Neutral Citation Number: [2013] EWHC 4030 (TCC)

Case No: HT-11-387

IN THE HIGH COURT OF JUSTICE
QUEEN'S BENCH DIVISION
TECHNOLOGY AND CONSTRUCTION COURT

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: 16/12/2013

Before :

THE HON MR JUSTICE RAMSEY

- -

Between :

Vivergo Fuels Limited	**Claimant**
- and -	
Redhall Engineering Solutions Limited	**Defendant**

- -
- -

Marcus Taverner QC, Gaynor Chambers and Paul Bury (instructed by **Shoosmiths LLP**) for the **Claimant**
Stephanie Barwise QC, Robert Clay and David Johnson (instructed by **Muckle LLP**) for the **Claimant**

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Approved Judgment

I direct that pursuant to CPR PD 39A para 6.1 no official shorthand note shall be taken of this Judgment and that copies of this version as handed down may be treated as authentic.

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THE HON MR JUSTICE RAMSEY

Mr Justice Ramsey :

Introduction

1. These proceedings concern a contract dated 31 March 2010 ("the Contract") by the Claimant ("Vivergo") for the Defendant ("Redhall") to carry out mechanical and piping work at a new biofuel plant for Vivergo in Saltend, Hull ("the Project").

2. In March 2011 there was a termination of the Contract either by Vivergo under the terms of the contract or for repudiation by Redhall or by Redhall for repudiation by Vivergo. These proceedings concern the correctness of that termination and also require consideration of Redhall's entitlement to extensions of time.

Background

3. Vivergo is the purchaser and eventual operator of the biofuel plant at Saltend. The purpose of the plant is to produce bioethanol from wheat and when operational it is said that it will be the largest such facility in the United Kingdom and one of the largest in Europe. In particular, the purpose of the plant is to produce bioethanol to be added to vehicle fuels so as to comply with percentage addition of that fuel set out in EU Directives.

4. Vivergo is a joint venture company set up by British Petroleum, British Sugar and Du Pont.

5. In May 2008 Vivergo entered into a contract with BioCnergy Europa BV for the lump sum design and supply of equipment, reimbursable engineering, procurement and construction management services in relation to the biofuel plant. Under clause 3a of that contract BioCnergy agreed to act as Contract Manager in respect of Construction Contracts entered into by Vivergo with Construction Contractors and to do all things reasonable to ensure that the Construction Contractors and Vivergo fulfilled their obligations in the Construction Contracts.

6. Under that contract there were three phases: an initial pre-FEED ("Front End Engineering Design") phase, a FEED phase and an EPC ("Engineering Procurement Contract") phase. In the EPC phase Aker Process Limited, who were part of BioCnergy, were appointed to perform various management roles. Aker Process Limited is now part of the Jacobs Group of companies but I shall continue to refer to Aker Process Limited as "Aker".

7. In about July 2009 Aker made contact with three contractors who were to tender for the mechanical and piping work to the South area of the biofuel plant. Redhall was one of those contractors and attended a pre-tender kick off meeting on 28 July 2009. Redhall submitted its original tender submission on 25 August 2009. There followed a period of clarification leading to a revised offer by Redhall on 7 December 2009. Following further meetings Redhall were awarded the mechanical and piping work contract for the South side package by a letter of intent issued on 18 December 2009. Redhall commenced work on the South side mechanical and piping work contract in January 2010.

8. In early to mid-December 2009 Vivergo also sought tenders for the North side mechanical and piping work contract. Following discussion in February and March 2010 Redhall provided a tender for the mechanical and piping works for the North side on 5 March 2010.

9. Following an extension of the letter of intent of 18 December 2009 Vivergo and Redhall entered into the Contract for the mechanical and piping works ("the Contract Works") to the North and South of the Biofuel plant. The Contract provided that the date for commencement of the Contract Works should be 4 January 2010 and that the contract completion date was to be 11 February 2011.

10. The Contract provided that level 2 programmes should be used until such times as a combined level 3 North and South construction schedule, which was to be submitted by Redhall to Aker within 30 days of award of contract, was agreed. The programmes referred to were the mechanical and piping South contract schedule Rev 1 dated 19 February 2010 and the mechanical and piping North tender schedule Rev 0 dated 28 January 2010. Redhall submitted a program for the combined mechanical and piping works on the North and South of the site on 4 May 2010 which was known as the "Rev 2 programme".

11. Under the Contract it was stated that the construction management was subcontracted to Aker Solutions, who were referred to as the management contractors.

12. On 13 April 2010 Mr Trevor Williams, who had been appointed Project Manager on behalf of Redhall, wrote to Mr David Rousseau who had been appointed as Aker's Project Director. In that letter Mr Williams referred to area releases and access and said as follows:

> "*In view of recent discussions we wish to clarify baselines as we move into the combined North and South construction packages as it is clear to us that the more than one programme and set of expectations are in circulation within the construction and engineering teams at large.*
>
> *For reference purposes we have attached the Area Release Register based on the Area Release Notifications issued by Aker Solutions and our Rev. 1 Programme. This shows delays in release of areas to us virtually across the worksite as a whole.*
>
> *We understand there are a number of reasons for these delays, which are outside of [Redhall] control, mainly relating to incomplete civils and structural steelwork which clearly prevent access to allow us to work in an efficient manner.*
>
> …
>
> *Reverting to our first point regarding more than one programme being discussed, we are currently in the process of completing Rev.2 of the Contract Programme which will cover*

