IN THE HIGH COURT OF THE REPUBLIC OF SINGAPORE

[1997] SGHC 215

Suit 398/1992

Between

Zicom Pte Ltd

… *Plaintiff*

And

Antara Koh Pte Ltd

… *Defendant*

GROUNDS OF DECISION

Version No 1: 29 Oct 2026 (23:45 hrs)

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Zicom Pte Ltd v Antara Koh Pte Ltd

[1997] SGHC 215

Suit 398/1992
Judith Prakash J
19 August 1997

1 **Judgment:**

2 **Cur Adv Vult**

3 **Introduction**

4 1. The plaintiff company is in the engineering business and specialises in the manufacture and installation of hydraulic winches and related equipment. The defendant company's main business is as a contractor for piling and civil and marine construction works.

5 2. In October 1990, the defendants asked the plaintiffs to construct and install the hydraulic machinery necessary to equip a marine piling barge. The plaintiffs' quotation for the equipment was accepted by the defendants on 11 October 1990. It is common ground that under the original contract, the latest date for delivery of the equipment by the plaintiffs was 17 January 1991. At the defendants' request, the plaintiffs made an early delivery of part of the equipment in December 1990. The balance of the equipment was delivered between 27 February and 5 March 1991. The plaintiffs' claim herein is in respect

of unpaid invoices issued by them for the equipment and also for servicing work done at the defendants' request. The defendants have counterclaimed alleging that they have suffered damage because of the late delivery of the balance of equipment and also because of defects in the equipment delivered. As it turned out, the plaintiffs' claim was relatively straight forward and most of the trial was spent on the defendants' counterclaim.

6 **The plaintiffs' claim**

7 3. By their statement of claim endorsed on the Writ of Summons filed herein on 3 March 1992, the plaintiffs claim the sum of $63,113,83 outstanding under 13 invoices issued to the defendants between March 1991 and January 1992. After service of the writ on 5 March 1992, the defendants paid the plaintiffs $3,521.23 in settlement of five of the invoices. As at the start of the trial therefore, the balance due was $59,592.60. In their final submissions, the defendants accepted that of this sum they could only dispute $5,097.60 claimed under invoice 8025/92. The plaintiffs are therefore, by the defendants' own admission, entitled to judgment for $54,495.

8 4. The defendants dispute invoice 8025/92 because it is not an invoice for goods or services rendered. Instead the sum of $5,097.60 represents interest at one per cent per annum on the amounts of the other invoices which the plaintiffs had issued and which had not been paid by the defendants. The defendants dispute this interest for the following reasons. First, no contractual term for interest was pleaded in the statement of claim. Secondly, they say that in fact there was no term in the contract regarding interest. The written contract between the plaintiffs and the defendants comprised the plaintiffs' quotation of 10 October 1990 and the defendants' written acceptance of that quotation the next day. Neither of these two documents mention interest. The interest term is

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found only in the conditions printed on the reverse of the invoices which the plaintiffs subsequently sent the defendants. The defendants contend that there was no evidence of a course of dealings between the parties showing that the contents of subsequent invoices were incorporated into the contract as terms.

9 5. The law is that conditions may be incorporated into a contract by a course of dealing between the parties where each party has led the other reasonably to believe that he intended that their rights and liabilities should be ascertained by reference to the terms of a document which had been consistently used by them in previous transactions: see *Chitty on Contracts* (26th Ed) para 780. In this regard, the plaintiffs rely on *Eastman Chemical International AG v NMT Trading Ltd & Anor* [1972] 2 LLR 25 and *Circle Freight International Ltd v Medeast Gulf Exports Ltd* [1988] 2 LLR 427. In the first case, the parties had been dealing with each other for a period of about a year prior to entering the contract which was before the court and, for every contract made between them, the defendants had sent an invoice in which was set out a specific reference to the conditions of the Road Haulage Association Ltd. In the second case, prior to the contract in question, there were at least 11 occasions when invoices had been sent to the defendants containing a notice that the business between them and the plaintiffs was conducted on certain standard trading conditions. In both cases it was held that there had been a sufficient course of dealing between the parties to incorporate the relevant conditions into the respective contracts.

10 6. In this case, the evidence is that there had not been many transactions between the parties prior to the contract in question. One witness for the defendants put the number of previous invoices as between two and three over a period of about a year. However, that witness, Mr Ng, was the defendants' plant manager and was not in charge of administration. His knowledge could

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have been incomplete since the defendants' managing director Mr Jimmy Koh, who also testified, agreed under cross-examination that the computation of interest by the plaintiffs had been based on their sales conditions and that he had dealt with the plaintiffs over the years before the present transaction. He also stated that he was aware of the sales conditions on the invoices. His explanation for not paying the plaintiffs' invoices, including the invoice for interest, was that he wanted to off-set the amount against the damages the defendants had sustained by reason of the plaintiffs' breach of contract.

11 7. Whilst it does not seen that in this instance there were as many previous dealings between the parties as in the cases the plaintiffs cited, it appears to me from the evidence that the defendants had full knowledge of the plaintiffs' terms and were prepared to deal with them on that basis. Even Mr Ng was aware of the interest condition although he asserted that the plaintiffs had not applied it previously to the defendants because of the good relationship between them. Accordingly I hold that there were enough prior dealings between the parties and sufficient knowledge on the defendants' part of the plaintiffs' conditions, for such conditions to be incorporated as a part of the contract between them. Therefore the plaintiffs are entitled to interest at one per cent per month on their unpaid invoices.

12 8. I have noted the defendants' point that the plaintiffs failed to specifically plead it was a term of the contract that they be paid interest at one per cent a month. The statement of claim does, however, include a claim for interest on the amount due at that rate. In my view that was a sufficient pleading of their entitlement in this case. Certainly the defendants knew what the plaintiffs based their claim to interest on and were not embarrassed by the lack of particularity. Although the statement of claim could have been better drafted, the deficiency is not, in my view, fatal.

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13 **The counterclaim**

14 9. The details of the defendants' counterclaim and the plaintiffs' response can be briefly summarised from the pleadings. The defendants pleaded that Sembawang Construction Pte Ltd ('Sembawang') had been engaged by the Port of Singapore Authority as the main contractor for the construction and erection of a feeder berth at the Empire Dock ('the project'). The defendants were in turn engaged by Sembawang to supply plant and equipment, including a piling barge, labour and supervision, to install marine piles for the project.

15 10. The plaintiffs agreed to supply the defendants with seven hydraulic winches and related remote controls and power packs to be installed onto the defendants' piling barge known as PB8. This agreement was, according to the defendants, evidenced by:

16 (a) discussions between Mr Koh of the defendants and Mr Foo of the plaintiffs whereby the requirements of the defendants in relation to the equipment and its proposed use were explained;

17 (b) the plaintiffs' quotation of 10 October 1990; and

18 (c) the defendants' acceptance on 11 October 1990 of the quotation.

19 11. According to the defendants, the agreement contained the following express and/or implied terms:

20 (a) that the plaintiffs would deliver the equipment within 12 to 14 weeks from the defendants' confirmation of the order;

21 (b) that time was of the essence; and

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22 (c) the equipment would be fit for its intended purposes and/or of merchantable quality and/or free of defects.

