 22 23 24	 infrastructure. Q. The material supply component for the 2004, is that simply the acquisition of the server? A. That is basicallyI'm not sure of the detail, whether it's the server and/or some software, I can check on that, if you would - Q. Yes, I'd appreciate it if you would. (UNDERTAKING). I take it from the description of the project that you've determined that you require a dedicated server for this purpose, is that correct? (1:00 p.m.) A. That's what the word says there, I'll basically check to see what is in the material supply. O. Did you have any outcide advice to the effect 	8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	 A. I guess in discussion amongst, I guess, my management group and the security team, we basically felt that it would be prudent to have the security type of features on a separate server. Q. Is that somehow related to the sensitivity of the information that's going to be on this particular - A. The sensitivity of the information that's on that particular server, yes. Q. Is that more sensitive than anything else you've got? A. I guess it's an accumulation of a lot of very sensitive data, yes. Is it, at the end of the day, is it more sensitive than other pieces? I guess all I would say is that we're bringing all that information together in one place and
 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 	 infrastructure. Q. The material supply component for the 2004, is that simply the acquisition of the server? A. That is basicallyI'm not sure of the detail, whether it's the server and/or some software, I can check on that, if you would - Q. Yes, I'd appreciate it if you would. (UNDERTAKING). I take it from the description of the project that you've determined that you require a dedicated server for this purpose, is that correct? (1:00 p.m.) A. That's what the word says there, I'll basically check to see what is in the material supply. Q. Did you have any outside advice to the effect that a dedicated server was required to have 	8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	 A. I guess in discussion amongst, I guess, my management group and the security team, we basically felt that it would be prudent to have the security type of features on a separate server. Q. Is that somehow related to the sensitivity of the information that's going to be on this particular - A. The sensitivity of the information that's on that particular server, yes. Q. Is that more sensitive than anything else you've got? A. I guess it's an accumulation of a lot of very sensitive data, yes. Is it, at the end of the day, is it more sensitive than other pieces? I guess all I would say is that we're bringing all that information together in one place and we felt that this was the proper way to

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1 install the software and have it secured. 1 capability to have secure access through VPN, 2 Q. Have you established a level of priority in terms of the sensitivity of information on particular servers? 2 yes, but that's not all of component of this particular project. 3 A. To that degree, I guess the answer is, no. 5 yes, but that's not all of component of this oparticular servers? 4 Q. There's reference also to the RSA, can you 5 yes, but that's not all of component of this oparticular servers? 7 A. But when it comes to security and the firewalls, we basically take those sepects 7 A. Well, basically RSA is 'a brand name" much the same sum or Hevelt Packard and we consider it to be high 9 ourmenty use their technology? 10 UT-invisuse. 10 in. What it is, it's a token like this and 11 11 basically, it provides a very distinctive as a password and you have your own own as separate server from any other 14 declicated pin to give you much the same 15 information that particular information should be 15 scutre to basically, it provides a very distinctive 12 capascity of the server from any other 14 declicated pin to give you much the same 15 information that you have. 15 othis is what's referred to		Page 145		Page 146
2 Q. Have you established a level of priority in terms of the sensitivity of information on particular servers? 2 yes, but that's not all of component of this particular project. 3 terms of the sensitivity of information on particular servers? 3 Q. Okay. 4 Q. There's reference also to the RSA, can you just explain for us what you mean when you say RSA secure 1D technology? 7 A. But when it comes to security and the frewalls, we basically take those aspects 8 8 priority issue. 10 10 Q. Um-hm, okay. So, this is not a question of in Graphicy of the server, it's a question of this accally, it provides a very distinctive capacity of the server, it's a question of the information thay ou have. 11 11 Q. Um-hm, okay. So, this is not a question of in Graphicy of the server, it's a question of the information thay ou have. 12 12 capacity of the server, it's a question of in firmation thay ou have. 13 13 decision that particular information should be information thay ou have. 13 14 on a separate server from any other 14 15 A. Yes. 16 16 A. Yes. 17 17 Q. Okay, thank you. B64 then is the secure interim. Is this intended to operate by the 24 20 Okay. <t< td=""><td>1</td><td>install the software and have it secured.</td><td>1</td><td>capability to have secure access through VPN.</td></t<>	1	install the software and have it secured.	1	capability to have secure access through VPN.
