



OUTER HOUSE, COURT OF SESSION

[2018] CSOH 16

CA113/16

OPINION OF LORD TYRE

In the cause

SCANMUDRING AS

Pursuer

against

JAMES FISHER MFE LIMITED

Defender

**Pursuer: Borland QC, Manson; Pinsent Masons
Defender: Higgins QC; CMS Cameron McKenna LLP**

23 February 2018

Introduction

[1] This opinion, the second to be issued in this commercial action, addresses the merits of the parties' dispute.

[2] The pursuer, a Norwegian company, carries on a business consisting of dredging, excavation and construction works for the oil, gas and renewable energy industries. That business includes in particular the supply of subsea equipment and operating personnel to effect the removal or relocation of seabed soil or objects close to live or future subsea installations. The operation is carried out *inter alia* by use of subsea excavators known as scanmachines.

[3] In April 2015 the defender, an English company trading from a business address in Aberdeen under the name KDM Marine, was engaged by a German company called Vattenfall Europe (“Vattenfall”) to carry out dredging works as part of an offshore wind farm project in German territorial waters in the North Sea. The defender invited the pursuer to submit a tender to carry out the works as its sub-contractor. The pursuer submitted a proposal to perform the work using one of its four scanmachines. The proposal was made on the basis of information supplied to the pursuer by the defender that the seabed material to be dredged consisted of fine sand. After certain negotiations on price, a revised proposal by the pursuer (Revision 005) was accepted by the defender. As explained in my previous opinion dated 23 June 2017, it was discovered when work commenced on 15 May 2015 that the seabed conditions were not as had been expected, but rather consisted of a thin layer of sand containing rocks and stones of various sizes on top of a layer of stiff and sticky clay. A different method of dredging was devised by the pursuer with the approval of the defender and Vattenfall, using additional equipment shipped from Norway.

[4] The issue with which my previous opinion was concerned was whether the pursuer’s contractual terms of payment were varied by agreement between the pursuer and the defender following the discovery of the true seabed conditions. For the reasons set out in that opinion I held that the terms had indeed been varied to the extent, *inter alia*, of deleting certain provisions in Revision 005 regarding target lump sums and reduced day rates and by substituting the day rates specified in the pursuer’s tender Revision 006.

[5] This opinion is concerned with the consequences of an incident that occurred on 24 May 2015 in the course of a dredging operation. While the machine was being lifted by crane from the seabed for the purpose of moving it to a different part of the seabed, the lifting pad-eye broke off the machine and the machine fell back to the seabed. Although the power

connection through an umbilical line was not lost, the machine could not be moved. When the vessel from which the operation was being conducted required to return to port, the umbilical was cut. The machine was left on the seabed where it remained until it was recovered by Vattenfall and returned to the pursuer on 24 September 2015.

[6] In this action the pursuer sues for payment, in terms of various invoices issued to the defender, for hire of the machine at the contractual day rate from 11 May until 14 September 2015, plus a demobilisation fee and interest. The defender has made a payment covering the period up to 27 May, being the date when Vattenfall called for demobilisation of the equipment, and denies liability to make any further payment, or to pay any demobilisation fee or interest. The defender also has a counterclaim for expense incurred in connection with the return of the machine to the pursuer.

[7] At the proof before answer, evidence was given, under reference to witness statements, by eight factual witnesses for the pursuer and three for the defender. There was no real challenge to the credibility of any of these witnesses and I accept them all as credible and reliable. Senior counsel for the pursuer objected, however, to much of the evidence of one of the defender's witnesses as consisting of comment on matters of contractual interpretation which were properly for the court to determine; a similar objection was made with regard to an expert report produced on behalf of the defender concerning the meaning and application of offshore "hold harmless" clauses in contracts. I address these objections below.

[8] Most of the time at the proof was taken up by expert evidence as to the cause of the incident. The pursuer lodged reports and led evidence from (i) Mr John Olav Nøkleby, Ms Hanna Karlsson and Mr Ole-Bjørn Ellingsen Moe, all engineers who had contributed to two reports by DNV-GL on failure evaluation of the lifting bracket; and (ii) Mr Sverre Sørensen, technical advisor with Techano AS on design of, *inter alia*, hydraulic lifting

equipment for the offshore industry, and Mr Torje Torgersen, a structural engineer with Techano who had carried out supporting calculations for Mr Sørensen's reports. The defender lodged reports and led evidence from (i) Mr David Hughes, consultant metallurgist with Marine Metallurgical Consultants Ltd; and (ii) Dr Kieran Dodworth, naval architect with Brookes Bell LLP. I am satisfied that all of the expert witnesses were fully qualified and experienced in the fields in which they respectively provided evidence to the court.

The incident

[9] The ship chartered by Vattenfall to transport the scanmachine to and from the dredging location and to launch and recover it to and from the seabed was MV Natalie, a supply vessel whose deck equipment included a crane with a load capacity of 12 tonnes but with no heave compensator or shock absorber. On 19 May 2015 the vessel sailed from port to the work location. Among those on board were Mr Kenneth Vestly, a representative of the pursuer, and Mr Alistair Braid, a representative of the defender. Dredging operations were carried out during each day from 20 to 24 May.

[10] The crane used to lower the scanmachine to the seabed and to recover it to the vessel was operated by a member of the ship's crew, and not by either Mr Vestly or Mr Braid. The crane block was attached by a strop and a hook to a lifting padeye welded to the top surface of the boom arm of the machine. While on the seabed, the machine was controlled by Mr Vestly. Throughout the time when the machine was off the vessel, including during the launch and recovery procedures, Mr Vestly was in a small control container (supplied by the pursuer along with the machine) with Mr Braid beside him. In the course of the afternoon of 24 May, the machine required to be moved to a new location. At the material time, according to the pursuer's daily progress report for 24 May, the weather was reasonably calm: the wind speed

was about 17 knots and the wave height 1.3 metres. Mr Vestly decided that the best way to move the machine would be to instruct the crane operator to lift it to the desired location, and he put it into position to be lifted. He advised Mr Braid that the machine was ready to be lifted, and stopped controlling its movement from inside the control container.

[11] Mr Vestly's account of what happened next was as follows. He watched on a remote camera as the machine was lifted about 2-3 metres from the seabed, but after that visibility was obscured by disturbed soil. During the lifting operation Mr Braid told him that the crane had stopped working and then started up again. Immediately after that there was a large rolling movement of the vessel, first towards the side where the machine was being lifted and then back, until the ship stabilised. This was surprising as the sea state was low. As the vessel rolled from one side to the other, Mr Vestly heard a large bang from somewhere outside the container. He had not heard such a noise before. After the vessel had stabilised, the crane operator observed that the crane felt as if it had no load. When the operator completed the lift, all that was connected to the crane block was the lifting shackle and padeye. The machine was not attached. The top plate of the boom had fractured around where the padeye had been attached.

[12] Mr Braid's account, which was largely consistent with Mr Vestly's, was as follows. Once the crane operator had taken the tension on the crane wire there was a swell and the vessel rolled. There was a jerk movement on the crane wire and a very loud noise, and the crane shut down. The crane operator re-started the crane, but when the crane block came to the surface only the lifting equipment was attached. This description is consistent with an incident report provided by Mr Braid to the defenders' Mr Andrew Scott on 26 May, in which he said:

"While coming up on the crane wire (no heave compensator on the crane) a swell came and with the roll of the vessel a sudden shock was given on the load. The crane shut

down due to excess load and after a short period came back on again. At this time the crane operator noticed he had lost weight on the wire and started recovering the wire to the surface. Once the crane was on surface it was clear that the lifting eye on the scanmachine had been pulled off leaving the scanmachine on the seabed."

In his oral evidence, Mr Vestly agreed that the passage "a swell came and with the roll of the vessel a sudden shock was given on the load" was accurate.

[13] Cameras on the scanmachine indicated that the padeye had been torn off the boom arm, leaving the boom damaged. There was a slight bend in the boom cylinder and a small oil leak. Because the umbilical was still attached, the machine had power. Mr Vestly attempted to move the machine by driving it, but without success because it had become stuck on the seabed. Attempts were then made to use the dredging equipment on the machine to dig it out; these efforts continued throughout the night but were to no avail. Discussions took place during 25 May among representatives of the pursuer, the defender and Vattenfall, both onshore and offshore. There was no equipment on board the Natalie that would have enabled re-attachment of the crane to another part of the machine; in any event there was concern that if an attempt were made to lift the machine, which weighed 9.5 tonnes, any suction effect could result in the load exceeding the crane's safe lifting capacity. Something had to be done, however, because the vessel could not remain tethered to the machine indefinitely and would require to return to port to refuel. A decision was taken by Mr Scott, in collaboration with representatives of the pursuer and Vattenfall, to instruct the cutting of the umbilical. At 17.55 on 25 May Mr Vestly cut the umbilical with a grinder. The Natalie then returned to port.