23 12. The defendants alleged that in breach of the above terms, the plaintiffs were late in delivering the equipment. Four winches were delivered on 27 February 1991, the remaining three on 1 March 1991 and the remote controls were delivered on 5 March 1991. In further breach of the terms, the equipment was defective and not fit for the intended purpose. This caused further delays to the project. By reason of these breaches, the completion of the project was delayed and the defendants had suffered loss and damage which exceeded the plaintiffs' claims.

24 13. The plaintiffs responded by denying that they were in breach of contract and put the defendants to strict proof of their allegations. Further, the plaintiffs said that the equipment was not intended by the defendants to be used for the project and even if it had been, the defendants had never communicated this intention to the plaintiffs. The plaintiffs said that the equipment was in fact intended by the defendants to be used for a project in Tuas in late 1991.

25 14. The plaintiffs also denied that time was of the essence of the agreement. Their position was that the original date of delivery contemplated in the agreement had been varied or waived by the defendants' instructions to the plaintiffs to deliver part of the goods ordered at an earlier date and to deliver the balance at such time as the defendants notified them that they wanted delivery. In the circumstances, any condition as to time being of the essence had been varied or waived by the defendants.

26 15. The issues which I have to decide therefore are as follows:

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27 (1) whether there was a variation of the original contract term relating to the delivery of the equipment;

28 (2) if there was no variation, whether the late delivery of part of the equipment caused the defendants to be late in completing their piling work in respect of the project;

29 (3) whether the equipment delivered was defective and if so, whether any delay was thereby caused to the defendants; and

30 (4) whether the amounts claimed by the defendants as damages are recoverable.

31 **The evidence**

32 16. There were two witnesses for the defendants and five for the plaintiffs. It is not necessary to give a very detailed account of the testimony of each of them. I will, however, summarise the main points of the affidavits of evidence-in-chief which indicate the varying stories told by each side.

33 *(1) Mr Jimmy Koh*

34 17. Mr Koh stated that he was the representative of the defendants who dealt with Mr Foo of the plaintiffs in the negotiations which led to the agreement for the manufacture and supply of the equipment. In the course of these negotiations, he had explained to Mr Foo the requirements of the equipment and its intended use for marine piling works in connection with the project. He told Mr Foo that the defendants were in possession of a marine piling frame, Yoshinaga YDF 80, and had commissioned the construction of a new barge onto which this piling frame would be installed. He also explained that the defendants

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required an entire hydraulic system with new mooring winches, a pile lifting winch and other accessories to be installed onto the marine piling frame and on the deck of the barge in order to operate the piling frame and the barge as a piling barge. Mr Foo had also been informed of the urgency of the supply of the equipment as the defendants had to meet the completion date specified under their contract with Sembawang.

35 18. By their quotation dated 10 October 1990, the plaintiffs offered to supply and deliver the equipment within 12 to 14 weeks of confirmation of order. The defendants accepted the plaintiffs' offer on 11 October 1990. Mr Koh stated that delivery of the equipment was thus scheduled to take place at the earliest by 3 January 1991 (12 weeks) or by the latest 17 January 1991 (14 weeks). It was expressly stated in the defendants' confirmation that time was to be of the essence of the order. Mr Koh asserted that this term had been inserted in the agreement precisely because the new equipment was to be used for the project.

36 19. Mr Koh admitted that the plaintiffs had delivered part of the equipment early viz the oil cooler on 7 December 1990 and the hydraulic power packs on 19 December 1990 and that they had done this at the defendants' request. He asserted that the plaintiffs had not, however, indicated to the defendants that because of the request to have early delivery of the power packs, the plaintiffs would be unable to deliver the balance of the equipment by the contractual delivery date. On the contrary, it was still understood that time was of the essence of the contract and that the plaintiffs still had to meet that date.

37 20. Mr Koh also stated that from around December 1990, he and his colleague, Mr Anthony Ng, frequently visited the plaintiffs' factory. During his visits, they stressed to Mr Foo that time was of the essence as the equipment

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was required for the defendants to complete their marine piling work for Sembawang. Mr Foo always assured the defendants that the plaintiffs would be able to meet the latest delivery date under the contract without any problem.

38 21. Prior to the contractual delivery date, the defendants made all necessary preparations, such as the running of the hydraulic piping on PB8, to have the vessel ready to be installed with the equipment as and when it was delivered. The advanced state of preparation on board PB8 meant that the equipment could have been installed within 10 days of delivery. However, the plaintiffs delivered the equipment late: four winches were delivered on 27 February 1991, three winches were delivered on 1 March 1991 and the remote control was delivered on 5 March 1991. As a result of the late delivery of the aforesaid items, the installation of PB8 was completed late with the consequence that completion of the marine piling work was delayed.

39 22. Under the defendants' contract with Sembawang, the piling works were to take place over a period of four months commencing in November 1990 and be completed by 15 March 1991. Mr Koh asserted that because of the delays encountered by the defendants due to the late delivery and defects in the equipment, the marine piling works were completed only on 24 May 1991, a delay of about 70 days. Of these 70 days, about 46 days were due to late delivery of the equipment. The other 24 days' delay was due to defects in the equipment supplied.

40 23. Mr Koh went on to say that the consequence of late completion of the marine piling works was that the defendants became liable to Sembawang for liquidated damages of $10,000 per day. In September 1991, the defendants notified the plaintiffs of the delay of 70 days and put them on notice that the defendants would be claiming compensation from them for any liquidated

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damages imposed by Sembawang. Subsequently, after negotiations between Sembawang and the defendants, the delay claim was settled for $200,000.

41 24. Other details of the defendants' loss were given by Mr Koh. He claimed:

42 (a) a total of $65,798 for salary and wages incurred during the 70 days delay;

43 (b) $58,360 for the hire of two tug boats;

44 (c) $256,666 being loss of rental fees for the barge for 70 days; and

45 (d) $63,333 being loss of rental fees for the hydraulic hammer for 70 days.

46 The defendants' total claim came up to $446,157.

47 *(2) Mr Anthony Ng*

48 25. At the material time, Mr Anthony Ng was the defendants' plant manager. According to his affidavit, he was present on site most of the time and thus had personal knowledge of the defects in the various equipment supplied by the plaintiffs.

49 26. According to Mr Ng, one of the most serious defects related to the mooring winches. The plaintiffs had supplied six such winches which were used to hold the piling barge in place during driving of the marine piles. The winches were in turn held in place by a system of hydraulic brakes. On 25 March 1991, Mr Koh and Mr Ng wrote to the plaintiffs complaining that the winches were

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drifting and were unable to hold the piles in position. This problem, Mr Ng asserted, resulted from the failure of the hydraulic brakes.

50 27. Mr Ng went on to elaborate that the failure of the hydraulic brakes was due to the faulty design of the system in that it lacked a proper filtration system. This in turn, he said, led to the oil within the hydraulic system being contaminated. It was possible, he speculated, that this contamination of the hydraulic oil caused the hydraulic control valves to malfunction. This in turn would have led to the malfunctioning of the hydraulic brakes. Since the plaintiffs had designed and manufactured the hydraulic system, the failure of the brakes must in any event have been their fault.

51 28. Mr Ng went on to say that when the pile barge drifted from its intended position, the marine piles were out of alignment during piling. The defendants had to rectify the situation and this led to them incurring additional expenses. There was also delay to the project of about three weeks because of rectification works.