3 terms of the sensitivity of information on 3 particular servers? 4 particular servers? 4 0. There's reference also to the RSA, can you 5 Q. Okay. 6 Q. Okay. 7 A. But when it comes to security and the 7 A. Well, basically RSA is 'a brand name' much the 6 9 very seriously and we consider it to be high 7 A. Well, basically restricted and we 9 priority issue. 10 pinority issue. 10 in. What it is, it's a token like this and 10 purimity issue. 10 a separate server from any other 11 basically, it provides a very distinctive 12 capacity of the server, it's a question of the same information that you have. 15 reliability as you would fix you went to an 13 a steat server from any other 14 on a separate server from any other 14 A. To, So this is what's referred to as a RSA 15 a chally being paid for the server here. 13 a chally being paid for the server here. 14 O. Okay. So you would in ead that physical token 16 a the decise. In project that we spoke about 20 A. No, you have to have the physical token 21 Q.	2	O. Have you established a level of priority in	2	ves, but that's not all of component of this
4 particular servers? 4 0. There's reference also to the RSA, can you just explain for us what you mean when you say (RSA, Can you consider it to be high) 5 A. But when it comes to security and the results, we basically take those aspects 8 6 Firewalls, we basically take those aspects 8 7 A. But when it comes to security and the same is IBM or Hewlett Packard and we very seriously and we consider it to be high or it of the server, it's a question of the same is a password or number, I should say, which substitute as a password and you have your own decision that particular information should be information that you have. 10 13 decision that particular information should be information that you have. 15 14 0. A ryes. 16 15 information that you have. 16 16 A. Yes. 16 17 0. And you're going to get me the breakdown of the accurse project that we spoke about 2 18 18 the material supplies so we can see what's a target before that we spoke about 2 18 18 the material supplies so we can see what's target be password on it changes every 2 17 19 actually being paid for the server here. 19 0. Okay. So you would here that physical token 19 19 actually being paid for the server hare unsother the p	3	terms of the sensitivity of information on	3	particular project.
5 A. To that degree, I guess the answer is, no. 5 just explain for us what you mean when you say 6 Q. Okay. 6 7 A. But when it comes to security and the 7 A. Well, basically RSA is "a brand name" much the 8 firewalls, we basically take those aspects 8 same as IBM or Hewlett Packard and we 9 very seriously and we consider it to be high 9 i. Well, basically, it js a token like this and 11 Q. Um-hm, okay. So, this is not a question of 11 basically, it provides a very distinctive 12 capacity of the server, it's a question of the 13 substitute as a password and you have your own 14 decision that particular information should be 13 substitute as a password and you have your own 14 on a separate server from any other 14 decision that particular information 14 15 information that you have. 16 ATM. So this is what's referred to as a RSA secure ID token. 16 A Yes. 10 Okay. thank you. B64 then is the secure 10 or you would need that physical token 17 Q. Okay, thank you. B64 then is the secure 20 Okay. 20 Ok	4	particular servers?	4	O. There's reference also to the RSA, can you
6 Q. Okay. 6 RSA secure ID technology? 7 A. But when it comes to security and the firewalls, we basically take those aspects sume as IBM or Hewlett Packard and we very seriously and we consider it to be high priority issue. 7 9 very seriously and we consider it to be high priority issue. 9 10 10 Q. Um-hm, okay. So, this is not a question of the accial vit provides a very distinctive password or number, I should say, which substitute as a password and you have your own decitated in to give your much the same reliability as you would if you went to an ATM. So this is what's referred to as a RSA secure 10 token. 16 A. Yes. 10 A. Yes. 10 A. Yes. 20 A. Yes. 11 actually being paid for the server here. 19 20. A. Yes. 12 Q. Okay, thank you. B64 then is the secure 21 20. A. Yes. 12 earlier. Is this intended to operate by the 23 Q. Okay. 13 earlier. Is this intended to operate by the 24 A. Yes. 14 Q. Ithink we discussed at the last hearing, the issue of your web server heig outside the assummers 29 Okay. 14 Q. Okay. If a appreciate if you could get that detail. 1 A. Yes. 21 Q. Ithink we dis	5	A. To that degree. I guess the answer is, no.	5	iust explain for us what you mean when you say
7 A. But when it comes to security and the 7 A. Well, basically RSA is "a brand name" much the 8 firewalls, we basically take those aspects 8 9 very seriously and we consider it to be high 0 10 Q. Um-hm, okay. So, this is not a question of 11 11 Q. Um-hm, okay. So, this is not a question of 12 12 capasity of the server, it's a question of the 12 13 decision that particular information should be 13 14 on a separate server from any other 14 15 information that you have. 16 16 A. Yes. 16 17 Q. And you're going to get me the breakdown of 18 18 way of a virtue of private network? 18 20 A.Yes. 10 21 O Kay, thank you. B64 then is the secure 10 22 remote access project that we spoke about 12 23 earlier. Is this intended to operate by the 23 24 way of a virtue of private network? 24 A. And it's synchronized with the passwords of 25 A. Idon't know. I will have to check that	6	o. Okav.	6	RSA secure ID technology?