Post-incident correspondence and recovery of the scanmachine

[14] Initially the focus of all parties was on investigating how the scanmachine might be recovered. The lead in this regard was taken by Vattenfall, who instructed a survey vessel with an ROV to visit the location; Mr Vestly accompanied the Vattenfall representatives.

Video from the ROV showed that the vessel was partly buried in hard clay. An unsuccessful attempt was made to move the machine using the survey vessel's air lifting system. On return to port, Mr Vestly remained available to advise in relation to any recovery operation while all of the pursuer's and defender's other operatives were demobilised. At this time it was assumed, at least by the pursuer's management, that the aim was to find a solution to allow the dredging works to be completed as well as recovering the machine. Mr Vestly was considering options with Vattenfall which included using another scanmachine. However, on 29 May, Mr Julian Osborne of Vattenfall emailed Mr Arild Ariansen, the pursuer's managing director, to inform him that there was no immediate intention to continue with the seabed levelling works with a scanmachine, and that the priority was to recover the machine. On the same date, Mr Vestly too was demobilised.

[15] Mr Osborne's email of 29 May set out a detailed proposed procedure for recovery of the machine. Despite this, attempts to recover the machine ceased for the time being. The parties' focus shifted to asserting their respective positions with regard to responsibility for carrying out the recovery. On 1 June, Mr Ariansen sent a letter to the defender's Mr Graham Murdoch, in which he stated his view of the contractual position as being that the machine, having been temporarily abandoned, remained on hire until returned, with KDM being responsible for recovery and for hire charges until the machine was made available for repair. On 2 June, Mr Keith Douglas, the defender's chief financial officer, replied suggesting that the pursuer should check its insurance position. In a further email dated 3 June, Mr Douglas stated KDM's position as being that responsibility for loss or recovery of the machine fell to the pursuer or its insurers, and that it had been off hire since the date when it became unserviceable, ie 24 May. As regards Vattenfall, Mr Douglas emailed Mr Ariansen on 12 June in the following terms:

“As you know we had our meeting with Vattenfall yesterday. The meeting was quite difficult however the outcome is clear.

Vattenfall are looking to X Subsea [ie the pursuer] to instruct its insurers to recover the machine. If this is not done for economic reasons, then they will move the unit out of the working area and possibly recover machine at the end of the jacket installation subject to approval of the authorities.

They are adamant that Vattenfall is not responsible for the damage or loss of the unit.

Likewise KDM is not responsible for the loss or damage to the unit, and it should be your insurers that cover this.

Please do not refer to [KDM’s service agreement] as this document was not signed and cannot be relied on in this matter.

Vattenfall have also made it quite clear that no payment of charges will be made after the day of the loss event. This is also therefore the position of KDM.”

[16] Although the pursuer did contact its insurers, it maintained its position that it was not responsible for recovery and that hire charges were continuing to accrue. Correspondence with the insurers was undertaken by Mr Jarle Skjelnes, the pursuer’s business support manager. On 10 June the insurers advised Mr Skjelnes that the pursuer was covered in respect of loss of or damage to the machine. If neither the defender nor Vattenfall was willing to recover the machine, the insurers would consider doing so but only if recovery was economically viable, ie if the total cost of recovery and repair was significantly less than the sum insured. By 9 July, the insurers had decided not to effect a recovery but rather to “hold the Natalie/KDM/Vattenfall responsible for the loss of the machine”. The defender continued to deny responsibility for recovery.

[17] For his part, Mr Ariansen remained adamant that recovery was the responsibility of the defender or Vattenfall. On 29 July, he wrote to the defender’s Mr Kenneth Mackie in the following terms:

“Vattenfall project, Termination of contract

Following previous correspondence, it is evident that the project:

- Have not communicated any plan for resuming work.
- Have not been able to recover the equipment in 2 months.
- Does not respond to correspondence.
- Have not paid overdue invoices, without justified reasons.

Our subsea equipment have been out of our custody and control for the same period.

Scanmudring find KDM have repudiated the contract, and we hereby terminate our contract for all purposes, and ask for the equipment to be immediately returned in good working order.

Scanmudring remind you that there is not agreed any changes in applicable day rates, and we claim all shipped invoices paid immediately.

Unless your plan for returning the equipment is received within 14 days, we will consider the abandoned equipment totally lost.”

Mr Ariansen explained in his witness statement that the letter was sent, without legal advice, as a last-ditch attempt to try to force the defender to recover the machine and return it to the pursuer.

[18] The scanmachine could not be left on the seabed indefinitely. In the first place, the relevant German authorities would not permit this and, in the second place, Vattenfall required to get it out of the way of their client’s wind farm development. On 5 August, Mr Douglas emailed Mr Ariansen to seek his confirmation that Vattenfall could proceed to remove the machine from the worksite. Mr Ariansen sought details of the recovery plan. On 12 August, Mr Murdoch provided details obtained from Vattenfall, and in turn sought technical drawings which Mr Ariansen provided along with instructions for emergency recovery procedure. The parties continued to argue about who was responsible for the cost of recovery, and on 24 August Mr Ariansen sent a letter to Mr Mackie declaring the machine totally lost and advising that the option of recovery for repair was no longer valid. On the same day, however, Mr Douglas emailed Mr Ariansen to say that the machine had been

recovered and would be returned. The machine was eventually delivered to the pursuer's premises at Mandal, Norway, on 24 September. The boom had been cut from the main body of the machine to allow it to be loaded on to a lorry. The cost of transportation was met by Vattenfall, with a contribution by the defender of €88,000. The defender seeks reimbursement of that sum from the pursuer in a counterclaim in the present proceedings.

The terms of the parties' contract

[19] The terms of the contract between the pursuer and the defender are contained in the pursuer's tender Revision 005, emailed by the pursuer to the defender on 6 May 2015 and accepted by the defender's purchase order emailed to the pursuer on 9 May 2015, except in so far as varied by tender Revision 006, emailed by the pursuer to the defender on 19 May 2015. In accordance with section 4 of Revision 005, the contract incorporated the terms of the X-Subsea Service Agreement, a copy of which was sent by the pursuer to the defender on 1 May with the original tender.

[20] The principal action is framed as an action for payment, and the pursuer founds primarily upon article 3.4 of Schedule I to the Service Agreement, which set out the circumstances in which the agreed rates of payment for the equipment applied. The circumstances were stated as follows:

"Day rate — Offshore operation	Applies for the time interval starts with a Pre-dive check and includes Post-dive check, and includes standby on seabed due to reasons beyond Company's control.
Breakdown (Day rate ceases)	Applies from the moment the breakdown occurs, and last until the equipment is ready to resume operation. The breakdown time can be interrupted by standby if unable to resume operation due i.e. Client priority, weather etc.

Day Rate Offshore Standby

Applies for the time interval during which the system is mobilized onto a vessel, and available for Client, but not in operation.

Standby rate applies also for temporary abandonment of the equipment (regardless of cause) until ready to resume work.

Transit/ Onshore Standby rate

Transit / Onshore Standby Rate shall apply from delivery until start of mobilization onto vessel, and from offloading Client's vessel until redelivery.

Onshore standby rates applies for periods when the equipment is put onshore between campaigns (unless demobilized from project)

Applies for the time where the equipment is exclusively reserved for the project, but not mobilized onto the vessel, and not available to take 3rd party commitments..."

[21] I note at this point that there is in fact no difference under Revision 006 between the Day Rate – Offshore Operation and the Day Rate – Offshore Standby.

[22] Clause 2 of the Service Agreement stated that the agreement would remain in effect until cancelled by either party giving ten days' written notice, provided however that with respect to any work in progress at the date of cancellation, the agreement would continue in effect until the Work Order was completed. Under article 2.3 of Schedule I, the Work Order was to be considered completed when all equipment and supplier personnel returned to their point of mobilisation/origin.