52 29. Another defect which was highlighted in the defendants' letter of 25 March 1991 was that the system tended to overheat. Mr Ng gave two reasons for the overheating. First, that the cooler provided for in the system was insufficient to dissipate the heat within the system and that secondly, there was no flush line cooling circuit provided for in the power pack. The plaintiffs, after being informed of the defendants' complaints, changed the cooler to one that was bigger in size. As a result of the overheating, the entire system had to be shut down from time to time to enable it to cool down before operations resumed. This caused further delays totalling about 12 days.

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53 30. There was also the problem of the mooring winches not being able to respond immediately once the controls were activated. Once activated, the winches would also not start off smoothly. These were teething problems which the plaintiffs had to rectify and the plaintiffs' attempts to do so caused further delays.

54 31. Another major defect related to the two hydraulic pumps. These were provided by the defendants but installed by the plaintiffs. The problem encountered was that the pressure in the pumps could not be maintained at the requisite level and the winches therefore had insufficient pulling force. The defendants complained about this problem on 25 March 1991. On 3 April 1991, the plaintiffs responded and attributed the problem to the fact that there were foreign particles such as fine shot blasting slags in the pumps. They further maintained that the valves and bearing plates and the cylinder block had been damaged as a result of these foreign particles.

55 32. In rebuttal, Mr Ng stated that there was no shot blasting carried out by the defendants or any other party involved in the project during the period of the project. Further, it was highly unlikely that shot blasting slags from the shipyard in the vicinity could have entered the system in the way that the plaintiffs had alleged. In any case, the hydraulic lines which were the likeliest point of entry of any foreign particles into the pumps had all been chemically cleaned before the pumps were installed.

56 33. Accordingly, Mr Ng concluded the reason given by the plaintiffs as to how the foreign particles entered into the system must have been wrong. In fact it was the lack of a proper filtration system that led to the oil being contaminated and this lack arose out of the fault in the design and manufacture of the system for which fault the plaintiffs must be responsible. The defendants

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eventually had to purchase two new pumps to replace the original pumps which had to be taken to the plaintiffs' workshop for repairs.

57 34. The four pumps were used interchangeably whenever the problem occurred. The problems with the pumps meant that the defendants encountered further delays amounting to three days. On top of this delay, the two additional pumps which the defendants had to purchase cost them $9,000.

58 35. Mr Ng concluded by stating that the defendants had been delayed for a total of about 24 days on account of the defects in the equipment supplied.

59 *(3) Mr Foo Siang Tong*

60 36 Mr Foo was at all material times holding the position of technical director in the plaintiff company and was responsible for the plaintiffs' engineering, design and production departments.

61 37. Mr Foo stated that on 5 October 1990, following an approach by Mr Koh, the plaintiffs sent the defendants an offer for the supply of deck machinery to equip a piling barge. A revised quotation was sent on 10 October 1990 and this was the quotation which the defendants accepted. During the discussions, the defendants did not make it known to the plaintiffs that the equipment had been ordered to equip the barge PB8 for the defendants' job with Sembawang. Neither was there any discussion of any penalties for any delay nor mention made that time was to be of the essence of the contract. On the contrary Mr Foo was given to understand that the equipment was to be used in a project in Tuas in the middle of June 1991.

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62 38. Mr Foo stated that he believed that the equipment the defendants had ordered from the plaintiffs was intended for a job scheduled to take place later than the project. His belief was based on the fact that one month after placing the order with them the defendants sent the plaintiffs various used machinery for them to service. These included a 10-tonne piling winch, an 8-tonne hammer winch, two turntable cylinders and a control panel. This equipment was subsequently installed on PB8 by the defendants. Mr Foo contended that the defendants had ordered a piling winch from the plaintiffs and if their new equipment was intended for the Sembawang job, they would have not serviced and installed the old winches onto the barge.

63 39. The plaintiffs prepared to manufacture the items making up the defendants' order as a batch with the scheduled delivery date being 17 January 1991. About two weeks after the order was confirmed, Mr Koh requested Mr Foo to advance the supply of the hydraulic oil cooler and the power packs to 7 December 1990 and 19 December 1990 respectively. He informed Mr Foo that so long as the oil cooler and the power packs which were required to power all the used deck machinery were installed on PB8 so that it could be mobilised, the balance of the equipment could be delivered to the defendants at later dates to be notified by them. Mr Foo also stated that the defendants must have been aware that the new arrangement affected the delivery of the other equipment.

64 40. In accordance with the defendants' instructions, the plaintiffs delivered the balance of the order between February and March 1991. At no time did the defendants reject the plaintiffs' equipment. Mr Foo therefore asserted that in requesting the plaintiffs to re-schedule their deliveries and subsequently accepting the deliveries made, the defendants had waived the time originally fixed for delivery and affirmed the subsequent variation or

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postponement of the time.

65 41. Mr Foo also gave evidence in relation to the defects complained of by the defendant. He pointed out that all the installation works on the barge were done by the defendants and that the hydraulic pipes had been run in their own yard which was adjacent to shipyards and fabrication yards where shot blasting works were carried out. Mr Foo averred out that it is critical in a hydraulic system that the oil which is the medium through which force is generated through precision hydraulic pumps, motors and control valves, be absolutely free of dust and dirt. Once the system is contaminated, many problems arise.

66 42. After the plaintiffs' equipment had been installed on the barge and some operations had taken place, the defendants started to complain. Complaints were received on 20 March and 3 April 1991. The plaintiffs replied on 3 April itself and drew the defendants' attention to the presence of shot-blasting slags in the hydraulic oil present in the hydraulic system. This contamination resulted in damage to the hydraulic components and the performance of the system was thereby adversely affected. The defendants had installed their own piping system and equipment and it was evident to the plaintiffs that the workmanship and the degree of care exercised by the defendants was very poor. Mr Foo asserted that any malfunctioning or breakdown in the hydraulic system or the piling system was due to the defendants' own fault and their refusal or failure to heed the plaintiffs' advice.

67 43. The defendants placed a second order with the plaintiffs on 13 March 1991 for two winches 'similar in performance specifications' to those supplied for PB8. They took delivery of those winches in November 1991 by which time

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PB8 with the plaintiffs' equipment had long since completed both the piling work and the project and further work on the defendants' job at Tuas. Mr Foo argued that if the defendants truly believed that the plaintiffs' winches were not merchantable, unfit for their intended purpose and defective, the defendants would not have placed the further order or taken delivery of the additional winches.

68 *(4) Danny Chan Poo Meng*

69 44. Mr Danny Chan is employed by the plaintiffs as their hydraulic service engineer. He is responsible for the production of hydraulic system in the plaintiffs' factory as well as after sales services in respect of such systems.

70 45. On 19 December 1990, the plaintiffs supplied the defendants with the two diesel hydraulic power packs which were part of the defendants' order. These power packs were installed on PB8 in the defendants' yard. On 8 January 1991, Mr Foo instructed Mr Chan to commission the hydraulic system driven by the power packs. Mr Chan stated that he was not able to commission the system that day because the piping works on board PB8 had not been fully completed by the defendants. Mr Chan advised the defendants' foreman that he had to ensure that all pipes were flushed thoroughly because the environment was very dirty and dusty and shot blasting was carried out in the adjoining shipyards.