> *M & P North and South and it is our intention to incorporate changes to Area release dates within this plan. This will show that we are not significantly behind site mobilisation at this specific point in time and that we are making all reasonable endeavours to minimise any delay in the performance of our obligations under the Contract.*"

13. Mr Rousseau replied to that letter on 28 April 2010 and said, amongst other things, as follows:

> "*4. In the letter [Redhall] refer to delays against release of areas based upon dates in the Rev 1 Programme, however many of these release dates were superseded by the parameters within the M&P North & South Contract. Therefore [Redhall] statements in the letter could be misleading or irrelevant.*
>
> *5. Submission by [Redhall] of a programme for approval is a contract requirement and clearly vital. With approval this will clarify the progress status situation.*
>
> *6. [Redhall] in this letter state the "Rev 2" programme will show they are not significantly behind site mobilisation. Within the M&P North & South Contract (Schedule11, Exhibit 5) is [Redhall] "Site Construction Direct Labour Histogram - Overall (North & South M&P) Revised 04-Mar-2010". To date [Redhall] Site Direct Labour resources have been consistently below the levels on this histogram. Site access to workfaces has been available throughout this period and [Redhall] by failing to mobilise resources are likely to have prejudiced their ability to perform the Contract Works in accordance with the contract.*"

14. On 4 May 2010 Redhall submitted the Rev 2 program and wrote to Aker on 7 May 2010 concerning that program. In response Mr Rousseau wrote to Redhall in the following terms:

> "*1. You refer to Redhall "Revision 2 programme" submitted 4th May 2010, for approval. As stated in your letter this programme was based upon "latest known information" and hence appears to plan for the recovery of a shortfall in the rate of progress to date. Therefore this programme does not accord with the requirements of the Contract and cannot be approved as a base ('at award') Approved Programme. Redhall are required to submit a programme that accords with the requirements of the Contract no later than 17th May 2010."*
>
> *2. This Revision 2 programme is approved only as a recovery programme.*"

15. They followed up that letter with a letter of the 27 May 2010 referring to the Rev 2 programme as a recovery programme. Mr Rousseau of Aker added:

> "*….We require that Redhall submit as a matter of urgency, a base (at award) programme for the record.*
>
> *Redhall are reporting progress against the approved Rev 2 Programme, these reports show that after two weeks, that is at week ending 14th May 2010, Redhall were 1.4% below planned progress.*
>
> *In the absence of the base (at award) programme, Aker Solutions have now derived from the Redhall Labour Histogram dated 4th March 2010 contained within the Contract (Schedule 11, Exhibit 5), a progress S Curve, a copy of which is enclosed. This will be used and referenced until the base (at award) programme is received from Redhall.*"

16. By June 2010 it was apparent that Redhall were not achieving progress which it intended and meetings were arranged between Vivergo, Aker and Redhall at Redhall's offices in Bristol starting on 14 June 2010 and concluding on 16 June 2010. Those meetings were attended by Vivergo's Project Director Duncan Anians, Redhall's Managing Director Andrew Smith, Redhall's Operations Manager Mr Tony Jester, Redhall's Commercial Manager Mr Douglas Bones, Redhall's CEO Simon Foster and by David Rousseau and Mr Ken Hedley on behalf of Aker. There were separate meetings to discuss program between Mr Jim Elwood, Redhall's Planner and Mr Les Adam Aker's Planner and Mr Steve McIntosh, Vivergo's Planner.

17. It is common ground that as a result of those meetings the parties reached agreement on a number of matters which were set out on the first two pages of a document signed by Mr Rousseau and Mr Bones on 18 June 2010 ("the Bristol Agreement"). There is a dispute between the parties as to the effect of a further three pages which were signed by Mr Rousseau and Mr Bones on 18 June 2010. Those pages set out a number of bullet points under headings as "Redhall Actions", "Aker Actions" and "Joint Actions". Vivergo contends that those were not part of the Bristol Agreement whilst Redhall says they are part of that agreement.

18. It does not seem to be in dispute that those actions arose out of a discussion forum referred to by witnesses as a "brainstorming session" during which attendees put forward a number of ideas which might assist Redhall in performing their obligations under the Contract. Those ideas were noted down on a flip chart and subsequently recorded on the three pages signed by Mr Rousseau and Mr Bones. At those meetings a programme, referred to as the Rev 2A programme, was produced. An action arising from the meeting was to agree a new schedule as a "target schedule" based on the principles and milestones agreed on 17 June 2010 in Redhall's offices.

19. On 5 July 2010 Redhall wrote to Aker referring to the meetings in Bristol and updating Aker on progress made on the actions which it said "*both of our companies committed to take, and on which achievement of the Revision 2A programme is dependent.*" It set out progress on the Redhall Actions and asked Aker to update it on the progress made on the Aker Actions.

20. On 13 July 2010 Redhall wrote to Aker in the following terms:

> "*It is now some three weeks since our respective organisations committed to taking actions to accelerate project progress.*
>
> *As advised in our letter dated 5 July 2010 the actions [Redhall] committed to making have advanced and are producing the desired results.*
>
> *However if the increasing levels of progress required to complete the project to time are to be achieved whist maintaining a reasonable degree of productivity and avoiding industrial unrest, the actions which [Aker] committed to deliver must also be progressed with urgency.*
>
> *We must remind you that achieving the revised Milestone completion dates is wholly dependent as conditional upon [Aker] meeting the commitments made.*
>
> *[Redhall] are now experiencing delays, additional costs and losing opportunities to further accelerate progress as a result of your actions remaining outstanding or incomplete. Site morale is also low and there is an increased threat of industrial action if the site conditions issues are not resolved. It should be noted that site productivity is now running seventeen percent lower than the average to date and this is directly attributable to the restricted site conditions that [Aker] undertook to resolve as part of the agreements made in Bristol.*
>
> *[Redhall] have embraced the intent of the agreements made and acted with urgency in implementing agreements made to maximise the benefits to the project but we will not absorb further additional costs, loss of productivity or programme impact resulting from [Aker] failure to implement the agreements they made.*
>
> *In particular [Aker] undertook to resolve issues surrounding site agreements, working patterns and site accommodation.*"

21. It then set out four issues which it said remained unresolved: site wide smoking policy, targeted overtime working, management team accommodation and operatives' accommodation.