[23] Article 4 of Schedule I stated that invoices were payable within 30 days unless an objection was received within 10 days, and that interest would run at 8.5% after 30 days of non-payment.

[24] Article 6 contained a table of "Additional Client Obligations" on the worksite, ie obligations incumbent on the defender. These included "lifting on/off and LARS [ie launch and recovery system] related tasks".

[25] Under article 7, the pursuer warranted that the equipment supplied to the defender complied with the terms and conditions of the agreement, and conformed to specifications provided by the pursuer. Article 7.3 stated *inter alia*:

“This warranty is the sole warranty of Supplier. Any other warranties, express, implied in law or implied in fact, including without limitation any warranties of merchantability and fitness for a particular purpose or use, are hereby specifically excluded.

- (a) Client hereby waives all warranties, guarantees and representations, express and implied, including without limitation any warranties of merchantability, materials, workmanship, design and suitability for a specified or intended purpose, whether arising by operation of law, usage in trade, prior business practice or otherwise.
- (b) Supplier shall not be liable for any loss, damage or liability incurred by Client or by any subsequent user of the Equipment, documentation or Services furnished by Supplier, arising out of the use of such Equipment, documentation or Services, whether due to the sole, joint, concurrent or partial negligence of Supplier or otherwise...”

[26] Article 11 was entitled “Indemnities”. Article 11.3 provided *inter alia* as follows:

“Except as otherwise provided in this Agreement, the Supplier shall be responsible for and hereby agrees to save, indemnify, defend and hold harmless the Client Group from and against all claims, losses, damages, costs (including legal costs) expenses and liabilities in respect of:

- (d) loss of or damage to property of the Supplier Group whether owned, hired, leased or otherwise provided by the Supplier Group arising from, relating to or in connection with the performance or non-performance of any Work Order...”

Article 11.6, with a sub-heading “Consequential Losses”, provided:

“For the purposes of this Article 11.6 the expression ‘Consequential Loss’ shall mean:

- (i) Consequential or indirect loss under English law; and
- (ii) Loss and/or deferral of production, loss of product, loss of use, loss of revenue, profit or anticipated profit (if any), in each case whether direct or Indirect to the extent that these are not included in (i), and whether or not foreseeable at the Effective Date of Work Order.

Notwithstanding any provision to the contrary elsewhere in this Agreement,

- a) The Client shall save, indemnify, defend and hold harmless the Supplier Group from the Client Group's own Consequential Losses and arising from, relating to or in connection with the performance or non-performance of any Work Order.
- b) The Supplier shall save, indemnify, defend and hold harmless the Client Group from the Supplier Group's own Consequential Losses, arising from, relating to or in connection with the performance or non-performance of any Work Order."

[27] Finally, article 13, entitled "Termination by Supplier", stated *inter alia*:

"If Client shall (i) commit a material breach of any of the terms of the Agreement and (if capable of remedy) shall fail to remedy such breach within thirty (30) days after notice in writing from Supplier requiring the same, or (ii) is subject to any proceeding brought against Client, voluntarily or involuntarily, under any bankruptcy or insolvency laws of any applicable jurisdiction, or (iii) if the Equipment is lost, stolen or treated as a total loss, then the Supplier shall thereupon, be entitled to deem the Client to have repudiated this Agreement (and without prejudice to any of the Suppliers other rights and any further liability the Client may have to the Supplier) and to serve written notice on the Client terminating this Agreement immediately and for all purposes. This Agreement shall automatically and immediately terminate..."

[28] Section 3 of each of tender Revisions 005 and 006 set out the pursuer's entitlement to payment. In my previous opinion I held that the terms of Revision 005 were varied by Revision 006 at least to the extent of deleting the provisions in Revision 005 regarding target lump sums and reduced day rates. Both revisions included a subsection (3.8 in Revision 005; 3.6 in Revision 006) entitled "Cancellation Fee Profile". These were in identical terms and provided, in the event of "cancellation after mobilisation" that "all lump sums and accumulated day rates are fully payable. Cancellation Fee is 20% of remaining contract value".

The issues for determination

[29] On behalf of the pursuer it was submitted that eight questions required to be determined by the court:

- (1) Was, as the pursuer contends, the scanmachine temporarily abandoned by the defender and, if so, is the pursuer entitled to payment of the relevant contractual day rate in respect of the period ending when the machine was returned to it?
- (2) Or, as the defender contends, did the machine break down and, if so, did the relevant contractual day rate cease to be applicable?
- (3) Is the fitness for purpose of the machine legally relevant to the present case?
- (4) If so, (a) what in this context was the relevant purpose of the machine; and (b) was it fit for purpose?
- (5) Was the parties' agreement cancelled as at 27 May 2015?
- (6) Was the parties' agreement terminated as at 29 July 2015?
- (7) What relevance, if any, do articles 11.3 and 11.6 of Schedule I to the Service Agreement have to the claims made by the pursuer, and, in particular, do these articles effectively bar the pursuer's claims?
- (8) If the pursuer's claims are valid in terms of liability having been established, what is the proper quantification of its claims?

[30] For its part, the defender advanced the following seven defences to the pursuer's claim:

- (1) Articles 11.3 and 11.6 contained an indemnity from the pursuer to the defender in respect of any loss of or damage to the scanmachine and any consequential loss arising as a result.
- (2) In any event, the contractual provisions relating to "lifting on/off and LARS related tasks" operated solely to clarify that the pursuer would not provide the equipment necessary for such tasks, such as craneage, nor the personnel required to

operate that equipment - they did not operate so as to make the defender contractually liable for the actions of the crane operator or the crane.

(3) Even if they did so operate, the incident was not caused by the actions of the crane or the crane operator.

(4) In any event, article 3.4 of Schedule I to the Service Agreement provided that the day rate ceased in the event of "breakdown" of the machine.

(5) In any event, paragraph 3.8 of tender Revision 005 provided that, in the event of cancellation after demobilisation, all lump sums and accumulated day rates would become fully payable and the pursuer would be entitled to a cancellation fee. The agreement was *de facto* cancelled on 27 May 2015.

(6) In any event, the day rate stopped in the event that the client stopped the work and called for demobilisation. This occurred on 27 May 2015.

(7) In any event, the pursuer terminated the agreement by its letter dated 29 July 2015.

[31] To a large extent these formulations mirror one another. I propose to proceed by addressing the issues as formulated by the pursuer, dealing as I go with the defences stated.

Did the scanmachine break down?

[32] It is convenient to begin, chronologically, with the second issue identified by the pursuer, which is also the basis of the fourth line of defence advanced by the defender, namely, did the machine break down with the consequence that the day rate ceased to be payable? It will be recalled that in terms of article 3.4 of Schedule I to the Service Agreement, set out above, the day rate ceased in the event of breakdown, from the moment the breakdown occurred until the equipment was ready to resume operation.

[33] On behalf of the pursuer it was submitted that the machine did not break down. It still had power, and could be – and was – operated from the control container. The problem was that it was stuck in clay on the seabed. In ordinary language use, “stuck” did not mean the same thing as “broken down”. According to Mr Vestly, the damage to the boom would not have affected the functioning of the machine if it could have been freed. The oil leak was very minor. He was able to start the water pumps and use the dredging arm. Mr Braid regarded the machine as “still operational”. The contemporaneous daily progress reports did not contain any entries suggesting that there had been a breakdown.

[34] On behalf of the defender it was submitted that following the incident on 24 May, the machine was broken down within the terms of article 3.4. Damage to it was as described in an email by the pursuer’s Mr Erik Hoveland to Mr Murdoch on 25 May, and in an email by Mr Vestly to Mr Scott and Mr Hoveland on 28 May after the ROV survey, namely: the lifting point had torn off; there was damage to the hydraulic boom cylinder which resulted in oil leaking if the boom was used; the strength of the manipulator was limited; and the boom arm was damaged to the extent that it would need to be replaced. It was also stuck in mud. Mr Ariansen had accepted that the hole in the arm might weaken the boom. Mr Hughes’ opinion was that the damage to the structural integrity of the boom arm would have prevented the machine from being used for its intended purpose until repairs could be effected onshore. The machine was not operational in any meaningful sense, and the evidence of the pursuer’s witnesses now to the contrary was wishful thinking.