71 46. The defendants were short-handed and asked the plaintiffs to help them to complete the pilot lines leading to the controls. Mr Chan despatched two technicians to complete the piping of the pilot lines on PB8 and this took place between 11 and 17 January 1991.

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72 47. On 18 January 1991, Mr Chan started to commission the system. Before commencing work, he confirmed with the defendants' foreman that the system had been thoroughly flushed. As this job was not the plaintiffs' responsibility, Mr Chan took the word of the defendants' foreman that the flushing had been done. He then commissioned the system by free-running it. All the equipment worked well. Mr Chan told the defendants' foreman that they must ensure that the oil is free of contamination as the effects of dust and dirt in the system would not manifest themselves until a week or two had passed.

73 48. On 19 January 1991, the defendants tested their own piling winch. It gave way and dropped the hammer into the sea.

74 49. A week after PB8 had been moved to the site of the project at the Empire Dock, the defendants complained that the pressure of the hydraulic system was too low as a result of which the machinery could not perform well. Mr Chan, accompanied by two technicians, went to the site and dismantled the hydraulic pumps. They discovered that the bearing plates in the pumps had worn off. They drained out the oil in the pump casing and found a lot of fine sand blasting particles in the oil. It appeared to Mr Chan that the defendants had not in fact flushed the system as they had previously been advised to do.

75 50. Mr Chan also stated that on this occasion one of his technicians again advised the defendants to flush the whole system to rid it of contaminating particles. The defendants, however, did not do so as they were behind schedule and piling works were then in progress.

76 51. On 28 March 1991, PB8 returned to the defendants' yard. The defendants again complained of low pressure in the system. Mr Chan and his team attended to their complaint, checked the hydraulic pumps and again found

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the bearing plates worn off due to the presence of shot blasting particles in the oil.

77 52. In his affidavit, Mr Chan also averted to incidents in July and August when the defendants complained about the performance of the pumps. The August incident was another case where the problem was that the bearing plates had worn out because of contaminated oil. Mr Chan concluded by saying that the plaintiffs' equipment had worked satisfactorily at the site of the project and subsequently at Tuas and that whenever any problems with the working of the machinery arose, they were always due to the contamination of the oil in the system.

78 *(5) Lih Mang Nai and Azman bin Yusof*

79 53. The abovenamed persons were both employed by the plaintiffs as hydraulic technicians at the material time. At all relevant times they worked together in attending to the defendants' complaints.

80 54. On 11 January 1991, the two technicians were instructed by Mr Chan to help the defendants run some pilot pipes on PB8. They completed the piping on 17 January 1991. They confirmed the evidence that Mr Chan had given with regard to the commissioning of the system on PB8 on 18 January 1991. They also confirmed that they had found shot blasting particles in the hydraulic pump a week after PB8 had gone on site as well as on 28 March 1991 and on 23 August 1991. They also asserted that the defendants had repeatedly refused to follow their advice to flush the hydraulic system even when the presence of fine particles and sand was the cause of all the complaints raised.

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81 **Findings**

82 *(1) The allegation of delayed delivery*

83 55. It is common ground that when the contract was made between the plaintiffs and defendants on 11 October 1990, the latest date for delivery of the equipment was 17 January 1991. The plaintiffs' offer was to supply the equipment within 12 to 14 weeks of confirmation of the order. The defendants accepted this timeframe and added the further condition that time would be of the essence. The importance of timely delivery was also made clear by the letter of credit which the defendants established to pay for the equipment. It stipulated that delivery from the plaintiffs' warehouse was to be 'not later than 15 January 1991 for transportation to [defendants'] warehouse'. On 24 October 1990, the plaintiffs gave an undertaking 'to effect delivery ... [of the equipment] ... within the validity period of ... [the letter of] credit'. The expiry date of the credit was 31 January 1991.

84 56. The plaintiffs' delivery obligation under the original contract is clear. It is also clear that if there was no subsequent variation of the contract, the plaintiffs breached it by delivering the winches and remote control panel in late February and early March 1991. The burden is therefore on the plaintiffs to show that they were not in breach of contract by reason of such a variation or that even if they were in breach the defendants cannot rely on it because of waiver or estoppel.

85 57. The plaintiffs have, in my view, some difficulty in discharging this burden since they were not consistent in the stand that they took in relation to the delayed delivery. At first, in July 1992, their position was that they were not late in delivering the equipment as they had delivered it within a reasonable

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time. This was pleaded in their Further and Better Particulars of the Reply and Defence to Counterclaim. But, subsequently, in November 1993, they amended their Reply and Defence to Counterclaim and pleaded by para 6 thereof that:

86 'The Plaintiffs specifically deny that time was of the essence of the agreement and say that the original date of delivery contemplated in the said agreement was varied or waived by the Defendants' instructions to the Plaintiffs to deliver part of the goods ordered at an earlier date and to deliver the balance at such time to be notified by the Defendants.'

87 This allegation was a specific assertion that the defendants had instructed the plaintiffs to deliver the equipment at times to be notified by them and not in accordance with the contractual schedule.

88 58. When it came to the evidence, the position was also blurred. The plaintiffs' managing director, Mr Sim Giok Lak, stated in his affidavit of evidence-in-chief that the defendants were aware that their request for early delivery of the power packs and hydraulic oil cooler affected the delivery of the other equipment. In court, Mr Sim averred that the defendants had been expressly informed by Mr Foo that delivery would be affected. Similarly, Mr Foo shifted his position from that of implied notice in his affidavit evidence to that of express notice when he asserted in court that he did tell Mr Koh of the change in delivery dates.

89 59. These changes in the plaintiffs' stand cannot of themselves decide the issue. I have also to consider the probability of the defendants agreeing to later delivery of the other equipment when they were informed by Mr Koh that to advance delivery of two items would have this effect.

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90 60. I am satisfied on the evidence that the circumstances were such that the delivery schedule was important to the defendants. They had just concluded a contract with Sembawang to drive 216 piles within four months from 15 November 1990. The coincidence between the conclusion of that contract and the conclusion of the contract with the plaintiffs for equipment which could be attached to the Yoshinaga pile frame and thus be used to convert a new barge into a piling barge is too great to be overlooked. I accept the defendants' submission that they had specially ordered the equipment from the plaintiffs for the Sembawang project. This was the reason why they took care to make time of the essence in their contract with the plaintiffs.

91 61. I also accept Mr Koh's evidence that he had informed Mr Foo of the defendants' forthcoming project in Sembawang and had stressed the importance of timely delivery. He said Mr Foo had visited his office several times before the order was placed and these visits took place during the period when the defendants were negotiating with Sembawang for the project. Mr Foo himself confirmed that he had made many visits to Mr Koh's office before Mr Koh placed the order for the equipment. This was an interesting admission as the plaintiffs' counsel in his cross-examination of Mr Koh tried to make out that there had been no visits prior to the conclusion of the contract.