22. Aker responded to Redhall's letter on 16 July 2010, setting out a detailed response on the Redhall and Aker Actions and said as follows:

> "*As we have previously advised, you are behind in populating the tracker and you promised that this work would be complete in early July to enable the revised programme to be available by mid-July. You have categorically failed to complete this and as a clear result you have no proper or effective planning function in*

> *place to enable you to properly control your works. This is the primary cause of your failure and not the spurious reasons you are attempting to suggest.*
> *To reiterate previous points, your lack of site coordination and planning are causing you to supply us with last minute requests for scaffolding and despite numerous requests you are still unable to provide us with basic four week look ahead for scaffolding requirements to enable us to plan these works ahead. This problem is further exacerbated by the fact that you site operation does not know which particular spools are going to arrive at site for incorporation in to the permanent works on any given day.*
> *Furthermore, the general position that you are attempting to portray in your letter is as a result of poor general overall organisation, lack of planning, extremely poor site coordination of the work faces and deficient supervision.*"

23. On 2 August 2010 Mr Rousseau forwarded to Mr David Kirby of Redhall a draft of the proposed contract amendment arising from the Bristol meetings. He referred to the fact that the revised programme submission was still awaited.

24. On 10 August 2010 Mr Elwood of Redhall sent Mr McIntosh of Vivergo the Rev 3 Programme.

25. In early August 2010 Redhall introduced two new senior managers on the project, Mr David Kirby as the Project Director and Mr David Irving as the Improvement Manager. At a sponsors meeting on 25 August 2010 Mr Andrew Smith of Redhall stated that he would not sign the contract amendment prepared following the Bristol meetings as he considered that it should have included the "Actions" which had been discussed during the joint discussion forum.

26. The Rev 3 Programme was approved on 16 August 2010 and Mr Adam says that it was approved despite it having changes to what had been agreed at the Bristol meetings. He says that it ended up being a recovery program because Redhall were already in delay by the time it was issued. Also at the sponsors meeting on 25 August 2010 Aker/Vivergo "*confirmed until further instruction there will be no new recruits to the Redhall team and that a separate meeting is to be arranged*." That instruction became known as the "labour cap".

27. On 3 September 2010 Aker wrote to Redhall in the following terms:

> "*In accordance with the General Conditions of Contract Sub-clause 13.6 we hereby give notice as follows:*
>
> *The rate of progress by the Contractor in carrying out the Contract Works is likely to prejudice the Contractor's ability to complete the construction of the Permanent Works and specified sections thereof, in accordance with the provision of Sub-clause 13.1, and this is due to a cause for which the Contractor is responsible*."

28. On the same date Aker gave notice to Redhall under the Contract that Mr Trevor Williams was required to leave the site with immediate effect.

29. On 8 September 2010 Mr Rousseau wrote to Mr Foster in advance of an Extraordinary Sponsors Meeting which had been arranged on 14 September 2010. He said as follows:

> "*On the 14th we must review developments since our meetings in Bristol of 14th - 18th June, together with the subsequent revised delivery strategy presented by David Kirby on 4th August. However you should be aware that the performance of Redhall on site has not improved noticeably and both Aker Solutions and our Client now doubt that Redhall possess the ability or commitment to deliver this contract. As you will appreciate, this is not a conclusion that has been arrived at lightly and we have taken into account all factors before calling you to attend this critical meeting.*
>
> *You will recall the conversations that you and I had during the bidding phase of the contract which were reiterated on the 4th February when you came to site with your senior management team and personally pledged the support of the wider Redhall Group to deliver the contract should that be required. You again advised myself and Duncan Anians on the 14th of June that if necessary you would not hesitate to bring resources to the project from beyond Redhall Engineering if that was required to fulfil your contract obligations.*
>
> *We see the meeting on the 14th of September as the last opportunity to convince us that these promises were not hollow.*
>
> *On the 14th September our Client expects to hear how the Redhall Group will overcome the deficiencies of Redhall Engineering to deliver their contractual obligations. I hope Redhall choose to seize this opportunity.*"

30. On 9 September 2010 Aker wrote to Redhall referring to Schedule 12 of the Contract which provided for liquidated damages for delay and stating that Redhall had failed to complete milestone MSDH 2 by the Completion Date of 8 September 2010. In fact that date had been amended as part of the Bristol agreement to 5 November 2010.