8 firewalls, we basically take those aspects 8 same as TBY or Hewlett Packard and we 9 very seriously and we consider it to be high 9 11 Q. Um-hm, okay. So, this is not a question of 11 12 capacity of the server, it's a question of the 12 13 decision that particular information should be 13 14 on a separate server from any other 14 15 information that you have. 15 16 A. Yes. 16 17 secure ID token. 17 18 the material supplies so we can see what's 18 19 actually being paid for the server here. 19 10 A. Yes. 10 A. No, you have to have the physical token 12 extraiter. Is this intended to operate by the 23 Q. Okay. 20 A. Yes. 20 O. Nay. So that you log on to. 21 remote access project that we spoke about 21 minutes. 22 remote access project that we spoke about 23 O. Okay. 23 eatrier. Is this intended to operate by the 23 Q. Okay.	7	A. But when it comes to security and the	7	A. Well, basically RSA is "a brand name" much the
9 very seriously and we consider it to be high 9 currently use their technology for secure log 10 priority issue. 10 10 CUm-hn, okay. So, this is not a question of 11 11 Q. Um-hn, okay. So, this is not a question of 11 basically, it provides a very distinctive 12 capacity of the server, it's a question of the 12 password or number, I should say, which 13 decision that particular information should be 13 substitute as a password and you have your own 14 decision that you have. 15 reliability as you would if you went to an 16 A. Yes. 16 ATM. So this is what's referred to as a RSA 17 Q. And you're going to get me the breakdown of 17 secure ID token. 10 10 O. Ckay, thank you. B64 then is the secure 19 0. Okay. 10 No, you have the have the physical token 12 earlier. Is this intended to operate by the 20 Q. Okay. 20 Okay. 24 way of a vittue of private network? 24 A. And it's synchronized with the passwords of 13 the material supplies overce thing outside the 2 -so we can see what's invol	8	firewalls, we basically take those aspects	8	same as IBM or Hewlett Packard and we
10 priority issue. 10 in. What it is, it's a token like this and 11 0. Um-hm, okay. So, this is not a question of 11 basically, it provides a very distinctive 12 capacity of the server, it's a question of the 12 password or number, I should say, which 13 decision that particular information should be 13 substitute as a password and you have your own 14 on a separate server from any other 14 decicated pin to give you much the same 15 information that you have. 15 reliability as you would if you went to an 16 A. Yes. 16 ATM. So this is what's referred to as a RSA 17 Q. And you're going to get me the breakdown of 17 secure Dtoken. 18 the material supplies so we can see what's 18 Q. Okay, thank you. B64 then is the secure 21 because the password on it changes every minutes. 21 earlier. Is this intended to operate by the 23 Q. Okay. 24 A. No, you have to have the physical token 25 A. Some of it will, it will give you the 25 the server being outside the 2 Q so we can see what's involved. We'll move 16 detail. 5 <td>9</td> <td>very seriously and we consider it to be high</td> <td>9</td> <td>currently use their technology for secure log</td>	9	very seriously and we consider it to be high	9	currently use their technology for secure log
11 Q. Um-hm, okay. So, this is not a question of 11 basically, it provides a very distinctive 12 capacity of the server, it's a question of the 12 password or number, I should say, which 13 decision that particular information should be 13 substitute as a password and you have your own 14 on a separate server from any other 14 dedicated pin to give you much the same 15 information that you have. 16 A. Yes. 16 16 A. Yes. 16 ATM. So this is what's referred to as a RSA 18 the material supplies so we can see what's 18 Q. Okay. So you would need that physical token 19 actually being paid for the server here. 19 or you would just use the number from it? 20 A. Yes. 20 A. No, you have to have the physical token 21 Q. Okay, thank you. B64 then is the secure 21 because the password on it changes every 21 earlier. Is this intended to operate by the 23 Q. Okay. 24 way of a virtue of private network? 24 A. And it's synchronized with the passwords of 25 the server that you log on to. Page 147 Page 148	10	priority issue.	10	in. What it is, it's a token like this and