[35] In my opinion, applying the ordinary and natural meaning of the word “breakdown”, I find that the machine did not break down. The main reason why the machine could not continue to carry out dredging work was because it was stuck in clay. If, hypothetically, the machine had become stuck for a reason other than an incident which caused it damage, it

seems to me that it would be difficult to categorise such an occurrence as breakdown if the machine remained fully functional other than being incapable of being moved. The word breakdown, in my view, refers specifically to mechanical breakdown rather than generally to events rendering the machine unable to continue to dredge. Nor do I regard it as material to assess the extent to which the machine would have remained capable of performing its functions without shore repair if Mr Vestly had been able to free it from the clay. Any restriction on its capacity would have been the result not of a breakdown but of the damage it sustained as a consequence of the padeye being torn from the boom arm. The focus, as I see it, must instead be on the respective contractual rights and obligations of the parties in the light of that occurrence. It follows that the pursuer's contractual entitlement to payment of the day rate did not cease due to breakdown at or after the time when the incident occurred.

Was the machine temporarily abandoned by the defender?

[36] As noted above, article 3.4 of Schedule I to the Service Agreement provided for the standby rate of payment to apply also "for temporary abandonment of the equipment (regardless of cause) until ready to resume work". Although I have held that the day rate did not cease as a consequence of breakdown, it is appropriate also to address the question whether the machine was "temporarily abandoned" at any time so as to bring into effect the entitlement in article 3.4 to standby rate.

[37] On behalf of the pursuer, it was observed that it was a matter of averment and admission in the counterclaim that the machine had been "abandoned" on the seabed following the incident on 25 May. The only question therefore was whether the abandonment was temporary. It obviously was: the machine was eventually recovered and returned to the pursuer. The contemporaneous email correspondence supported this analysis: Messrs Braid,

Scott and Douglas had all referred to the machine having been abandoned. Messrs Vestly, Ariansen, Murdoch and Douglas had all agreed that the machine could not have been left where it was: it could not therefore have been permanently abandoned. Clause 3.4 was explicit: the standby rate applied for temporary abandonment *regardless of cause*. The parties had thus agreed that the reason why temporary abandonment might have come about was irrelevant to the pursuer's entitlement to payment. In terms of Revision 006, the standby rate (which was the same as the day rate) remained payable until the machine was returned to the pursuer.

[38] On behalf of the defender, it was submitted that the expression "temporarily abandoned" suggested a deliberate decision by the client to leave the machine and later return to continue working: in other words where the client took an operational decision and so bore the cost. That was not the situation after the incident: the machine could not be recovered and was unable to resume working. "Temporary" abandonment did not cover a situation where the machine was left for more than three months and then recovered because the authorities and the ultimate client would not permit it to be left there. The defender had had no intention to recover the machine. The oral evidence founded upon by the pursuer had no relevance to contractual construction. If the pursuer's interpretation of "regardless of cause" were correct, the day rate would be due even for faulty equipment. That could not be right.

[39] In my opinion the pursuer is correct to attach significance to the words "regardless of cause". They are unequivocal and preclude inquiry into the reasons why equipment might have been temporarily abandoned. In the circumstances of the present case, the cutting of the umbilical was the practical expression of a decision taken that the machine be temporarily abandoned. The Natalie could not remain tethered to the machine indefinitely, but had no means of recovering it. It is moreover clear from the contemporaneous correspondence that

the decision taken was not to abandon the machine permanently: efforts immediately began to find a means of recovery. There was no evidence of a decision taken at any time by the defender or by anyone else to abandon the machine permanently; in any event permanent abandonment on the sea bed where the wind farm was to be located would not have been permitted by Vattenfall or by the German authorities. I find the correspondence between the pursuer and its insurers to have been of very little significance: the insurers did not purport to take any decision as to whether or not to abandon the machine, but merely indicated a willingness to recover it if no-one else did and if recovery was economically worthwhile.

[40] Nor do I consider that this interpretation of the parties' agreement is unreasonable. I accept the pursuer's submission that contractual responsibility for all launch and recovery operations, whether in the course of a dredging operation or otherwise, rested upon the defender. That is clear from article 6. The defender undertook responsibility for returning the machine to the pursuer at the end of the contract. It is consistent with those responsibilities to hold the defender responsible for recovery of the machine following an incident such as the one which occurred and which resulted in its temporary abandonment.

Is the fitness for purpose of the machine relevant?

[41] The defender's case on record includes the following passage:

"The vessel crane was operating to a maximum limit of 12 tonnes. The defender was advised by the pursuer that the lifting pad-eye was certified to a maximum limit of 62.5 tonnes breaking load. It would not therefore be possible for the crane to exert a load onto the lifting pad-eye that could cause it to break away from the machine. In these circumstances, the only explanation for the lifting pad-eye breaking away from the machine is that it was not fit for purpose."

This averment was supported by expert evidence led at the proof. I have already commented that in circumstances where, as here, the machine has sustained damage during a dredging operation, leading to its temporary abandonment, due to the padeye being torn from the

boom arm, it is necessary to examine the parties' respective contractual rights in that eventuality. The question is whether ascertainment of those rights requires a finding by the court as to whether the machine was fit for the purpose for which it was provided by the pursuer to the defender.

[42] Submitting that fitness of purpose was irrelevant to determination of the parties' respective contractual rights, senior counsel for the pursuer founded primarily on article 7 of Schedule I to the Service Agreement. The only warranty given by the pursuer was that the equipment complied with the terms and conditions of the agreement and conformed to the pursuer's specifications. It was not contended that there had been any breach of that warranty. Otherwise, the agreement made clear that any and all other warranties were excluded. That exclusion specifically included any warranty of fitness for a particular purpose or use. Article 7.3(a) went on to state that the defender waived all warranties, express or implied, of merchantability, materials, workmanship, design and suitability for a specific or intended purpose. It followed that any line of argument based upon fitness for purpose was excluded by the terms of the parties' agreement. The evidence of the defender's expert witnesses, which was concerned with the question of fitness for purpose of the machine, was also therefore irrelevant. Cause fell to be disregarded. This meant that even if the cause of the incident was as the defender submitted (see below), this took the defender nowhere. It was also irrelevant, *inter alia*, to consider whether any fault could be attributed to the crane operator.

[43] On behalf of the defender, senior counsel submitted that the agreement could not be construed as imposing a kind of strict liability on the defender, such that any incident that occurred during a LARS operation would be its legal responsibility irrespective of cause. For the pursuer to succeed, it had to establish facts about the cause of the incident which could

trigger contractual liability. It was clear from the pursuer's reference in the pleadings to the defender's alleged responsibility for launch and recovery of the machine that the pursuer required to establish fault on the part of the crane operator. No such case had been made out. Looking at the expert evidence as a whole, the pursuer had to establish that, as a matter of fact, the incident was caused by or was the fault of the defender. The pursuer had to address the question whether the cause of the lifting point failure was something for which it was responsible. The evidence established that the cause of the incident was that the lifting bracket and padeye had been welded to the top plate of the boom arm in a defective manner, such that the lifting assembly failed at a load which it ought to have been able to support. The incident was not caused by inadequacy of the crane or a severe shock load above that which the lifting assembly should have been designed to withstand.

[44] In my opinion the pursuer's contention on this critical issue is to be preferred. There is nothing in the contract that requires the pursuer to prove the cause of the detachment of the lifting bracket from the boom arm. All of the relevant contractual provisions are to the opposite effect. Standby rates are due on temporary abandonment of the equipment, regardless of cause. All warranties of *inter alia* materials, workmanship, design and fitness for purpose are expressly excluded. It will be recalled that this is an action for payment of the hire price of the machine. Nothing in the contract disentitled the pursuer to payment as a consequence of proof of defective design or workmanship or lack of fitness for purpose of the machine. There is, in my view, no contractual basis for the proposition advanced on behalf of the defender that the pursuer had to establish that the incident was caused by or was the fault of the defender. Regardless of its cause, the pursuer's contractual entitlement to payment continued after the incident.

[45] It follows from this conclusion that the whole of the evidence as to the cause of the fracture of the top plate of the boom arm around the lifting bracket, including the expert evidence led on behalf of both parties, is in my opinion irrelevant to the determination of the issue in the action, namely the pursuer's entitlement to payment for hire of the machine after the date of the incident. In my view the pursuer correctly characterised all of this evidence as floating untethered to any provision in the parties' contract. However, in case the matter goes further and I am held to have been wrong about the relevance of cause, I address the expert evidence below with a view to reaching a conclusion on the question of fitness of purpose that I have held to be irrelevant. In the meantime I proceed to consider the other issues identified by the parties in their submissions as set out above.