92 62. Mr Foo's concession was made to bolster his assertion in court that he had overheard a conversation between Mr Koh and Mr Ng which gave him the impression that the defendants intended to use PB8 with the plaintiffs' equipment on it at Tuas. I find this evidence suspicious. It was brought up for the first time in court and contradicted what he had stated in his affidavit which is that he had been 'given to understand' that Tuas was where the equipment was to be used. That turn of phrase implied a direct telling rather than an overheard conversation. I also think that it was highly unlikely that at the time when they

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were so busily negotiating with Sembawang for a new project, Mr Ng and Mr Koh would have been discussing the project at Tuas which had been on-going since May 1990 and was not urgent.

93 63. It appears to me improbable that the defendants would have agreed to relax the stipulated delivery schedule since they were at all times aware of the deadline imposed by Sembawang. Mr Koh denied that he had chosen to have the equipment delivered on the dates in February and March when actual delivery took place. He asserted that the dates chosen by him were those in the contract and the importance of those dates was reinforced by the terms of the letter of credit which the defendants had issued for the plaintiffs. Mr Koh also denied that Mr Foo had told him that there would be some delay in delivering the remaining items orders if the cooler and power packs were to be delivered early. As far as he was concerned, the oil cooler was to bought from a supplier, not made by the plaintiffs, and the fabrication of the power packs was independent of the fabrication of the winches so early delivery of these items did not necessarily imply later delivery of the others.

94 64. There is another inherent improbability in the plaintiffs' story. The balance of the equipment was delivered in three stages: on 27 February, 1 March and 5 March 1991. The plaintiffs say that delivery was made on those dates because they were the dates that the defendants wanted the various items delivered. Under cross-examination, however, Mr Foo testified that the equipment was ready to be delivered in early February 1991 and that he had advised Mr Koh of this. At that time Mr Koh did not take the equipment immediately because he accepted Mr Foo's advice that as his yard was at the sea front and very dirty, he should not take delivery of the equipment until he was ready to install it since it might become contaminated with dirt while lying in his yard. If this was in fact the case, then the defendants with Mr Foo's advice

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fresh in their minds would not have asked the plaintiffs to deliver the equipment in three stages over the week prior to the return of the barge to the yard on 8 March 1991. Instead, they would have asked for one delivery on 7 March or 8 March itself. The fact that the plaintiffs delivered the equipment in drips and drabs indicates to me that they delivered the items as and when they were ready and not in response to requests from the defendants. Further, bearing in mind that the new equipment was expected to improve the rate of piling and given that the defendants were already late, no reason was given why if the defendants were informed in early February that the new equipment was ready they waited a month to bring the barge back for installation. The fact that time would be lost during installation is not a reason for the delay since in any case the barge was brought back in March and lost eight days while the new equipment was commissioned. The probability is, in my opinion, that the plaintiffs' equipment was not ready in early February as alleged.

95 65. Having considered all the circumstances of the case including the plaintiffs' shifting stand and the defendants' proven desire to use the new equipment in their contract with Sembawang, I hold that the plaintiffs did not tell the defendants that early delivery of power packs and cooler meant a later delivery of the other items. Neither did the defendants agree that the other items should only be delivered as and when they called for delivery. Instead, what happened was that the plaintiffs agreed to advance delivery of part of the order without asking for or receiving any agreement to change the delivery schedule of the balance. There was no variation of the contract. Neither did the defendants in any way waive their rights to prompt delivery. The plaintiffs were therefore in breach of contract when they did not deliver all the items by 17 January 1991. I will discuss the consequences of such breach later.

96 *(2) Was the equipment defective?*

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97 66. At the end of the trial, the defendants' submission was that the equipment was defective in performance in the following respects:

98 A. Non contamination-related defects:

99 (a) inadequate cooling and filtration system;

100 (b) problems with response of pile-lifting winch; and

101 (c) problems with sensitivity of control of winches.

102 B. Contamination-related:

103 (a) damage to hydraulic pumps;

104 (b) over-heating; and

105 (c) low hydraulic pressure.

106 67. The defendants submitted that the cooling and filtration system was inadequately designed and this was only remedied after the defendants complained about the system. Whilst they also relied on Mr Chan who had stated in court that the flushline cooling circuit should have been incorporated as part of the original design instead of having to be added later, their main witness on the inadequacies of the cooling system was Mr Ng.

107 68. In his first affidavit, Mr Ng said that one of the defects in the equipment was that the system tended to overheat, that is the temperature was

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over 60C. In the same affidavit he gave two reasons for this overheating: first, that the cooler provided was insufficient to dissipate the heat within the system and secondly, that there was no flushline cooling circuit provided for the power pack system. Mr Ng's oral testimony on the overheating was, however, somewhat confused.

108 69. At first, he disagreed that the normal operating temperature of the system was about 60C and asserted that the normal operating range was between 50C and 55C. He then changed his position and said that the maximum temperature at which a hydraulic system could operate without damage was 65C. He went on to agree that his complaint in his letter of 25 March 1991 that the temperature of the system was 'over 60C' meant that the temperature was closer to 60C than to 70C and that therefore the system temperature was within the maximum limit of 65C.

109 70. The above evidence made it clear that the temperature of the hydraulic system was within the maximum limit and the system could not be considered to have overheated. Mr Ng realised the implications of his admission and tried to retrieve his position by saying that he thought that he complained about the temperature going above 60C as 'just a precaution' and also that when the temperature was 65C and above, the oil was diluted and the defendants had to shut off the system to allow it to cool. He admitted, however, that overheating only stopped the piling for a few hours.

110 71. The defendants' position is that when they informed the plaintiffs of the problem with the size of the cooler, the plaintiffs changed it to a bigger one and subsequently also added a flushline cooling circuit to the pump. The plaintiffs' position is that there was nothing wrong with the cooler they had

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originally supplied and that both the new cooler and the flushline were added as stop-gap measures to deal with the overheating which was caused by contamination of the oil in the system. Mr Foo said that the only solution to this problem was to close down the hydraulic system and thoroughly flush it and that he had advised Mr Ng accordingly.

111 72. Mr Ng testified that he could not remember whether the plaintiffs' representatives told him that the introduction of a flushline cooling circuit was a stop-gap measure. Immediately after that answer, however, he agreed that Mr Foo had advised that the only solution was to shut down and flush the system. In that case he must have known that the addition of the flushline cooling circuit was a stop-gap measure. He also agreed with Mr Foo that once a hydraulic system had been contaminated, the oil would overheat and that no cooler could prevent it. That being the case, the problem was not really with the size of the original cooler.

112 73. In totality, Mr Ng's evidence on the overheating was not convincing and I hold that the defendants' claim that it was due to the inadequacies of the cooler has not been proved. I next turn to deal with the allegation relating to the filtration system.

113 74. The plaintiffs' stand on the defendants' position that the plaintiffs did not install a proper filtration system was explained by Mr Foo during his cross-examination. He said that the main function of the filter in a hydraulic system is to maintain the cleanliness of the system which should be clean in the first place. The filter can trap a bit of odd dirt found in the pipes and the valves and in so doing can deal with minor contamination of the oil. The filter is also there to prevent dirt from going into a clean system for example when you top up or

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change oil. The filter, however, cannot clean a dirty system and this is not its function. He also maintained that the system which the plaintiffs designed had filters both outside and inside the tank and these were adequate if the system was clean in the first place.

114 75. Mr Ng in cross-examination agreed with much of what Mr Foo had said as stated above. At the end of the day there was no dispute that a filter can deal with minor contamination only; that its main function is to maintain the cleanliness of the system which must be clean to begin with and that a filter cannot clean a dirty system.