31. At the Extraordinary Sponsors Meeting held on 14 September 2010 in Wakefield and attended by Mr Foster, Mr Smith and Mr Kirby of Redhall, Dr Richards and Mr Anians of Vivergo and Mr Rousseau of Aker, progress was reviewed in the light of slippage against the programme. One of the issues raised was the necessity for Redhall to ensure that the key priorities were progressed to allow an effective start on commissioning within the contract dates or as soon as possible thereafter. In relation to this the following was noted:

> "*In respect of item 4 –[Redhall] were advised that [Vivergo] wished them to urgently consider redeployment of resources from Distillation 2 (Priority 4B) to ensure all available work-faces in the priority areas were fully manned per the Contract Schedule. [Redhall] should focus their resources on the Priorities 1, 2 and 3 including Pipe-Racks, Towers and Utility Systems that feed 1, 2 and 3. Also separately advise the impact this will have on Distillation 1 and 2. [Redhall] agreed to evaluate this and report back on what was possible and the potential consequences on other areas.*"

32. On 1 October 2010 Aker wrote to Redhall in the following terms:

> "*The intent of the Contract and Approved Programme (Rev3), was to focus on the Priority Areas 1, 2 & 3, this corresponds to your Contract obligations under Sub-clauses 13.1 and 13.6. Further this mitigates the effects of delays to Vivergo. We agree that you should focus available resources, as presented by Redhall on 23rd September 2010.*"

33. In response on 7 October 2010 Redhall stated as follows:

> "*We presented on the 23rd September 2010, at the request of the Project Sponsors, the impact to schedule/programme, of re-deployment of labour to concentrate effort on priorities 1, 2 & 3 including Pipe Racks, Towers and Utility Systems inclusive of those within Distillation 1 & 2. (Scoped W/C 27th September).*
>
> *As [Redhall] are still working within the restrictions imposed by the resource cap instruction we consider the phrase "we agree that you should focus available resources" within your letter as being open to misinterpretation and respectfully request that you formally instruct [Redhall] in the event you wish us to reschedule work and resources to reflect these priorities.*
>
> *We are already assessing the impact of the resource cap as part of [Redhall] claim for delay and disruption presently being formulated and will take into account and re-deployment of labour instructed as part of this exercise.*"

34. Aker then replied to Redhall in the following terms on 8 October 2010:

> "*We remind you that you have already been issued with a Clause 13.6 notice for failing to make due progress and your response clearly evidences that you either do not recognise the Schedule 11 priorities and/or are not using your best endeavours to rectify the delay to the contract works as required following such notice.*
>
> *It is observed that your site management is directing your workforce to continually work out of sequence on less critical*

priority 4 areas. Your obligation to work to the priority areas is embodied both in the contract Schedule 11 and the Approved Programme Mechanism.

The resource level is also derived from the Approved Programme. If you consider that you need to bring additional resources onto site, then if this breaches the level in accordance with the Approved Programme, our agreement is required. There is no contract obligation on Vivergo to provide site facilities above your programme level to accommodate increased resources. We trust that this clarifies the comment regarding focussing available resources on the priorities. There is no need for an instruction to simply reiterate what you are currently obliged to complete under the contract.

We require that you demonstrate practically that you are using best endeavours to recover the programme and work in accordance with the contract to totally complete the project priorities 1, 2 &3 including pipe racks, towers and utility systems within Distillation 1 & 2."

35. In addition on 8 October 2010 Aker sent Redhall and other contractors a copy of a chart which became known as the "New York Skyline". In relation to Redhall it wrote as follows:

"*Please find attached a chart showing the plan for the Process System Final Walkdowns (all disciplines) for the period week ending 17th October through to week-ending 17th December 2010*

This is the minimum requirement, if and when other systems become available for Walkdown, Aker Solutions are to be advised for programming the Walkdown. We will also be tracking the other systems and where necessary advise developments in this plan and in due course the plan for January 2011 on.

This is to assist [Redhall] in planning preparation of testpacks for a system within an area completion, note Aker Solutions/Vivergo cannot handle all systems in the last week and it must be emphasised that systems are to be phased normally over the last 4-6 weeks of the area completion.

[Redhall] should also be aware that the date shown is for Mechanical, Piping, Electrical and Instruments combined system walkdown, therefore [Redhall] must be complete a minimum of one week prior to the date shown on the chart, (includes testing, reinstatement and all QC documentation), to allow Electrical & Instrumentation to complete.

> *We plan to hold a joint meeting with all interested contractors within the next two weeks. By return please advise your proposed attendees.*"

36. On 13 October 2010 Mr Rousseau sent an email to Mr Kirby of Redhall, stating as follows:

> "*Following a number of letters recently between the parties this note is to confirm that at the extra-ordinary sponsors meeting in Wakefield on 13th October [Aker] advised [Redhall] that labour should be focussed to work on priorities 1,2 and 3 including the pipe racks, pipe rack towers and the utility systems that feed these priority areas.*
> *Only after ensuring that all available work faces on these key areas are fully and productively resourced should [Redhall] deploy other available resources elsewhere.*
> *The above will be confirmed within the notes of the above meeting.*"

37. On 15 October 2010 Mr Elwood sent Mr McIntosh a copy of the Rev 3 Programme updated for progress to 8 October 2010. It showed that, compared to the Rev 3 Programme finish date of 21 January 2011, the early finish date was now 28 June 2011, a delay of some 108 days.

38. On 19 October 2010 Redhall wrote to Aker in relation to the email of 13 October 2010 from Mr Rousseau and stated as follows

> "*Further to your email notification dated 13th October 2010 timed at 17:12 and in accordance with clause 14.1 and clause 18 of the General Conditions of Contract we give notice of delay in the performance of our obligations and of our intention to claim additional payments associated with the instruction given.*
>
> *We will of course advise you of the cost and time impacts of this instruction as soon as reasonably possible.*"

39. On 29 October 2010 Redhall gave notice to Aker in relation to a number of heads of claim: restrictions of resource levels on site, effect of unplanned work on planned works, material shortages, site smoking policy, scaffold provision, working shift patterns, bussing arrangements, effects of the workforce not working on inclement wet or windy days, hours lost to union meetings, maximisation of labour allocation to priorities 1, 2 and 3, removal of access to West Road and increases in winter working times. It stated that an initial analysis of the Rev 3 Programme indicated a cumulative delay giving rise to an entitlement to an extension of time to complete of the region of 23 weeks and seeking additional preliminaries and overhead recoveries on the preliminaries.