Relevance of articles 11.3 and 11.6 (indemnity)

[46] I have set out the relevant parts of articles 11.3 and 11.6 above. The next question which arises is whether either of those sub-articles precludes the claim for payment made by the pursuer.

[47] In his witness statements, Mr Douglas set out his understanding of the purpose and effect of "hold harmless" clauses in contracts relating to offshore projects. They were introduced to avoid lengthy disputes regarding liability for damage to equipment, ensuring a straightforward situation where the owner would be the person liable for the cost of repair and would accordingly arrange appropriate insurance. His view was that in the present case the "hold harmless" regime applied to the scanmachine to the effect that once the incident occurred and the machine sustained damage, the pursuer was responsible for the cost of its recovery. The defender also lodged a report by Mr Brian Mercer, managing director of Theon Limited, engineering consultants, Aberdeen, who has had many years of experience of using

“hold harmless” clauses in the offshore industry and elsewhere. Mr Mercer’s opinion was that the circumstances of the present case fell within those which he would ordinarily expect to be covered by “hold harmless” clauses such as article 11.3 and 11.6. In particular, he understood article 11.3 to mean that the defender was held harmless by the pursuer for any property damage during *inter alia* lifting and recovery procedures. The situation following the detachment of the padeye bracket was the type of situation that these arrangements were designed to address. The supplier was responsible for insuring consequential losses including any rental or other payments that it would have expected to receive had the machine remained operational.

[48] In relation to this issue, it is convenient to begin by summarising the argument on behalf of the defender. Senior counsel submitted that from 24 May onwards, the machine having broken down and no longer functioning, day rates were no longer payable under article 3.4. The defender denied that rental was due and had refused to make payment. Accordingly, the pursuer’s claim was properly seen as one not for payment but rather for compensation for rental charges which might otherwise have been due had the machine remained operative, or for periods during which it was not operative as a result of damage. It therefore fell within the article 11.3/11.6 indemnity, which was extremely wide. It was clearly the parties’ intention that if there was loss of or damage to the machine, any claims arising were to be covered by the indemnity. This was consistent with industry practice as described by Mr Mercer. Reference for guidance was also made to *Caledonia North Sea Ltd v London Bridge Engineering Ltd* 2002 SC (HL) 117 and to passages from text books on offshore energy insurance and oil and gas law. Finally, there was nothing in article 11.3/11.6 to carve out LARS operations from the scope of the indemnity.

[49] On behalf of the pursuer it was submitted that article 11.3/11.6 had no relevance to the claim in this action, which was a claim for payment of unpaid day rates pursuant to the contract. No claim was made for damages in respect of loss of or damage to the scanmachine. Nor did the claim for unpaid rental fall within the definition of “consequential loss” in article 11.6. The evidence of Mr Douglas and Mr Mercer, which was in effect opinion evidence as to the proper interpretation of a contractual term, was inadmissible.

[50] In my opinion the submissions of the pursuer on this point are clearly correct. Article 11.3 prevents either party to the contract from suing the other party for loss, including cost of repair, caused by damage to its equipment. Similarly, article 11.6 precludes either party recovering from the other any consequential losses relating to the performance or non-performance of contractual duties. Each party is thus held harmless with regard to the other’s losses. But in these proceedings the pursuer is not suing to recover a loss, but rather to enforce a contractual right, namely entitlement to payment of day rates. It would be quite wrong in principle if a claim for payment, once refused, were thereby to become re-characterised as a claim for damages for non-payment. It seems to me, however, that that is what the defender seeks to do. Properly analysed, the pursuer’s claim in this action is not a claim in respect of either loss or damage to its property or a claim in respect of consequential losses arising from the performance or non-performance of its duties. It follows that the “hold harmless” provisions of the contract have no application to the circumstances of the case.

[51] I also sustain the pursuer’s objection to the admissibility of the evidence of Mr Douglas and of Mr Mercer, in so far as consisting of opinion as to the effect, in the circumstances of the present case, of “hold harmless” clauses generally or of article 11.3 and 11.6 in particular. These are matters of contractual interpretation which fall properly within the scope of determination by the court.

Was the agreement cancelled on 27 May 2015?

[52] The defender presented two arguments to the effect that its obligation to pay the day rate terminated on 27 May 2015. The first was that having regard to the fact that all staff (other than Mr Vestly who remained to discuss recovery with Vattenfall) were demobilised on that date, the contract was *de facto* cancelled and the rental ceased to be payable. Reference was made to the "Cancellation Fee Profile" in paragraph 3.8 of Revision 005 (and in paragraph 3.6 of Revision 006). The second was that Pricing Note 10 in paragraph 3.5 of Revision 005 provided that the reduced day rate was to stop in the event of "Client stop the work, and call for demobilisation". It was submitted that this provision was not varied by Revision 006 and remained an effective cut-off for day rate claims under the contract. As demobilisation occurred on 27 May, entitlement to payment then ceased.

[53] In response to the first of those arguments, the pursuer submitted (i) that the agreement did not recognise the concept of *de facto* cancellation; (ii) that cancellation was dealt with instead by clause 2 of the Service Agreement, which provided for ten days' written notice, which had not been given; and (iii) in any event, clause 2 provided that the agreement continued in force and effect until the Work Order was completed, ie when the equipment and personnel returned to the point of mobilisation/origin. The machine was not of course demobilised at that time, nor returned to its point of origin until 24 September. Accordingly, the day rate continued even if there was *de facto* cancellation. As regards the second argument, Pricing Note 10 referred to the reduced day rate which no longer formed part of the agreement. There was no equivalent in Revision 006 and it could no longer be founded upon.

[54] I accept the pursuer's submission on both of those points. Where, as here, a contract provides a procedure for cancellation by one or other party, including provision for the

consequences of cancellation, it is difficult to see how there can be any scope for cancellation to be implied from facts and circumstances. The contract has in effect made provision for the eventuality that occurred: it maintained the pursuer's entitlement to payment at standby rate during any period of temporary abandonment, and also imposed upon the defender the responsibility for recovery and return of the machine. Although the demobilisation of personnel was indicative of temporary abandonment, that was not the same thing as cancellation of the contract. As regards Pricing Note 10 in paragraph 3.5 of Revision 005, that provision was specifically concerned with the reduced day rate originally agreed. When the parties agreed (as I have previously held) that the reduced day rate was to be deleted, Pricing Note 10 was also deleted, and no longer formed part of the contract as at 27 May 2015.

Was the agreement terminated by the pursuer's letter dated 29 July 2015?

[55] I have set out above the terms of the letter sent by Mr Ariansen to Mr Mackie on 29 July, which letter included the sentence "Scanmudring find KDM have repudiated the contract, and we hereby terminate our contract for all purposes, and ask for the equipment to be immediately returned in good working order." On behalf of the defender it was submitted that even if the pursuer was entitled to claim day rates after 27 May, it could not claim payment after 29 July when it terminated the contract. The effect of the pursuer's letter was that it ceased at that time to perform its obligations under the contract and thereby brought to an end any requirement for future performance by the defender. Rescission of a contract did not need to take any particular form; a clear expression or conduct showing that the contract was terminated was sufficient. No acceptance of rescission was necessary. If it was necessary to have regard to article 13.1 of Schedule I to the Service Agreement, it appeared that the

pursuer terminated the contract in terms of part (iii), ie the machine having been lost or treated as a total loss.

[56] On behalf of the pursuer it was submitted that the letter of 29 July was of no legal effect because it did not assert any of the three valid grounds for termination set out in article 13.1. It had not, in any event, been treated thereafter by either party as having terminated the contract. The defender ignored it and the parties continued to correspond as if the letter had not been sent.

[57] The general rule regarding entitlement to rescind a contract is stated by McBryde, *Contract* (3rd ed, 2007) at paragraph 20-108 as follows:

“A material breach by one party gives the other party an option to be free from future performance of obligations. There need not be any prior warning to the ‘guilty’ party, for it is that party’s failure to fulfil which has the effect of giving the innocent party the right to be free from future performance.”

McBryde notes, however (paragraph 20-107) that the contract may have express provision on the method of giving notice, failure to adhere to which may result in the notice being invalid.