12 capacity of the server, it's a question of the 12 password or number, I should say, which 13 decision that particular information should be 13 substitute as a password and you have your own 14 on a separate server from any other 14 decisate that particular information should be 14 on a separate server from any other 14 decisate that particular information should be 16 A. Yes. 16 ATM. So this is what's referred to as a RSA 17 Q. And you're going to get me the breakdown of 17 secure ID token. 18 the material supplies so we can see what's 18 Q. Okay, thank you. B64 then is the secure 10 A. Yes. 20 A. No, you have to have the physical token 21 pecause the password on it changes every minutes. 22 earlier. Is this intended to operate by the 23 Q. Okay. 23 earlier. Is this intended to operate by the 25 C. so we can see what's involved. We'll move 14 of titule first weight operation if the system that sinvolved. We'll move 3 then to 866. Okay. The end user and Server 2 issue of your web server being outside the 2 - so we can s	11	O. Um-hm. okay. So, this is not a question of	11	basically, it provides a very distinctive
13 decision that particular information should be 13 is ubstitute as a password and you have your own 14 on a separate server from any other 14 decision that you have. 15 15 information that you have. 16 reliability as you would if you went to an 15 actually being paid for the server here. 16 a Yes. 17 Q. And you're going to get me the breakdown of 17 secure ID token. 18 or you would need that physical token 16 a. Yes. 20 A. Yes. 20 A. No, you have to have the physical token 20 a. Yes. 20 A. No, you have to have the physical token or you would just use the number from it? 21 o. Okay, thank you. B64 then is the secure 21 because the password on it changes every 22 remote access project that we spoke about 22 Q. Okay. 23 a. Some of it will, it will give you the 25 Q. Okay. 24 way of a virtue of private network? 24 A. And it's synchronized with the passwords of 25 A. Some of it will, it will give you the 25 Q. Okay. The note S66. Okay. The end user and Server 2	12	capacity of the server, it's a question of the	12	password or number. I should say, which
14 on a separate server from any other information that you have. 14 dedicated pin to give you much the same reliability as you would if you went to an 15 A. Yes. 16 A. Yes. 16 18 the material supplies so we can see what's actually being paid for the server here. 16 A. Yes. 20 20 A. Yes. 20 Okay, thank you. B64 then is the secure 19 or you would just use the number from it? 21 earlier. Is this intended to operate by the 22 20 Okay. A. No, you have to have the physical token 23 20 Okay. 23 earlier. Is this intended to operate by the 24 20 Okay. 24 A. And it's synchronized with the passwords of 25 26 24 way of a virtue of private network? 24 A. And it's synchronized with the passwords of 25 26 . Some of it will, it will give you the 27 Page 147 Page 148 1 Q. I think we discussed at the last hearing, the 3 1 A. Yes. 2 . Some of you web server being outside the 2 2 . secure 10 godt. Page 148 1 Q. I think we discussed at the last hearing, the 3 1 A. Yes. 2 . Some of it will, it will give you the <td>13</td> <td>decision that particular information should be</td> <td>13</td> <td>substitute as a password and you have your own</td>	13	decision that particular information should be	13	substitute as a password and you have your own
1 1	14	on a separate server from any other	14	dedicated pin to give you much the same
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1	dollars that we're dealing with here, I mean,	1	A. Basically, in very simplistic terms, the
2	do we have an indication of what portion of it	2	Neoware device is a dumb terminal. Basically
3	will relate to thin client devices and what	3	all of the applications run on the server.
4	will relate to desktops or laptops?	4	What you basically get for it is a screen very
5	A. The desktop, I guess what I call the desktop	5	similar say to the one in front of you, plus a
6	portion, again is to replace two hundred and	6	keyboard, and a box probably about twice the
7	twenty units, and there are approximately one-	7	size of the Bible, in the sense of that's the
8	third, one-third and one-third of per laptop,	8	physical size of the Neoware box. All it
9	desktop and thin client devices. So that	9	provides is the ability to communicate with
10	basically those costs will cover the supply	10	the server. Again, all the intelligence is on
11	and install of those particular end user	11	the server. That's where all the software
12	devices.	12	runs and the Neoware box just provides the
13	o. Okay. So -	13	information refresh back and forth to the
14	A. So that's the desktop portion.	14	screen from the server.
15	O. Well, you say two hundred and twenty devices.	15	0. And what are you paying for one of those?
16	one-third lantons one-third desktops and one-	16	A I don't know the exact number somewhere in
17	third thin clients	17	the order of maybe twelve to fifteen hundred
18	A Yes so roughly seventy something seventy	18	O Twelve to fifteen hundred dollars per
10	seventy	10	terminal?