40. On 1 November 2010 Aker wrote to Redhall in relation to the priority systems stating as follows:

> "*We acknowledge receipt of your letter…dated 19th October 2010. As you are quite well aware, the email to which you refer*

> *(13th October 2010-Focus on Priority Systems) was neither an instruction nor any communication giving rise to a variation under the contract. For the avoidance of doubt, we are treating your letter as a contractor's proposal that it should be a variation.*
>
> *Accordingly, we have considered same request, but in accordance with Clause 17.1, our decision is not to order a variation.*
>
> *Your existing approved programme quite clearly requires you to work to the priorities as re-clarified in our email dated 13th October 2010. We remind you once again, that you are already under a clause 13.6 notice to rectify your progress default and it should not have to fall to us to continually remind you of your obligations nor have to suggest how you need to organise your workforce to attempt to work towards programme recovery. It is not unreasonable for us to expect any experienced and competent contractor to be able to do this of their own accord.*
>
> *Additionally, we would take the opportunity to remind you of your concurrent obligation in the contract (eg. Installation of Mechanical Equipment and Piping (South) Document 51203670-90-14.1-SPC-0004 clause 30.1.3) to 'complete systems of the plant on dates mutually agreed between the Construction Contractor and the EPCM contractor in line with the Project Commissioning Plan'.*"

41. On 2 November 2010 Aker wrote to Redhall in relation to their claim. It rejected the claim and stated that Redhall was still under a clause 13.6 notice.

42. On 15 November 2010 Mr Elwood produced a Rev 4 Programme internally within Redhall but did not issue it to Aker. The reason for not issuing the draft Rev 4 Programme was discussed internally within Redhall and on 17 November 2010 Mr Martin Woodall of Driver Project Services Limited, who were assisting Redhall, wrote to Mr Kirby in the following terms:

> "*I have tried to call to discuss but I suggest that we should not be submitting the Rev 4 program in any form that enables [Aker]/[Vivergo] to accept it as the Approved Programme.*
> *I understand the practical difficulty of reporting progress against a plan you can't achieve but we have not yet claimed or had accepted an EOT, relief from LD's and additional costs.*
> *The draft rev 4 programme should only be tabled at this stage as part of the alternative scenarios and used to extract a contract amendment that is commercially acceptable to [Redhall].*
> *(By the way-we are struggling to raise Jim to have a conversation with him about how he has constructed the plan)*"

43. At this stage Mr Elwood reduced his involvement with the Project as Redhall's planner and Mr Phil Gamble became the planner responsible for taking forward the Rev 4 Programme.

44. On 24 November 2010 Mr Rousseau wrote to Mr Kirby of Redhall in the following terms:

> "*We hereby confirm that the current restriction on labour recruitment is withdrawn. Please advise, at the earliest possible date, all proposed changes to your personnel strength that will be required to support the requested recovery programme in accordance with Clause 13.5.*
>
> *We would remind you that numbers are restricted by the site facilities which were sized to support the requirements of your Rev 3 programme. However we can potentially provide additional site facilities provided sufficient notice is given by yourselves.*"

45. On the same date Mr Rousseau wrote to Mr Kirby in the following terms, requesting a recovery programme:

> "*With regard to the Approved Programme (Rev 3) it is obvious that the dates detailed therein are no longer attainable and we would therefore request that in accordance with Clause 13.5 you submit your recovery programme forthwith.*"

46. On 29 November 2010 Mr Kirby sent an email to Mr Elwood, with a copy to Mr Gamble, attaching a "first pass" revision to the Rev 4 Programme. On 2 December 2010 Mr Elwood forwarded the programme to Mr McIntosh for review and discussion. Mr McIntosh responded to Mr Elwood to say that he would review it on 3 December 2010 and give Mr Elwood a ring.

47. On 15 December 2010 Mr Kirby sent Mr Paul Nemec at Aker the Revision 4 Barchart and Labour Histogram in .pdf form and an Excel spreadsheet of the Revision 4 Loading, all as prepared on 29 November 2010. He added:

> "*The programme was developed on the info available at the back end of November so the end date will have been impacted by the last few weeks of bad weather.*
>
> *Please also note that this programme has been forwarded to you without prejudice and is not to be interpreted as a revised contract programme.*"

48. On 15 December 2010 Mr Nemec posed some questions in relation to the Rev 4 Programme. They were answered by Mr David Noble who, at that stage, had recently become the Commercial Manager for Redhall in relation to this Project.

49. On 3 January 2011 Mr Elwood sent Mr Kirby and Mr Gamble a "first pass" revision to Rev 4 Programme dated 3 January 2011. The new schedule had an end date of 17 June 2011 and was commented on by Aker in a meeting with Mr Gamble on 7 January 2011 where eleven points were raised.

50. On 11 January 2011 Redhall responded to Aker's letter of 24 November 2010 which requested a recovery program and stated as follows.