As Lord President Hamilton observed in *Scrabster Harbour Trust v Mowlem plc* 2006 SC 469 at paragraph 47:

“Where a contract gives one party the right unilaterally to bring the contractual relationship to an end, or to alter it in some other way, then that party must, if he chooses to exercise that right, comply with the agreed conditions for its exercise. If strict compliance with a particular condition is called for, then strict compliance will be enforced.”

[58] At the time when Mr Ariansen sent his letter, the defender was, as I have held, in material breach of contract in at least two respects, namely refusal to pay day rates invoiced since the date of the incident, and refusal to accept responsibility for recovery of the scanmachine. In the absence of express contractual provision, the pursuer would therefore, in my opinion, have been entitled, in accordance with the general rule stated above, to rescind the contract with immediate effect. Such rescission would not have been without practical

consequences: it would have freed the pursuer of any obligation of future performance of its own contractual obligations, although it would not have put an end to the contract in the sense of relieving the defender of the duties in which it was in breach at that time.

[59] Express contractual provision was, however, made. In terms of article 13.1(i), the agreement imposed upon the pursuer a requirement, in the event of a material breach of contract that was (as here) capable of being remedied, to give 30 days' notice before serving written notice terminating the agreement. It was not open to the pursuer to disregard that provision, and accordingly, in my opinion, the letter of 29 July did not validly rescind the contract. The circumstances bear some resemblance to, but are distinguishable from, those of *Charisma Properties Ltd v Grayling (1994) Ltd* 1996 SC 556 (described by McBryde as a "difficult decision"), in which the majority of the Court, reversing the Lord Ordinary, felt able to construe a provision in missives of sale of heritable property as not requiring a further period of notice after 21 days had elapsed since the date for payment. In the present case the contractual provision is clear and does not admit of such a construction.

[60] Nor, in my view, did article 13.1(iii) have any relevance to the circumstances prevailing at the time of the letter. The machine was neither lost nor treated as a total loss. With regard to the latter, the letter went no further than repeating previous demands for a plan of recovery, failing which the machine would be treated as a total loss. In the event, of course, the machine never was treated as a total loss and was eventually recovered. It follows that the agreement was not terminated on 29 July 2015, and the parties' obligations, including the defender's obligation to pay day rates, continued in accordance with the terms of the contract.

Fitness for purpose: analysis of expert evidence*Introduction*

[61] In order to carry out a meaningful analysis of the voluminous expert evidence, it is necessary to identify a basis in the parties' contract which, contrary to my findings above, depends upon some aspect of that evidence for resolution. I have not found this easy to do.

The defender's submission was as follows: in order for the pursuer to succeed in its contractual liability argument, the pursuer required to establish facts about the cause of the accident that could trigger liability on the part of the defender. In its pleadings, the pursuer appeared to blame the crane operator, but no such case was established in the expert evidence. In the absence of a finding of fault on the part of the crane operator, it was argued, the pursuer's case could not succeed.

[62] If that submission were correct, the point would remain a short one, because the pursuer did not attempt to establish fault on the part of the crane operator. More broadly, however, the defender submitted that in order to succeed the pursuer required to establish, as a matter of fact, that the incident was caused by, or was the fault of, the defender. In all of the circumstances, it was argued, the pursuer had to address two questions: firstly, why did the padeye break off the scanmachine, and, secondly, was the cause of the breaking off something for which the pursuer was responsible? Again it is not clear to me in what sense the word "responsible" is being used here, having regard to the various contractual provisions that I have already discussed and which appear to me to relieve the pursuer of any such responsibility. I will, however, attempt to address and make findings on these two questions in case the matter goes further and the second question has to be answered.

Evidence not in dispute

[63] I begin by identifying certain significant features of the evidence which were not in dispute and which provided the basis of the expert opinions expressed. The first of these was that in the scanmachine's normal operational lifting position, the force in the padeye bracket was at an angle of about 30 degrees to the top plate of the boom.

[64] Secondly, it was not in dispute that the top plate of the boom, to which the padeye bracket was attached, had a number of defects which were not readily apparent and of which the pursuer had been unaware until the boom was examined after the machine had been recovered. These defects appear to have been introduced when repairs were carried out to the boom in 2013; the following summary of them is derived from Mr Hughes' first report (24 May 2015) at paragraph 6.1.5:

Structural Anomalies

- (i) An internal stiffening plate was either in the wrong position or was missing, affecting the structural stability of the box section immediately below the lifting point;
- (ii) A 10mm thick top plate where it was butt welded to the 8mm thick top plate had not been gradually tapered to 8mm, which would have made it difficult to obtain a good quality weld. The weld was in fact found to be of poor quality. Also a sudden change in thickness could cause stress concentrations during loading.
- (iii) The top plate of the boom to which the lifting assembly was welded was 8mm thick. Whilst this appeared to be the correct as-built thickness, it appeared that the company used to calculate the strength of the joint after repair may have mistakenly used a 10mm thick plate for their calculations and/or believed that a 10mm thick doubler plate had been used on the top surface of the boom.

Metallurgical Anomalies

- (iv) Flame cutting/gouging on the underside of the 8mm thick top plate had produced a highly irregular surface with localised gouging and reductions in plate thickness up to about 50-60%. The reduction in thickness of the plate caused a reduction in the strength of the plate when loaded in tension or shear.
- (v) Excessive flame cutting on the underside of the 8mm thick top plate had caused internal non-metallic inclusions to open up. Such defects reduced the through

thickness ductility and possibly strength of the plate as evidenced by stepped and woody fractures.

(vi) A transverse butt weld joint between the 8mm and 10mm thick boom top plates, which failed, was of a poor quality with areas of significant lack of fusion.

(vii) The same transverse butt weld had poor weld root fusion with excessive weld globules evident.

(viii) The lower edge of the 8mm thick top plate where it was butt welded to the 10mm thick plate was very irregular and appeared to have been cropped by flame cutting.

[65] A further area of agreement concerned the locations at which the failure occurred. The first failure, referred to as the "local fracture" was a transverse fracture that occurred near, though not exactly at, one of the outer weld toes of the padeye bracket. This was immediately followed by detachment of the top plate, and the attached bracket, from the side plate at the end of the transverse web (the "main fracture"). The top plate then tore diagonally, in the area of its flame gouge damaged underside, between the end of the transverse web and the defective transverse butt weld. The bracket, with part of the top plate still attached, continued to tear away from the remainder of the top plate until it detached completely when the butt weld failed and the plate tore transversely at the lower end of the bracket.

[66] It was also common ground that there was no directly applicable industry standard which specified the load that the padeye bracket connection on the scanmachine had to be capable of withstanding without breaking. Considerable emphasis was placed by the pursuer's witnesses upon this absence of applicable standard. For the defender, Mr Dodworth made reference in his report to the DNV standard for offshore containers, which required the design load to be five times the weight of the static load. The pursuer's witnesses disagreed that this standard was relevant, because it related to the loading and offloading of containers in adverse weather conditions in mid-ocean. It may be noted,

however, that the Containers Standard was referred to *inter alia* in the certificate by a third party firm which tested the safe working load of the padeye bracket itself.

Issues addressed by the expert evidence

[67] Putting the matter in the most general of terms, the issue that the expert evidence sought to address was whether the lifting mechanism, including in particular the connection between the padeye bracket and the top plate of the boom, had been subjected to a force which it ought to have been able to withstand without failing. This gave rise in turn to a number of subsidiary questions:

- What force ought the connection to have been able to withstand?
- To what force was it subjected?
- What was the mechanism whereby it was subjected to the force that resulted in its failure?

Evidence for the pursuer

[68] The view of the pursuer's expert witnesses was that the load range at which the structure was likely to fail was 20 to 30 tonnes, assuming that the machine was lifted at the "normal" angle of 30 degrees. If the load angle was 120 degrees, failure was likely to occur within the range 20 to 35 tonnes. Those figures were based upon the finite element analysis (FEA) modelling exercise carried out by Mr Torgersen of Techano. In Mr Torgersen's load case LC4, he sought to take account of the welding imperfections in a conservative manner by assuming certain cuts to exist in the boom top flange and in the boom side plate and weld. The machine weighed 9.5 tonnes. It was difficult, however, to express a view about the adequacy of the structure's strength for the operation because there was no applicable design

standard for lifting a scanmachine. When Mr Torgersen's case LC4 was compared with his case LC3, without the welding imperfections, it could be seen that the latter did not have a decisive effect, the difference being of the order of 10%. Mr Nøkleby's conclusion was that of the three possible causes, design weakness could not be quantified because there was no standard for it, welding defects contributed approximately 10-15%, and overload the remaining 85-90%. Even if the structure had not had the welding defects it would have been likely to fail at the load to which it had been subjected.