115 76. The defendants' complaint about the filtration system was contained in Mr Ng's affidavit of evidence-in-chief. There he stated without elaboration that there was a lack of a proper filtration system. When he came to court, he was cross-examined at length on this complaint and he made various contradictory statements.

116 77. First, he disagreed that the plaintiffs' system had filters inside and outside the tank and said that there were only filters inside the tank and he supported this by saying that the diagram of the filtration system, P1, showed that there was only one filter inside the tank. Subsequently, when he was shown certain points on the diagram, he admitted that he had earlier made a mistake and that these two points indicated two other filters inside the tank. He then admitted that a third point was also a filter and, finally, conceded that there were actually three filters in the tank.

117 78. Mr Ng, when he realised that he had been caught out, changed his position by saying that one of the filters had been replaced by the defendants with a finer one. This changing of filters was done without the knowledge of the

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plaintiffs who had supplied the filter which the manufacturers had recommended. As the plaintiffs' counsel pointed out, the issue of the change of the filter had never been mentioned prior to the hearing either in the correspondence or in any of the defendants' affidavits. It would appear that this was a story made up to support the defendants' claim to inadequacies on the system when Mr Ng realised that his position that there was only one filter could not be sustained.

118 79. The defendants have not succeeded in convincing me that there was anything wrong in the design of the filtration system.

119 80. The next two defects in the defendants' list related to the pile lifting winch. The complaints were that the winch was not working and that the control for that winch was insufficiently sensitive thus causing jerkiness. The defendants made written complaints about these defects on 20 March 1991 and again on 25 March 1991.

120 81. In relation to the winch control, the plaintiffs informed the defendants that their supplier had supplied the controls with the wrong spring and that replacement springs were on the way from Japan and should be installed within a week. It therefore appears that in relation to the control at least, there was a defect which the plaintiffs were liable to rectify. Certainly they appeared to have rectified it because there was no further complaint about the matter after the plaintiffs' letter of 3 April 1991. I will consider the issue of damages, if any, for this defect later. It would be noted that Mr Ng himself conceded that defects such as these were teething problems.

121 82. As regards the winch itself, Mr Foo stated in cross-examination that after the first complaint, the plaintiffs had gone down to service the hydraulic

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pump and had changed the parts. After the second complaint, they had stripped the pilot valve which was a part supplied by the defendants themselves and had found dirt inside. This problem with the winch was in the plaintiffs' view connected with the contamination of the hydraulic system because basically the winch could not work because there was no power or insufficient power to drive it.

122 83. Mr Foo explained in court how a hydraulic system works. He said:

123 '... In a hydraulic system, you have an oil reservoir, a hydraulic pump. The pump is powered by a diesel engine. The pump runs at very high speed. It sucks oil from the reservoir and pressurizes the oil to very high pressure. The pressure propels the oil through the pipelines and that in turn runs the machinery. IN between the pump and machinery we have a control valve, the function of which is to control the machine. The pump and the valves are a very high degree of accuracy. The tolerance between these parts are measured in microns - ie. In millionths of an inch. If we have dirt in the system, the oil is contaminated and two things will happen. Firstly, the valves will be blocked easily. It will malfunction. Secondly, the pumps which are under high pressure and speed are rotating very fast so the dirt in the system acts like grinding powder. It can wear out a pump's internal components very easily. If the components start wearing out the tolerance becomes bigger. Oil will leak from the pump instead of going to push the machine. Then the pressure of the system will drop. The machine will lose power and it becomes slower because some of the oil was leaked. Secondly, hydraulic pump is a converter of energy. But because of the leakage, part of the power is lost into the tank. The energy which is lost turns into heat and the oil becomes hotter and hotter. Therefore there is a domino effect. When the system is very hot, the oil thins and leaks more and then more heat is developed and the system becomes hotter and hotter.

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Overheating, pressure loss, leaking, poor response are therefore all related to dirt in the system.'

124 84. Since the defendants were unable to offer any explanation as to what caused the winches to fail whereas the plaintiffs were the manufacturers and therefore knowledgeable about the system and gave a coherent explanation of the workings and problems related to such a system, I accept the plaintiffs' evidence that the problems with the winches arose from contamination in the system. I must now consider the cause of such contamination.

125 85. The plaintiffs' evidence was that contamination could take the form of dust, rust from the pipes, welding slag and shot blasting slag. They attributed the presence of shot blasting slags which they subsequently found in the hydraulic oil to incomplete/ improper flushing, poor installation of piping system and equipment and a lack of care. They also asserted that any malfunctioning or breakdown of the hydraulic system or the piling system was due to the defendants' own fault and their failure to heed the plaintiffs' advice.

126 86. Mr Foo's evidence in cross-examination was that the plaintiffs had instructed the defendants on the proper way to install the pipes and hoses ie that the pipes be properly sealed and flushed, and that when a seal is broken, the equipment must be installed immediately. He said that his technicians and supervisor had reported to him that the defendants had left pipes and tanks unsealed and uncovered. Mr Chan's evidence was that the defendants' yard was very dirty and during the supervision of piping installation, he had advised the defendants to clean the pipes and to make sure that they were covered before they were installed and that the defendants had to flush the system. He also said that the defendants had not fully covered the pipes and that after cutting piping, they had not cleaned the pipes before installation.

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127 87. The defendants carried out chemical cleaning of the piping system on 4 and 5 January 1991. However, the plaintiffs' assertion was that the utility of the chemical cleaning was undermined by the fact that further piping works were carried out thereafter. Mr Chan testified that he was unable on 8 January 1991 to commission the hydraulic system using the power pack and oil cooler supplied by the plaintiffs because the piping works had not been fully completed. Both the technicians stated that they were instructed to assist the defendants run some pilot piling on 11 January 1991 and that this was only completed on 17 January 1991. Also, on 16 January 1991, nine lengths of pipes of six metres each were delivered to PB8 which further supports the contention that piping works were on-going at the time.

128 88. Mr Foo's evidence was that in piping installation, chemical cleaning should be done only after all the piping is completed and that the flushing and cleaning is done before the completion of piping, then it is a wasted effort. He testified that when he found out about the contamination in the system, he advised the defendants that the only solution was to shut down the system and flush it thoroughly. Mr Ng contended that he had followed Mr Foo's advice and carried out the flushing by changing the oil three times and that it took about two hours continuous running of the pumps to do this. He also admitted, however, that flushing of this nature would not amount to the fully contamination of the system and that it could only help the defendants carry on. So, clearly, he failed to heed the plaintiffs' advice to shut down the system and flush it completely.

129 89. Mr Ng was not helpful to the defendants on this issue. In cross-examination he agreed that the reason why the bearing plate and the valve plate in the pumps worn out was the contamination in the system. At one point, he

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even agreed that all the defects and problems stemmed from the contamination to begin with. He made other damaging admissions. In particular, he agreed:

130 (a) that fine particles had been trapped between the valve plate and the cylinder block and therefore the pump would not work resulting in an insufficient pressure supply and complete breakdown of the system;

131 (b) that changing filters was a stop-gap measure and could not get rid of contamination and that to do so one must disconnect and chemically flush the pipes;

132 (c) that he had used compressed air to clean piping and that this was not effective as the chemical flushing advised by the plaintiffs;

133 (d) that he had pressurised the plaintiffs' representatives to complete the matters as soon as possible and had insisted that the plaintiffs commissioned the hydraulic system even though it was contaminated;

134 (e) that the plaintiffs had advised the defendants not to commission the system until it had been fully cleaned and flushed;

135 (f) as at March 1991 he knew that the hydraulic system was badly contaminated; and

136 (g) (during re-examination) that he thought shot blasting was the source of contamination.