> "*Further to your letter…of 24th November 2010 where you requested a Recovery Programme we comment as follows:*
>
> *As previously mentioned we are examining the impact of Variations, items of Claim, Contract Management etc upon the Project delivery and will present an Extension of Time submission accordingly. The term "Recovery Programme is fallacious: the Contractual Completion date will be a function of the overall Extension of Time.*"

51. On 17 January 2011 Mr Rousseau replied to Mr Kirby in relation to a revised program. It is an important letter and I set it out in full. It stated as follows:

> "*Further to the Monthly Progress meeting held on the 12th January 2011 in which you confirmed that you would be submitting a revised programme to completion in 2 weeks, we would confirm the comments we made at that meeting with a few additional observations.*
>
> *To summarise the recent history of subject issue:*
>
> *1. The approved Contract Programme, Rev 3, cannot now be achieved.*
>
> *2. We have not received a revised programme in accordance with Contract Clause 13.5 as requested in our letter ref…079 dated 24th November 2010.*
>
> *3. In the Monthly Progress meeting of 8th December 2010 you advised that the revised programme would be provided during w/c 13th December 2010 (Minute No 5.2). You revised this date many times and particularly failed to deliver on an agreement to have the programme available over the Christmas period for us to review. Although you knew that we had specifically allocated resources to work on this critical task over the Christmas period.*
>
> *4. Our Mr L Adam finally received an "unofficial" electronic copy on the 4th January 2011 your Mr D Kirby. This was never formally issued and we were orally advised by Mr D Kirby that the submitted programme was again being revised and we would receive a revised version shortly afterwards, however, this was not received.*
>
> *5. In the Weekly Progress meeting of 5th January 2011 you asked for our feedback on the programme submitted on the 4th January 2011. We confirmed that we had already organised an internal meeting to review it. Following our internal meeting,*

held on Friday 7th January 2011, our Messrs Adam and Hedley met with your site planner, Mr P Gamble and we communicated 11 specific deficiencies that we had identified on your programme for your subsequent review and comment.

6. On Tuesday 11th January 2011 we received your letter ref... 045 dated 11th January 11. The letter stated (inter alia) that, "... we are examining the impacts of Variations, items of Claim, Contract Management etc upon the Project delivery and will present an Extension of Time submission accordingly". No date was stated as to when such information would be submitted.

At the Monthly Progress meeting on 12th January 2011, less than 24 hours after your letter referenced in point 6 above, you confirmed it would take [Redhall] yet another 2 weeks to complete a "meaningful" programme to complete the Works'".

Our frustration should now be evident, as it is a matter of record that we have been requesting a revised programme as a minimum for the last 3 months, notwithstanding that fact that it has always been a basic contract requirement.

Our responses and queries from the meeting are recorded as follows:

1. The Contract is actually 71.1% complete, versus a planned completion of 99.7% ([Redhall] Weekly Report dated 7th January 2011) and you are still developing a "meaningful" programme to complete the Works.

2. You have not advised any indication of when you will complete the Contract Works.

3. We remain unable to advise our other contractors as to when they can effectively complete their work or mobilise as such is dependent on completion of your Contract Works. You are fully aware this being normal on a multidiscipline construction site and hence you will fully understand that as such you are denying us the opportunity to mitigate additional costs caused by your extensive delay.

To date, your track record is one of continuing and repeated delays in production of programmes throughout the contract and this gives us no confidence whatsoever, that you will complete and issue the new programme in two weeks. To further evidence this, we would refer back to the experience following the Bristol meetings in early June last year, where a 'Rev 3' programme was agreed in principle, but not formally issued until the second week of August 10.

> *For the sake of due progress on this project, we do not consider it unreasonable to finally require you to submit the revised programme by the close of play Thursday 27th January 2011.*
>
> *If we have not received your programme by that date, we feel we will be left with no option but to implement the provisions of Contract Clause 13.7. This project, and particularly your element of the works, cannot afford any more unnecessary delays and decisive action must be taken.*"

52. In response, Redhall stated on 20 January 2011 as follows.

> "*Further to your letter …090 dated 17th January 2011 in which you relate the history of Contract programmes and our perceived failings, we comment as follows:*
>
> *Your letter …079 did not request a* <u>*revised*</u> *programme and this was dealt with by our letter …045 dated 11th January 2011.*
>
> *Both [Aker] and [Vivergo] are aware of discussions with [Redhall] over the last 2 months relating to the development of a Construction Programme and we are working to ensure that the agreed deadlines will be met.*
>
> *One minor point to note: the deadline agreed in discussions was the 28th January and your letter stipulates the 27th.*"

53. On 1 February 2011 Redhall wrote to Aker to say they were attempting to have a revised program sent to Aker by 31 January 2011 but stated:

> "*Regrettably we have been unable to complete this task and apologise for this. We assure you that we consider the Project's best intentions are served by taking the appropriate time to complete the task accurately rather than be pressured in to publishing prematurely.*"

54. On the same date Aker wrote to Redhall referring to the fact that it had said that the revised program would be issued in 2 weeks in their letter of 20 January 2011 and at the monthly progress meeting on 12 January 2011. It added:

> "*Your continued failure to provide a programme to complete the works exacerbates the difficulties caused by your delays. This breach of your contract obligations denies us the most basic of project control tools required to mitigate the consequential impact of your delays.*"

55. In response on 3 February 2011 Redhall stated as follows:

> "*We note your references to Clauses 13.5 and 13.7 and point out the Clause 13.5 allows for a revision to the Approved Programme to be required where a party falls behind the Approved Programme. Any such revision is to be made "in the light of the circumstances." We are not in Breach of Contract.*