[69] One feature which troubled Mr Nøkleby was determining the angle at which the load was being lifted at the point of failure. His concern stemmed from the location of the local fracture. At 30 degrees, that point in the structure would be subject to compressive and not tensile forces: that is, the padeye bracket would be pushing down on the top plate of the boom arm at that location and not pulling it up. A fracture there caused by compressive forces was, in his view, difficult to reconcile with the tensile fractures that occurred immediately afterwards in the top plate at both side plates. This led Mr Nøkleby to conclude that the load angle at the time of the local fracture had been 120 degrees, at which angle the force at the local fracture would have been tensile. But to produce a load angle of 120 degrees, the scanmachine would have had to rotate during the lift so that it was being raised vertically. How could this have happened?

[70] In his supplementary report dated 27 November 2017, Mr Sørensen proposed an explanation that he considered to be "at least plausible and, quite possibly, a likely explanation of events". In Mr Sørensen's scenario, the block of the crane hook became trapped between the boom arm and the boom's hydraulic cylinder, as a consequence of the crane operator having paid out too much slack on the cable. While the machine was being lifted with the block trapped, it would rotate to the vertical. The block then freed itself. As a

consequence the ship rolled away due to the loss of weight and the scanmachine began to fall back towards the sea bed. At some point, however, the machine was “caught” by the crane, creating the shock load that caused the local and then the main fractures. The padeye bracket detached. The machine continued to descend and, as it did so, rotated back towards the horizontal. It then fell hard on to the sea bed. Mr Sørensen noted that photographs of the boom cylinder after the incident showed bending and other damage consistent with this scenario. For his part, Mr Nøkleby considered that this was a much more likely explanation for the ship rolling than a sudden wave in an otherwise calm sea.

[71] On the basis of the foregoing, Mr Nøkleby concluded that the load magnitude at the time of fracture was so high that the cause of the fracture was the overload, and not the load bearing capacity of the bracket. The padeye bracket was capable of carrying the normal load of 9.5 tonnes in the normal load direction of 30 degrees without deformation or other problems with the structure.

Evidence for the defender

[72] The view of the defender’s expert witnesses was that the maximum load that was likely to be applied to the structure was 17.7 tonnes, produced by dynamic forces of about 0.82 times the mass of the machine. This was based on a calculation by Mr Dodworth which he regarded as including a number of very conservative assumptions. It was also, however, assumed in these calculations that the crane had a shock absorber, which in fact it did not. Without a shock absorber, the maximum dynamic force increased to about 2.1 times the mass of the machine, producing a load of around 29 tonnes. Separately, however, Mr Dodworth carried out a FEA using fracture mechanics, to calculate the load at which the connection between the bracket and the boom top plate would fail. This was calculated to occur at a load

of 17.4 tonnes. (Mr Dodworth noted that it was important not to confuse two numbers which were, coincidentally, close to one another.) Based on this calculation, and on the crane's safe working load of 12.2 tonnes, Mr Dodworth's view was that the boom top plate would fracture at a load of between 12.2 and 17.4 tonnes, which was far below what he considered to be the design load (based on the Containers Standard) of nearly six times the static weight. The metallurgical defects indicated that 17.4 tonnes was an upper-bound value for failure.

[73] For his part, Mr Hughes saw no reason to assume that the load angle at the time of failure had been anything other than the normal angle of 30 degrees. In his view, the local fracture could occur in compression mode consistently with the detachment of the top plate from the side plates. On the other hand, he considered that it was difficult to see how the tearing which subsequently occurred could have occurred if the load angle had been 120 degrees. Nor did he regard as credible the explanation proposed by Mr Sørensen in which the crane block had become trapped between the boom arm and cylinder and then released. He could not envisage a means by which something the size of the crane block could find itself lodged between the boom arm and the cylinder. But even if it did, it would be at an angle of 90 degrees to the vertical, and the rope, which was very thick and required a sheath 20 times its diameter to enable it to move the block up and down, could not bend round corners to lift the machine, and would simply seize up.

[74] On this basis, Mr Dodworth concluded that the boom top plate fractured when a moderate shock load was applied that was well within the loads that the lifting arrangement ought to have been designed for. From his perspective, Mr Hughes concluded that, taking into account the weakened condition of the boom top plate, coupled with the likely magnitude of typical dynamic loads that might be generated, it was much more likely that the

boom top plate failed at a load that it should have been able to withstand if it had been correctly fabricated.

Discussion

[75] I begin by considering the evidence as to the maximum load that the crane could have applied to the scanmachine during the lifting operation. Mr Sørensen considered that the crane was exposed to a number of load effects, namely sudden shock load due to swell and rolling of the vessel; re-entry force when the wire rope became slack as the scanmachine bumped back to the sea bed before coming up on the next wave; and suction resistance forces when trying to lift the machine out of the mud/clay. On this basis, using Mr Torgersen's analysis, Mr Sørensen calculated the maximum load to be of the order of 25-30 tonnes.

Mr Dodworth considered that Mr Sørensen's figure was inflated, but in any event failed to take account of the dampening effect of a shock absorber. In fact, it emerged that the crane did not have a shock absorber, and it therefore appears to me that, despite his reservations about Mr Sørensen's assumptions, Mr Dodworth's range of loads exerted by the crane of between 11.9 and 17.7 tonnes is probably too low, and that the true figure was closer to Mr Sørensen's range.

[76] That, however, does not seem to me to be the critical figure. Of more importance is the calculation of the strength of the bracket/boom plate connection. If it can be demonstrated that the connection was likely to fail at a particular load, it does not seem to be of central importance that the crane was in fact capable of applying a greater load. Mr Sørensen's view was that the load being exerted immediately before failure was of the order of 25-35 tonnes, ie the maximum load capable of being applied, on the assumption that the load angle was 120 degrees. This view was in turn dependent upon Mr Torgersen's FEA calculation.

Mr Dodworth, on the other hand, carried out a FEA applying fracture mechanics to the structure incorporating the defects listed by Mr Hughes, and concluded that failure would occur at a load of around 17.4 tonnes, ie with a dynamic factor of about 1.8. This, as I see it, is the crucial disagreement in the expert evidence that has to be resolved in order to answer the first question posed, namely why the failure occurred.

[77] On this issue, I have come to the conclusion that I should prefer the evidence of the defender's expert witnesses. I found Mr Dodworth's explanation of why fracture mechanics should be employed in the FEA persuasive. I accept his opinion that the welding defects which rendered the boom top plate less structurally sound than it was perceived to be were crack-like in nature (and I accordingly reject the contrary view expressed by Ms Karlsson and Mr Nøkleby in the last DNV report). Mr Torgersen's model did not employ fracture mechanics, but instead assumed certain cuts through the top plate and side plate of the boom arm, with a view to modelling weakness in the structure at those locations. I accept Mr Dodworth's evidence that a crack will develop in a particular way, and that the best method of estimating the load at which the defective structure will fail is to model the development of the crack using fracture mechanics. Mr Dodworth's conclusions were as follows:

“6.10 The ability of a material to withstand a crack is known as the Fracture Toughness. Data on this parameter is difficult to find even for a well manufactured material and almost impossible for a material with the metallurgical defects identified by Mr Hughes. For the purposes of calculation, we have needed to assume the weld and the immediately surrounding material to be of a high standard with fracture toughness properties typical for a good weld. If the court agrees with Mr Hughes that the mechanical properties of this region were adversely affected by the method of manufacture, the calculations we have performed should be viewed as being an upper-bound for the strength of the component at [the location of the local fracture].

6.11 Based on the analysis we have performed; the assumed crack would become unstable once the material surrounding it had reached the yield point causing a failure by collapse of the section. This occurs at a load of around 17.4 tonnes corresponding to a DAF [ie dynamic amplification factor] of 1.8. As discussed in paragraph 6.10, the

metallurgical defects and low ductility mean that 17.4 tonnes is an upper-bound value...”

I accept these conclusions and find, on balance of probabilities, that the structure was likely to fail when a load of 17.4 tonnes or greater was applied to it.