137 90. The defendants sought to argue that the contamination would not have occurred if the plaintiffs had provided adequate advice and supervision during the piping installation and final commissioning. In this regard Mr Ng had

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testified that the plaintiffs' representatives did not attend during flushing of the system and Mr Foo had admitted that they were not present to supervise the installation of the whole work. However, Mr Chan's evidence was that he attended to supervise the piping as and when requested by the defendants and that in any case he had advised them on the proper procedures. Further, even though there may have been some lack of supervision by the plaintiffs, the fact remains that at the time they started commissioning, they were not satisfied with the piping installation and Mr Chan only proceeded because Mr Ng told him that it was very urgent and that the plaintiffs should pressurise the piping and make sure that there was no leakage.

138 91. It is my view that, on the balance of probabilities, the hydraulic system was contaminated because the pipe installation was not carried out properly in the sense that the defendants did not take sufficient care to ensure that dirt did not enter the pipes during installation and also failed to flush the pipes again after installation and before commissioning started on 18 January 1991. This was because the defendants were drastically behind schedule and were desperate to try and start work on the project as soon as possible. Further, when the problems in the hydraulic system caused by contamination started manifesting themselves in March and April, the defendants were reluctant to shut down the system entirely and carry out chemical cleaning which would have been the only way to de-contaminate it effectively. Thus, the problems that arose as a result of the contamination ie damage to the hydraulic pumps, over-heating and low hydraulic pressure cannot be made the responsibility of the plaintiffs.

139 *(3) What damages are the defendants entitled to?*

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140 92. There is no real dispute as to the principles which apply when the court has to decide whether a party in breach of a contract is liable to compensate the other party in respect of any particular item of damage which the latter claims to have suffered as a result of the breach. Both parties agree that the defendants can only claim items of damage that either arose in the usual course of things from the breach of contract or which may, reasonably, have been supposed to have been in the contemplation of both parties at the time the contract was made. This is of course the *Hadley v Baxendale* formulation on the rules of remoteness of damage. Where the parties differ is in regard to the application of these principles to the present case.

141 93. The defendants quantified their loss on the basis that the plaintiffs by their various breaches of contract had caused them to be 70 days late in completing the project. Of these 70 days, they attributed 46 days delay to the late delivery of the equipment and 24 days to malfunctioning and defective equipment. As far as the 24 days are concerned, the defendants cannot, in my view, substantiate their allegation that those delays resulted from the plaintiffs' breach of contract for two reasons. The first is that, as I have found above, the equipment supplied by the plaintiffs was not defective except in one minor aspect and the plaintiffs are not responsible for breakdowns arising from contamination. The second is that it was clear from the evidence of both Mr Koh and Mr Ng that no detailed records of delays caused by malfunctioning equipment were kept and Mr Ng in particular was guessing as to the number of days delay each problem caused. Therefore even in the case of the defect that was the plaintiffs' responsibility, it is impossible for me to ascertain just how much or how little delay that defect caused. The defendants have not discharged

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the burden of proof in this respect.

142 94. Moving to the delay in delivery, the defendants' position is straight-forward. They say that 46 days elapsed between the contractual date of delivery and the actual delivery of the last item of the plaintiffs' equipment and therefore the plaintiffs delayed their works by 46 days and should pay liquidated damages for those days. Since they managed to settle Sembawang's liquidated damages claim for $200,000, however, they are claiming reimbursement of that whole amount.

143 95. The plaintiffs' response is two-fold. First, they say that they had no knowledge of this project for Sembawang and since it was not specifically disclosed to them that the defendants had deadlines to meet in regard to it, they cannot be made responsible for the liquidated damages which Sembawang imposed on the defendants. Secondly, they say that in any event the 46 days delay was due to the defendants' own fault in starting work on the project late and that if they had complied with the Sembawang contract as regards commencement, they would have finished work on time notwithstanding any delay in the delivery of the plaintiffs' equipment.

144 96. The first issue is one of remoteness. The plaintiffs say they should not be responsible for liquidated damages of any sort since neither the contract with Sembawang nor the liability of the defendants to pay such damages was specifically made known to them. They say that liability would only arise if the plaintiffs knew that the defendants intended to use their equipment for the project. Basically their argument is that such damage cannot reasonably be supposed to have been in their contemplation at the time they made the contract.

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145 97. I have, however, found that Mr Foo was informed by the defendants that they intended to use his equipment on PB8 for the purposes of the project. I have also found that he knew that this was the reason for the defendants' urgency. I accept that the defendants did not inform him at the time the contract was made about the liquidated damages clause in their contract with Sembawang but that does not mean that the plaintiffs cannot be made responsible for such damages. The issue is whether they should have contemplated that damage of that sort might arise. As Davies L.J. put it in *Hill v Ashington Piggeries* [1969] 3 All ER 1496 at 1524:

146 'In order to establish liability for the damage caused by a breach of contract, the party who had suffered damage does not have to show that the contract-breaker ought to have contemplated, as not being unlikely, the precise detail of the damage or the precise manner of its happening. It is enough if he should have contemplated that damage *of that kind* is not unlikely.'

147 In the present case, the plaintiffs were commercially experienced and must have been aware that in marine construction contracts, as in other types of construction contracts, timeframes are strict and liquidated damages clauses are almost always inserted into such contracts. If Mr Foo or Mr Sim had thought about it at that time, they would have realised that it was not unlikely that the defendants would have to pay liquidated damages if they were late in completing their piling for the project or, for that matter, were late in completing any other on-going project for which the equipment was intended.

148 98. In any case, even if the plaintiffs had not known about the existence of the Sembawang project they had dealt with the defendants before and knew

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that they were marine piling contractors. They also knew that the equipment ordered was for a piling barge and that the defendants wanted to use it immediately upon delivery. They would have known that the natural consequence of the delay of custom-made equipment which was to be used immediately would be delay in the marine piling works. It also follows, as the defendants submitted, that delayed works result in personnel being employed on the job longer, equipment being tied up for the job and the defendants being liable for damages for delay.

149 99. I therefore hold that, in principle, the plaintiffs are liable to compensate the defendants for such amount of the liquidated damages which they paid Sembawang which they can show arose from the delay. This is where the defendants have some problems.

150 100. The evidence before me shows that under their contract with Sembawang, time was of the essence and the defendants had to complete their works in accordance with the schedule laid down by the main contractor. On 16 November 1990, they were specifically instructed by Sembawang to commence and complete the piling works within four months of 15 November 1990. This being the case and especially since there was a liquidated damages clause providing for such damages at the rate of $10,000 per day, the plaintiffs' argument is that the defendants should have started work immediately on 15 November 1990 and that if they had done so they would have completed it by 15 March 1991. The defendants on the other hand contended that it was their intention all along to use their new barge equipped with the Yoshinaga piling frame and the plaintiffs' equipment for the project and that they were confident that with all the equipment they would have a very efficient piling barge and would be able to complete on time even though they started work only in late January 1991.