20	O Ves okay And what type of thin client	20	A Ves I can confirm those numbers
20	devices are you contemplating acquiring?	20	O Okay Well you can get back to me in the
$\begin{vmatrix} 21 \\ 22 \end{vmatrix}$	A We're basically. I think it's called Neoware	21	morning and let me know if that is in fact
22	A. We re basically1 think it's called Neoware.	22	the right number (UNDERTAKING) Have you
23	Q. Neoware $N \in O W \land P \in O$	25	looked at any competitive devices, other than
24	A. Neoware, N-E-O-W-A-K-E.	24	Nooware?
23	Q. And what can that do?	23	Neoware !
	D 151		D 170
	Page 151		Page 152
1	Page 151 A. Yes. We did look at one other device. I	1	Page 152 A. Yes.
1 2	Page 151 A. Yes. We did look at one other device. I don't know the name of it, but we did look at	1 2	Page 152 A. Yes. Q. Okay. In respect of the desktop devices, what
1 2 3	Page 151 A. Yes. We did look at one other device. I don't know the name of it, but we did look at one other device.	1 2 3	Page 152 A. Yes. Q. Okay. In respect of the desktop devices, what is the plan for what's going to be acquired to
1 2 3 4	Page 151 A. Yes. We did look at one other device. I don't know the name of it, but we did look at one other device. Q. And what led you to conclude that Neoware was	1 2 3 4	Page 152 A. Yes. Q. Okay. In respect of the desktop devices, what is the plan for what's going to be acquired to replace desktop devices?
1 2 3 4 5	Page 151 A. Yes. We did look at one other device. I don't know the name of it, but we did look at one other device. Q. And what led you to conclude that Neoware was the way to go?	1 2 3 4 5	Page 152 A. Yes. Q. Okay. In respect of the desktop devices, what is the plan for what's going to be acquired to replace desktop devices? A. You mean what kind of desktop units they're
1 2 3 4 5 6	Page 151 A. Yes. We did look at one other device. I don't know the name of it, but we did look at one other device. Q. And what led you to conclude that Neoware was the way to go? A. Basically we had looked at what we have seen	1 2 3 4 5 6	Page 152 A. Yes. Q. Okay. In respect of the desktop devices, what is the plan for what's going to be acquired to replace desktop devices? A. You mean what kind of desktop units they're going to be?
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	Page 153		Page 154
1	you going to tender for an IBM device or are	1	thing you have now?
2	you going to tender for a PC?	2	A. Yes.
3	A. When we went to tender, we went to tender for	3	Q. Okay. And does that apply both to the Neoware
4	basically desktop devices, which met certain	4	as well?
5	specifications, and I guess, the award, the	5	A. I believe it does, but I'll check on that.
6	last award was to IBM, based on cost.	6	O. Okay. The simplest thing might simply be to
7	O. Okay. I take it you'll be issuing another	7	provide the standing order contract that you
8	tender now in the event that this project is	8	have (UNDERTAKING) given that it should
9	approved?	9	specify the numbers that are -
10	(1.15 nm)	10	A I'll provide the information I think is
11	A No Basically we have a tender now that the	11	appropriate to answer your question
11	we're on the the last time we want to tender	12	O Okay. In respect of the leptons then, are you
12	we le on meme last time we went to tender	12	Q. Okay. In respect of the laptops then, are you
15	was for a five-year program, and so we le	15	committee to a standing order for those as
14	basically picking up years four and five	14	wen?
15	options on that particular tender.	15	
16	Q. Okay. I thought we were in now the second	16	Q. Okay. And with whom?
17	year of a five-year program.	17	A. Basically it's with IBM.
18	A. We are, but I guess the thing is, when we	18	Q. Okay. Do you know what specific laptops
19	started the initial Evergreen refresh, it was	19	you'll be acquiring?
20	back in 2000. That was, yes, it was year	20	A. No, because they usually change every six
21	three. So this would beso I guess all I'm	21	months, so it's hard to keep track of exact
22	saying is that we're just continuing with the	22	model number.
23	same tender for the purchase of the desktop	23	Q. Okay. Do you know which was the last ones
24	equipment.	24	that you got?
25	Q. So this is basically a standing order type of	25	A. No.
	Page 155		Page 156
1	Page 155 O. Okay. I take it you can get that information	1	Page 156 largest IT analyst company in the world. They
12	Page 155 Q. Okay. I take it you can get that information for me?	1 2	Page 156 largest IT analyst company in the world. They basically publish best practices standards for
1 2 3	Page 155 Q. Okay. I take it you can get that information for me? A. Yes. (UNDERTAKING)	1 2 3	Page 156 largest IT analyst company in the world. They basically publish best practices standards for this type of application.