[78] In so doing, I reject Mr Nøkleby’s view that the failure was to be attributed largely to overload. I do not accept the proposition that because there was no classification standard directly applicable to the mechanism for lifting the scanmachine (which is perhaps unsurprising), design must be disregarded as a factor. It also seems clear that because of the defects enumerated by Mr Hughes, the bracket/boom arm connection was significantly weaker than anyone, including the pursuer, thought it was. This was partly due to the welding defects and partly due to the misplaced internal stiffening plate and the butt welding of top plates of differing thickness. If, as I have found, the structure was likely to fail at a DAF of 1.8, then the failure must be regarded as attributable to weakness of the connection (whether due to design or to welding and other defects) rather than overload.

[79] There remains for consideration the practical question of how the dynamic load that caused the connection to fail came to be applied to it. It is perhaps not of central importance to reach a conclusion as to the load angle at the moment of failure because, according to the DNV witnesses, the maximum load at a load angle of 30 degrees (20 to 30 tonnes) was not significantly different from the maximum load at a load angle of 120 degrees (20 to 35 tonnes). Even if I were to accept Mr Sørensen’s scenario in which the crane block became caught in, and subsequently freed itself from, the boom arm and cylinder, that would not necessarily affect my conclusion as to the load that had been applied to the structure at the moment of failure. For the sake of completeness, however, I give my view on this. I am not persuaded that Mr Sørensen’s scenario is the most likely one. Mr Hughes’ criticism, based on the impossibility of movement of the rope if the block was caught at an angle of 90 degrees from

vertical, seemed to me to have force. Further, I was not convinced by the explanation that after the block had freed itself (and the machine had become detached from the crane), the machine would simply rotate back to horizontal before landing on the seabed; no calculations were produced to justify that aspect of the hypothesis. And in one important respect, the scenario was inconsistent with the eye witness evidence. Mr Vestly was clear that the first roll of the vessel was towards the side where the scanmachine was being recovered, and that the bang that he heard happened when the vessel was rolling back again. On Mr Sørensen's scenario, the direction of the first roll would have been away from the machine as the block freed itself. For these reasons I find that the pursuer has not proved that the incident occurred in the manner proposed by Mr Sørensen and founded upon by senior counsel in his submission to the court. The reason why there was a large rolling movement in an otherwise calm sea remains unclear.

[80] I am also satisfied, on the basis of Mr Hughes's explanation in oral evidence, that there is no inconsistency between a compressive force being applied at the location of the local fracture and the subsequent tearing elsewhere in the bracket structure under tensile force. As he put it, there would have to be some straining on the rest of the structure to accommodate the pressing down at the outer weld toes, which could create tensile loads causing the main fracture. There is accordingly, in my view, no reason to seek an explanation for a load angle of anything other than the normal 30 degrees. I also agree with Mr Hughes that it is difficult to understand how the final tear could have occurred as it did if the machine had been vertical at that particular moment.

Decision

[81] In the light of all of the foregoing, I find that the bracket/boom arm connection failed when a load was applied to it that it ought to have been capable of withstanding. I do not regard this conclusion as excluded by the fact that there was no directly applicable classification standard. Mr Hughes noted that a factor of safety of about x5 was often applied to smaller capacity cranes such as the one in use on the vessel. Mr Dodworth identified indications that when the padeye assembly was designed and tested, a factor similar to the x5 factor used in the Containers Standards had been applied. As a consequence of the stresses produced during a lift of the machine at the normal lifting angle, no such factor of safety was available with regard to a dynamic load, equivalent to 1.8 times the static load, which the connection might reasonably have been expected to have to withstand. In these circumstances I feel able to make the finding that I have made, which at least provides what I consider to be the answer to the question of why the padeye broke off the boom arm. It follows that if I had held it to be relevant in law to do so, I would have found that the machine was not fit for the purpose for which it was supplied by the pursuer to the defender.

[82] I also find that there was no evidence that the incident occurred as a consequence of either fault on the part of the crane operator or inadequacy of the crane itself.

Conclusion and quantification: principal action

[83] The consequence of all of my findings is that the pursuer succeeds in the principal action. The principal sum sued for is NOK 9,927,491, being the balance of a total amount of NOK 11,202,491 invoiced after deduction of a payment of NOK 1,275,000 made by the defender on 30 September 2015. Of this sum, the only amounts challenged, as I understand it, are two sums contained in the pursuer's invoice no 66, namely NOK 20,000 for "crane to assist

offloading of trucks in Mandal Sep 24th 2015" and NOK 32,500 for "demobilisation fee Scanmachine (remaining 50%)". In her witness statement, the pursuer's business controller, Ms Merethe Thunberg-Christensen, explained that craneage costs had been incurred twice (and invoiced twice) because the scanmachine equipment was returned in two separate deliveries. The second item was the balance of demobilisation costs due under the parties' agreement (Revision 006, paragraph 3.1, item 3), the first half having been previously invoiced.

[84] On behalf of the defender it was submitted that these amounts were insufficiently vouched. Ms Thunberg-Christensen's evidence went no further than confirming that she had been instructed by Mr Ariansen to invoice them. Mr Murdoch had explained that it was the defender who carried out the demobilisation and transport of the machine. No provision was made in the contract for two crane charges.

[85] I am satisfied that the pursuer was entitled, in terms of the parties' agreement, to receive a lump sum of NOK 65,000 (including the sum of NOK 32,500 in the disputed invoice 66) in respect of demobilisation costs, regardless of the fact that the defender also incurred cost in demobilising and transporting the equipment to Mandal. On the other hand, I am not satisfied that the agreement entitled the pursuer to charge a second lump sum of NOK 20,000 for crane costs which were also stated as a lump sum. The sum of NOK 20,000 must accordingly be deducted from the principal sum concluded for, leaving a balance of NOK 9,907,491.

[86] The pursuer also claims payment of an amount by way of interest on the principal sum sued for. The claim is based upon article 4.2 of Schedule I to the Service Agreement, which provided:

"Default Rate of Interest. If payment of any invoice sent to Client is not received by Supplier by the due date set forth on said invoice, such unpaid amounts shall accrue

interest calculated thirty (30) days from the date of invoice at the rate specified by the Commercial Debt Act, currently 8.5%, until payment is made in full, after as well as before any judgment.”

The defender opposed payment of interest on various grounds. Firstly, it was said that the reference to “the Commercial Debt Act” was ambiguous and was not necessarily a reference to the (UK) Late Payment of Commercial Debts (Interest) Act 1988. Secondly, according to the terms of Revision 005, the contract was subject to the laws of Norway. Thirdly, although the Service Agreement purported to subject the contract to the law of England, it was not accepted that the 1988 Act would apply to it. Reference was made to section 12 of that Act which provided that the Act did not apply to a contract governed by the law of a part of the UK by choice of the parties if there was no significant connection between the contract and that part of the UK, and the applicable law would, but for the choice, be a foreign law. The present contract had no connection with England, and there was no basis upon which, but for the choice, the applicable law would be the law of England. Counsel were, however, agreed that it would be appropriate for consideration of the question of interest to be held over and addressed (if necessary) once the principal liability had been established. I therefore make no finding at this stage in relation to this aspect of the claim.

The counterclaim

[87] The defender sues for payment of €88,000, being the sum that it paid to Vattenfall as a contribution to the cost of recovery of the scanmachine. The claim is based upon article 11.3 of Schedule I to the Service Agreement. On behalf of the defender it was submitted that the payment fell within the scope of “all claims, losses, damages, costs... and liabilities in respect of loss of or damage to” the machine, and was thus covered by the indemnity. On behalf of the pursuer it was contended that the claim was irrelevant. Article 11.3 was concerned with

losses suffered by the pursuer; its purpose was to hold the defender harmless in respect of such losses.

[88] I agree with the pursuer's submission. The purpose of the article is not to permit a claim by the Client (ie the defender) but rather to protect it against a claim by the Supplier (ie the pursuer). It applies to losses etc consisting of loss of or damage to the pursuer's property, and is thus concerned with losses etc sustained by the pursuer. The expense incurred by the defender obviously did not consist of loss or damage to the pursuer's property, and is not covered by the indemnity. The counterclaim accordingly falls to be refused.

Disposal

[89] As indicated at the close of the proof, I shall put the case out by order to discuss the question of the pursuer's entitlement to interest, and any other matters arising from this opinion. Expenses are reserved.