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151 101. I consider that the defendants were being disingenuous in insisting that they could have completed by 15 March 1991 if the plaintiffs had complied with their contractual obligation. This is because they did not give me reliable evidence on the rate of piling that could be expected with the use of the new equipment. Mr Koh's evidence at first was that he expected to take 45 days to drive 100 odd piles. This meant a rate of about 2.6 piles a day (taking 100 odd to mean 120). Then when he was reminded that in fact the project called for 216 piles, he stated that he could drive that number in 45 days as well, thus bringing the rate up to 4.8 piles a day. In his dealings with Sembawang trying to assure them that the defendants would finish on time, a rate of 6 piles per day was promised. In fact the defendants came nowhere near that rate. The evidence showed that before the plaintiffs' equipment was installed, the rate was 2.2 piles a day and thereafter the rate was 3.1 piles a day. Thus the defendants must have realised that even if the plaintiffs were on time, they would be somewhat late in completing especially since the period from January to March encompassed the Chinese New Year holidays during which no work would be done.

152 102. Notwithstanding the foregoing, I do not consider that the plaintiffs are entitled to insist that the defendants should have started work on the project on 15 November 1990 and that since they did not do so, the plaintiffs cannot be responsible for any delays caused by their breach. It was up to the defendants to decide how to meet their contractual obligations. The plaintiffs' duty was to meet their own contractual obligations and ensure that they themselves did not cause any delay on the defendants' part.

153 103. I think that the way to calculate the delay which the plaintiffs caused the defendants is not simply to take the difference between the scheduled date of delivery and the actual date of delivery. Instead one should estimate how long it would have taken the defendants to do the job if the plaintiffs had been

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on time and how much longer it took because of the plaintiffs' delay. The estimation of the time that the defendants needed for the work really depends on a practical assessment of the average piling rate. On the evidence that I have before me, it appears that after the plaintiffs' equipment was installed, the average piling rate was 3.1 piles per day and I will use this as the basis of my calculations.

154 104. Using the rate of 3.1 piles per day it would take 70 days to drive 216 piles. The scheduled date of delivery by the plaintiffs was 17 January 1991 and the defendants conceded that it would take ten days thereafter to install and commission all the equipment. Thus, from the beginning it must have been anticipated by the defendants that they would not be able to start piling work until 28 January 1991. Looking at the defendants' piling logs, it appears that during the period 28 January to 8 March 1991, they worked for 23 days (eight days were taken off for Chinese New Year and a few Sundays were not worked). If they had not had to stop then to install the plaintiffs' equipment, they would have been able to continue work during the period 9 to 14 March, ie a further five days. That means that because of the plaintiffs' delay, the defendants in fact lost 28 days on which they could have been piling with the use of the plaintiffs' equipment. However, I do not think that these 28 days are exactly equivalent to the delay which the plaintiffs' late delivery caused the defendants. This is because the defendants had actually started piling on 26 January 1991 and had piled during most of that period using their old equipment plus the plaintiffs' power packs and hydraulic cooler and this must be considered as having mitigated the damage they sustained by reason of the breach.

155 105. According to the piling records, the actual number of piles driven by the defendants during the period 26 January to 8 March 1991 was 61. No work was carried out thereafter until 15 March when piling resumed after

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installation of the plaintiffs' equipment. If from the beginning they had been able to achieve the rate of 3.1 piles a day, they would have piled these 61 piles in 19 days instead of taking up to 14 March to do so. The actual number of days available in terms of working days during that period was, as stated above, 28. But the defendants were only able to pile 19 days worth of piles. Therefore the delay which the plaintiffs' breach caused them amounted to 9 days.

156 106. The next issue is how to assess the monetary damage which the plaintiffs' delay caused the defendants. The overall delay in completion of the project was 70 days. At first, Sembawang wanted to charge the defendants $10,000 a day in accordance with the liquidated damages clause. After negotiations, however, they were persuaded to reduce the $700,000 penalty to $200,000. The exact basis of the settlement was not made clear in the evidence. The defendants consider that the plaintiffs should pay them $10,000 for everyday's delay and this would translate into $90,000 based on the nine days that I have found the plaintiffs responsible for. It would not, however, in my judgment be right to assess the damages in this straight-forward arithmetical fashion since the defendants obviously obtained a huge discount from Sembawang. The best that I can do is to divide $200,000 by 70 days which gives a figure of approximately $2,857 per day of delay. That would work out to $25,713 for nine days' delay. I think it would be right to award the defendants this sum as representing the plaintiffs' share of what they had to pay Sembawang.

157 107. The defendants also claimed that they incurred additional expenses by reason of the project taking extra time. First, they had a claim for the salary and wages of their engineers and other employees. This claim was not supported by any documentation. It consisted of a mere assertion in Mr Koh's affidavit of evidence-in-chief that those personnel had been involved in the project and that

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the sums set out in his affidavit represented their salaries. Such an assertion is by itself insufficient proof of the expense and I accordingly do not make any award under this head.

158 108. The defendants also had a claim for the hire of two tug boats which were used in the project. They paid $58,360 for the extra 70 days. This expense was substantiated by invoices. The sum of $58,360 for 70 days works at $833.71 per day which means that for nine days the cost was $7,503.39 which sum has to be borne by the plaintiffs.

159 109. The next item of claim was loss of rental fees for PB8 and for their hydraulic hammer. The defendants' case in this regard was that if they had finished the project earlier they could have rented out these two items and earned a profit from them. However, Mr Foo's evidence was that the plaintiffs did not know that the defendants were in the business of hiring out barges and hydraulic hammers. I accept his evidence in this regard. Mr Koh testified that he had not told Mr Foo of this aspect of the defendants' business since he did not regard the plaintiffs as potential customers. He thought however that the plaintiffs did, somehow, know about this. However, as I have found, the information which the defendants were at pains to tell me they had given Mr Foo was that they wanted the plaintiffs' equipment for their own use for their contract with Sembawang. In these circumstances, it was not foreseeable on the part of the plaintiffs that delay in delivery would cause the defendants to lose out in rental earnings which they could otherwise have made. The defendants also did not adduce any specific evidence of rental demand for these two items which they were unable to satisfy by reason of the delay in the project. I therefore disallow this head of the defendants' counterclaim.

160 **Conclusion**

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161 110. In the result, there will be judgment for the plaintiffs on their claim in the sum of $59,592.60 with interest on the sum of $54,495 at the rate of 12% per annum from 1 February 1992 to date of payment. The plaintiffs are also entitled to the costs of their claim.

162 111. There will be judgment for the defendants on their counterclaim in the sums of $25,713 and $7,503.39 and interest on both sums at 6% per annum from the date of service of the defendants' defence and counterclaim to date of judgment. As for costs, I am awarding the defendants half the costs of their counterclaim as they succeeded only on the issue of delay and failed on the issue of defective equipment.

163 JUDITH PRAKASH

164 JUDGE

Judith Prakash J

Richard Buxton with Douglas Leong for the plaintiffs
Andre Maniam with Edwin Lee for the defendants

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