1 2 3 4	Page 155 Q. Okay. I take it you can get that information for me? A. Yes. (UNDERTAKING) Q. Yes. okay. Together with the cost per unit	1 2 3 4	Page 156 largest IT analyst company in the world. They basically publish best practices standards for this type of application. O. And your contract is for the acquisition of
1 2 3 4 5	Page 155 Q. Okay. I take it you can get that information for me? A. Yes. (UNDERTAKING) Q. Yes, okay. Together with the cost per unit that are associated with those?	1 2 3 4 5	Page 156 largest IT analyst company in the world. They basically publish best practices standards for this type of application. Q. And your contract is for the acquisition of devices that are consistent with Gartner's
1 2 3 4 5 6	Page 155 Q. Okay. I take it you can get that information for me? A. Yes. (UNDERTAKING) Q. Yes, okay. Together with the cost per unit that are associated with those? A. Yes. (UNDERTAKING)	1 2 3 4 5 6	Page 156 largest IT analyst company in the world. They basically publish best practices standards for this type of application. Q. And your contract is for the acquisition of devices that are consistent with Gartner's Group, Gartner Group's best practices?
1 2 3 4 5 6 7	Page 155 Q. Okay. I take it you can get that information for me? A. Yes. (UNDERTAKING) Q. Yes, okay. Together with the cost per unit that are associated with those? A. Yes. (UNDERTAKING) Q. Yes. okay. Have the specifications for either	1 2 3 4 5 6 7	Page 156 largest IT analyst company in the world. They basically publish best practices standards for this type of application. Q. And your contract is for the acquisition of devices that are consistent with Gartner's Group, Gartner Group's best practices? A Well we basically look at their
1 2 3 4 5 6 7 8	 Page 155 Q. Okay. I take it you can get that information for me? A. Yes. (UNDERTAKING) Q. Yes, okay. Together with the cost per unit that are associated with those? A. Yes. (UNDERTAKING) Q. Yes, okay. Have the specifications for either of these three types of devices changed since 	1 2 3 4 5 6 7 8	Page 156 largest IT analyst company in the world. They basically publish best practices standards for this type of application. Q. And your contract is for the acquisition of devices that are consistent with Gartner's Group, Gartner Group's best practices? A. Well, we basically look at their recommendations and we basically look at our
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1 contract. 1 office, depending on what the implementation contract? 2 Q. So you have an option to get out of that schedule specifice, way buy them all at contract? 4 A. Yes. allotments. It really depends on what the implementation schedule specifies and what 6 get Age. allotments. It really depends on what the implementation schedule specifies and what 7 were the least cost to you? 7 8 A. I would say that we looked at within the last 8 9 Q. Okay. And who within the organization would 10 11 have done that? 11 12 A. Mr. Khols would have done that. 12 13 Q. What's his position? 13 14 A. He's the manager of technology planning and to check every few months on the prices of the standing order with, if you want to call it that, with IPM, and then the will basically the verse optimized by a specific number of units in order to get this arrangement? 15 we're going to refresh or to purchase, then he 20 specific number of units in order to get this arrangement? 14 A. He's the specific continuing obligation. Every time 19 O. Did you have to give IBM a commitment to any specific number of units in order to get this it was 200		Page 157		Page 158
2 0.50 you have an option to get out of that 2 schedule specifies, we may buy them in specific 4 A. Yes. 0 one or we may buy them in specific 5 0. Okay. When did you last survey the market to 5 6 sew whether or not the prices you were getting 6 7 were the least cost to you? 7 8 A. I would say that we looked at within the last 9 9 Q. Okay. And who within the organization would 10 10 Q. Okay. And who within the organization would 10 11 have done that? 11 12 A. Mr. Nichols would have done that. 12 13 Q. Whi's his position? 13 14 A He's the manager of technology planning and 14 15 project delivery. 15 16 devices of this. 18 17 check every few months on the prices of 17 18 asses what other things he sees in the market. 19 A. I's a continuing obligation. Every time 19 Q. Did you have to give IMA a commitment to any 20 we're going to refresh or to purchase, then to	1	contract.	1	office, depending on what the implementation