> *You are aware that the numerous variations, delays and disruption caused to our Works are the subject of extension of time claims which in turn required and will require the revision of the Approved Programme. We do not therefore accept that we are in delay as is the requirement of Clause 13.5, but in any event such matters cannot be ignored when considering any further programme as they form part of the existing circumstances.*
>
> *It is inevitable that any further review of any programme is a difficult and ever changing task. Consequently our exercise in providing a revised programme is not straightforward. Without detracting from the above position we confirm that despite the surrounding issues and circumstances we are working hard to provide a further programme analysis to you as soon as is practicable.*"

56. Redhall had prepared a document with the title "Contractors Interim Claim for Costs and Extension of Time associated with Delay and Disruption and Extension of Time for the period 21 June 2010 to 28 January 2011". In that document they set out a table of revised milestone dates and sought an extension of time to 18 June 2011 together with a claim of some £12.8 million. On 10 February 2011 Redhall wrote to Aker enclosing their first claim but it was limited to a claim for events between 21 June 2010 and 17 December 2011.

57. On 15 February 2011 Redhall wrote to Aker in relation to a completion plan. Redhall had provided to Aker a single page document produced on 10 February 2011 and which set out Area Milestones. That document showed the Works being completed in four phases between 29 March 2011 and 29 July 2011. In the letter of 15 February 2011 Redhall said this:

> "*As previously confirmed, we are currently preparing our revised Contract Plan, which is being targeted to be provided to you 7th March 2011. By way of information, we confirm that we anticipate this Contract Plan will show a Contract completion date significantly later than that shown in the Completion Plan which we refer to below.*
>
> *Without detracting from this position and as discussed, we confirm handing to you in the above noted meeting a Completion Plan which is designed to expedite and maximise progress to an early completion and is one which indicates, subject to a commercial agreement a potential plan for early completion. This Plan consolidates the circumstances on site to date and considers that which may be potentially implemented to early completion. We have not taken into account, and have clearly not been able to include, any estimates or assumptions about future Variations, preventions or delays.*
>
> *It does not seek to allocate culpability and is not capable of being used to do so. It does not rely on Extensions of Time that*

> *the Contractor has claimed to date and which are due. It is not a Plan put forward nor is it capable of being accepted as an Approved Plan. It does however look to facilitate progress being maintained and maximised while the commercial and contractual position is resolved.*"

58. In a presentation dated 15 February 2011 prepared by Vivergo with a title "BP Biofuels Update" but marked "confidential – do not forward", various options were considered in relation to Redhall. The document set out a number of bullet points under the heading "Redhall (M&P) contractor continue to underperform" which included the following:

> "*Redhall have failed to provide [Vivergo] with a recovery schedule and failed to provide [Vivergo] with a plan to tackle the key elements for underperformance.*"

59. In relation to other contractors one of the bullet points stated as follows

> "*The delay in the M&P work is causing delays to all other work. The build sequence requires M&P to complete before electrical and instrument, lagging, cladding, painting, etc.*"

60. In a presentation with the title "Way Forward Options Review" dated February 15/16, 2011 Vivergo set out five options as follows:

Option 1 – Continuum: Working under the current contract and IR arrangements whilst making incremental improvements wherever possible. "Doing the best we can with what we've got"

Option 2 - Terminate Redhall under the terms of the contract within the shortest possible time scale (complete removal – entire workforce followed by 'break' period – avoid TUPE)

Option 3 - Suspend distillation 2 from Redhall scope.

Option 4 - Redhall accepts the Vivergo offer to walk away from the project and accepting losses to date – TUPE applies.

Option 5 - Work with Redhall to finish the job and to resolve the IR issues. This option was marked on the presentation "not a viable option".

61. A presentation was then made to the Vivergo Board on Friday 18 February 2011 in the form of a document with the title "Board Update Confidential". At that board meeting, which was attended by Dr Richards and Mr Anians, it was minuted that the following was agreed:

> "*[Vivergo] board agreed to remove Redhall Engineering Solutions Ltd ([Redhall]) as the M&P contractor because of their ongoing underperformance under the contract and their inability to provide any clarity on a plan for satisfactory completion of the contract scope.*"

62. It was arranged for Dr Richards to have dinner with the Redhall chairman, Mr Jackson on the evening of 18 February 2011.

63. A presentation was prepared for a Projects Sponsors Meeting to take place by telephone conference call on 21 February 2011. At that meeting the result of the Vivergo board meeting on 18 February 2011 was reported. In terms of actions Vivergo were to prepare a negotiation position in case Redhall wanted to negotiate after a breach notice had been served. It was noted that Dr Richards was to attend the dinner with Mr Jackson "*as a means to gather information and make a more informed decision on exit strategy.*"

64. Various drafts were prepared of a letter to be sent to Redhall replying to their letter of 15 February 2011. The letter as finally sent on 22 February 2011 was in the following terms:

> "*We are in receipt of your letter reference…M069, dated 15th February 2011, subject Completion Plan.*
>
> *In your claim submission dated 10th February 2011, you stated that you were due a 19 week extension of time to complete the project by the end of July 2011. Such a representation is impossible to make credibly without at least a supporting programme, yet 4 days later, you reported that you are still preparing a revised "Contract Plan". We as Contract Manager are seriously disadvantaged in carrying out any assessment of your claim for an extension of time without reference to a programme submitted in accordance with the Contract.*
>
> *We record that you are now in breach of the contract conditions through your repeated inability to provide a revised Contract Programme (Clause 13.5). Your assertion that you are still preparing a "revised Contract Plan" is unacceptable.*
>
> *As you are aware we find it inconceivable at this late stage that you are still incapable of properly planning the Contract Works.*
>
> *We must record our opinion that you are failing to proceed regularly and diligently with the Contract Works, as reflected in your inability to produce a competent programme.*"