3 contract? 3 once or we may buy them in specific 4 A Yes. 4 alloiments. It really depends on what the 5 0. Okay. When did you last survey the market to 5 implementation schedule specifies and what 6 see whether or not the prices you were getting 6 makes sense, because typically, we now 're only ready 8 A. I would say that we looked at within the last 9 0. Okay. And who within the organization would 10 p. Okay. And who within the organization would 10 number of mints to be acquired? Is that-am I 11 have done that? 12 understanding this right? I just want you to 12 A. Mr. Nichols would have done that. 13 explain to me how it works. 13 Q. What's his position? 14 A. Well, basically, we have the-again, we have 15 project delivery. 15 the standing order with, if you want to call 16 Q. And is that a continuing obligation. Every time 19 Q. Did you have to give TBM a commitment to any 18 devices of his- 18 matet. 18 arangement? 19 Wire going to refresh or to purchase, then ha 19 pold h	2	Q. So you have an option to get out of that	2	schedule specifies, we may buy them all at
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5 Q. Okay. When did you last survey the market to see whether or not the prices you were getting 5 implementation schedule specifies and what 7 were the least cost to you? 6 markers sense, because sense, because typically, we don't want. 8 A. I would say that we looked at within the last 7 to have "ninety units" when we're only ready 10 Q. Okay. And who within the organization would 10 mumber of units. 9. Q. So M. Nichols would do some sort of survey at 11 have done that? 11 number of the sequired? Is thatam I 12 A. Mr. Nichols would have done that. 12 understanding this right? I just want you to 13 Q. What's his position? 13 asses what other things we theagain, we have 14 A. He's the manager of technology planning and 15 it tat, with IBM, and then he will basically 15 che's exp few months on the prices of 18 acvices of this - 18 16 A. It's a continuing obligation. Every time 20 Did you have to give IBM a commitment to any specific number of units in order to get this 17 assead what of the yall done at once? 21 A. We will-liguess as we go from office to 25 18 cor ar	4	A. Yes.	4	allotments. It really depends on what the
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	25	Q. So the devices that are planned to be replaced	25	if you keep it any longer than this, then it's

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1	really not the right decision for you. So	1	HUTCHINGS, Q.C.:
2	basically, we use Gartner's best practices as	2	Q. I understand. In respect of the market
3	far as refreshing end user infrastructure.	3	surveys that Mr. Nichols does, would there be
4	Q. Is that best practice policy reduced to	4	written reports in respect of those?
5	writing somewhere?	5	A. Probably not.
6	A. There are a series of Gartner best practices.	6	Q. Probably not?
7	Q. And do you have those available to you?	7	A. No.
8	A. Yes, we have those available.	8	Q. So would they bewould those reports be made
9	Q. Okay. I'd like an undertaking that they be	9	to you verbally or who would he pass them on
10	produced, so that we can have a look.	10	to?
11	(UNDERTAKING)	11	A. He would just do an analysis and we'd have a
12	GREENE, Q.C.:	12	discussion. Typically, we do notwe may not
13	Q. With respect to the refresh program?	13	go out and formal analysis of it, at this
14	HUTCHINGS, O.C.:	14	particular point, in the middle of the
15	O. Yes.	15	contract with IBM, and Mr. Nichols has been
16	GREENE, O.C.:	16	working in this area for twenty odd years and
17	O. Because there areGartner provides on	17	he has a very good understanding of what the
18	numerous topics in the IT industry.	18	pricing is in this particular area.
19	HUTCHINGS, O.C.:	19	o. I think. Mr. Chair, that might be the
20	o Yes No no understand that	20	convenient time to break for the day
$\frac{20}{21}$	GREENE OC	21	CHAIRMAN.
22	O We'll have to see. I'm not sure if there's a	22	O Okay Mr Hutchings I think Mr Kennedy may
23	convright issue or whatever I'm not going to	22	have spoken with you in connection with
$\begin{vmatrix} 2J \\ 2A \end{vmatrix}$	be sure until I actually see the actual	23	tomorrow's hours
25	documents	27	HUTCHINGS O.C.
25	documento.	25	ne remitos, q.e
	D 162		D 164
	Page 163		Page 164
1	Q. Yes.	1	Page 164 CHAIRMAN:
1 2	Page 163 Q. Yes. CHAIRMAN:	1 2	Page 164 CHAIRMAN: Q. Otherwise, the lengthened day becomes a
1 2 3	Page 163 Q. Yes. CHAIRMAN: Q. And it looks as if we might sit starting at	1 2 3	Page 164 CHAIRMAN: Q. Otherwise, the lengthened day becomes a littlewell -
1 2 3 4	Page 163 Q. Yes. CHAIRMAN: Q. And it looks as if we might sit starting at the usual time, at 9:00, and going until I	1 2 3 4	Page 164 CHAIRMAN: Q. Otherwise, the lengthened day becomes a littlewell - GREENE, Q.C.:
1 2 3 4 5	Page 163 Q. Yes. CHAIRMAN: Q. And it looks as if we might sit starting at the usual time, at 9:00, and going until I think 12:30, we'll break for lunch, and come	1 2 3 4 5	Page 164 CHAIRMAN: Q. Otherwise, the lengthened day becomes a littlewell - GREENE, Q.C.: Q. Yes, exactly.
1 2 3 4 5 6	Page 163 Q. Yes. CHAIRMAN: Q. And it looks as if we might sit starting at the usual time, at 9:00, and going until I think 12:30, we'll break for lunch, and come back and sit until 4:00. So I just thought	1 2 3 4 5 6	Page 164 CHAIRMAN: Q. Otherwise, the lengthened day becomes a littlewell - GREENE, Q.C.: Q. Yes, exactly. HUTCHINGS, Q.C.:
1 2 3 4 5 6 7	Page 163 Q. Yes. CHAIRMAN: Q. And it looks as if we might sit starting at the usual time, at 9:00, and going until I think 12:30, we'll break for lunch, and come back and sit until 4:00. So I just thought I'd let you know that, in case you wanted to	1 2 3 4 5 6 7	Page 164 CHAIRMAN: Q. Otherwise, the lengthened day becomes a littlewell - GREENE, Q.C.: Q. Yes, exactly. HUTCHINGS, Q.C.: Q. Not much lengthened.
1 2 3 4 5 6 7 8	Page 163 Q. Yes. CHAIRMAN: Q. And it looks as if we might sit starting at the usual time, at 9:00, and going until I think 12:30, we'll break for lunch, and come back and sit until 4:00. So I just thought I'd let you know that, in case you wanted to make any plans.	1 2 3 4 5 6 7 8	Page 164 CHAIRMAN: Q. Otherwise, the lengthened day becomes a littlewell - GREENE, Q.C.: Q. Yes, exactly. HUTCHINGS, Q.C.: Q. Not much lengthened. CHAIRMAN:
1 2 3 4 5 6 7 8 9	Page 163 Q. Yes. CHAIRMAN: Q. And it looks as if we might sit starting at the usual time, at 9:00, and going until I think 12:30, we'll break for lunch, and come back and sit until 4:00. So I just thought I'd let you know that, in case you wanted to make any plans. HUTCHINGS, Q.C.:	1 2 3 4 5 6 7 8 9	Page 164 CHAIRMAN: Q. Otherwise, the lengthened day becomes a littlewell - GREENE, Q.C.: Q. Yes, exactly. HUTCHINGS, Q.C.: Q. Not much lengthened. CHAIRMAN: Q. Anyway, we will try and do that tomorrow and
1 2 3 4 5 6 7 8 9 10	Page 163 Q. Yes. CHAIRMAN: Q. And it looks as if we might sit starting at the usual time, at 9:00, and going until I think 12:30, we'll break for lunch, and come back and sit until 4:00. So I just thought I'd let you know that, in case you wanted to make any plans. HUTCHINGS, Q.C.: Q. That's very helpful.	1 2 3 4 5 6 7 8 9 10	Page 164 CHAIRMAN: Q. Otherwise, the lengthened day becomes a littlewell - GREENE, Q.C.: Q. Yes, exactly. HUTCHINGS, Q.C.: Q. Not much lengthened. CHAIRMAN: Q. Anyway, we will try and do that tomorrow and possibly on Friday, if it's necessary, but
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1 2 3 4 5 6 7 8 9 10 11 12	Page 163 Q. Yes. CHAIRMAN: Q. And it looks as if we might sit starting at the usual time, at 9:00, and going until I think 12:30, we'll break for lunch, and come back and sit until 4:00. So I just thought I'd let you know that, in case you wanted to make any plans. HUTCHINGS, Q.C.: Q. That's very helpful. GREENE, Q.C.: Q. And reconvening after lunch is at 2:00, is it?	1 2 3 4 5 6 7 8 9 10 11 12	Page 164 CHAIRMAN: Q. Otherwise, the lengthened day becomes a littlewell - GREENE, Q.C.: Q. Yes, exactly. HUTCHINGS, Q.C.: Q. Not much lengthened. CHAIRMAN: Q. Anyway, we will try and do that tomorrow and possibly on Friday, if it's necessary, but we'll take stock of that and see how far we get tomorrow. Thank you.
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Page 165	
1 CERTIFICATE	
2 I, Judy Moss, hereby certify that the foregoing is a true	
3 and correct transcript in the matter of Newfoundland and	
4 Labrador Hydro 2004 Capital Budget Application heard	
5 hefers the Decid of Commissioners of Dublic Heilitic	
5 before the Board of Commissioners of Public Utilities,	
6 Prince Charles Building, St. John's, Newfoundland and	
7 Labrador on the 8th day of July, A.D., 2003 and was	
8 transcribed by me to the best of my ability by means of	
9 a sound apparatus.	
10 Dated at St. John's, Newfoundland and Labrador	
11 this 8th day of July, A.D., 2003	
12 Judy Moss	
12 3003 11000	