65. On 1 March 2011 Redhall responded to the letter of 22 February 2011 from Aker and stated as follows:

> "*You appear to try to deal with and confuse a number of issues in your letter. Taking each of your points in turn and by reference to the paragraphs in your letter:-*
>
> *1. Paragraphs 1, 2 and 3 - We are unsure as to the relevance of your comments as you appear to be looking to link our 10 February 2011 submission in respect of time with an allegation*

> *of an alleged failure to provide a revised Approved Programme under Clause 13, a point which we do not accept. Of course the two issues are quite separate. Our submission of 10 February 2011 requires you to issue a Variation Order for the extended periods and time to the relevant dates in the terms that we submitted. Our submission provides information and substantiation in respect of the delays suffered in the terms we submitted, and any reference to clause 13 is not necessary for your assessment of it.*
>
> *Given this position and indeed the point that you have failed to assess our submission in respect of time within the period requested, we find your comment and reference to clause 13 even more curious. Accordingly, your reference to clause 13.5 and our submitted claim is not accepted.*
>
> *2. Paragraphs 4 and 5 - irrespective of any point under clause 13.5 (on which refer above), we simply do not accept that we are incapable of planning our works. That is simply wrong and we refer to our letter dated 15 February 2011 which explains the position, with your failure to assess our claim and your administration of the works making the process even more difficult.*
>
> *Finally, we deny that we are failing to proceed regularly and diligently as you allege. Indeed the suggestion that you are trying to make that any issue concerning the production of a programme, even with the points set out above is evidence of or shows that the works themselves are not progressing as may be required is untenable, irrelevant and wrong.*"

66. On 3 March 2011 Redhall wrote two letters to Aker. In the first it submitted a second claim for events between 18 December 2010 and 28 January 2011 and with the second letter it enclosed the Rev 4 Programme stating as follows:

> "*We refer to the above matter and previous correspondence in respect of programme and enclose for your approval programme revision 4 which has been produced to provide a programme (irrespective of responsibility for any delays to date) for the earliest practicable completion.*
>
> *The programme does not refer to or consider any existing or further claims for extensions of time that we are making and may be entitled to make for any delays. We also reserve our position in respect of any entitlement or instructions that may be required or requested in achieving this programme.*"

67. The version of the Rev 4 Programme enclosed with that letter was a PDF version of it rather than a version in the native Primavera PRX file. On 7 March 2011 Mr Adam of Aker wrote to Mr Gamble of Redhall saying that he had received the PDF version and asking for a PRX version.

68. There was an informal Vivergo Board Meeting by telephone conference call on 8 March 2011 and it was reported as follows:

> "*The Board supported continuing with the implementation of plans to terminate the [Redhall] contract either via Default or a negotiated termination. It appears most likely outcome will be via Default with a plan to serve the appropriate documents to terminate the Redhall contract on Friday at ~14:00 after the workforce has left site at 13:30.*"

69. On 9 March 2011 Mr Gamble sent Mr Adam a PDF programme of test pack activities and a spreadsheet showing system handback numbers.

70. On 11 March 2011 Vivergo sent the Termination Letter. It was wrongly addressed to Redhall Engineering Services Limited rather than Redhall Engineering Solutions Limited. It referred to letters from Aker dated 22 February 2011, 1 February 2011, 2 November 2010, 1 November 2010 and 8 October 2010. The reference to the letter of 22 February 2011 was, in error, to letter 108 in which Aker dealt with Redhall's claim for additional payment and extension of time rather than to letter 109 which dealt with the programme and referred to a failure to proceed regularly and diligently with the contract works.

71. The Termination Letter continued as follows:

> "*On 3 September 2010 ref 51203670/206B/CP/DR/037 the Contract Manager wrote to you giving notice that the rate of progress was likely to prejudice the construction of the Permanent Works, and required you to use best endeavours to remedy delays pursuant to clause 13.6. You were specifically reminded of your obligations under the clause 13.6 notice in Aker's letters dated 8 October 2010 ref 51203670/206B/CP/DR/047, 1st November 2010 51203670/206B/CP/DR/053 and 2 November 2010 51203670/206B/MH/DR/054.Notwithstanding these further letters, you have failed to take any steps to proceed regularly or diligently with the Works in order to achieve a satisfactory rate of progress and productivity levels have dropped rather than improved.*
>
> *The Completion Date in the Contract was 11 February 2011, extended to 27 February 2011, and the Works are only 67% complete.*
>
> *You have indicated in your letter of 15 February 2011 0616/51203670/206/DK/069 that you will not complete until "considerably later" than July 2011, which was the date you had indicated the Works would be complete by in the "Completion Plan" you refer to in that letter. A further notification that you are not proceeding regularly and diligently with the works, as contained in Aker's 22 February 2011 ref 51203670/DR/108, has not been met with any attempt*

to remedy the situation. In fact, your response has been to deny that you are failing to proceed regularly and diligently (as stated in your letter dated 1st March 2011 ref 0616/51203670/206/DK/076) and we have therefore no confidence in your ability to rectify the breach.

Programming issues and material breaches of contract

You have failed to provide an Approved Programme in accordance with clause 13.3 of the Contract notwithstanding repeated requests. These requests commenced on 27th May 2010 in Aker's letter reference 51203670/206B/JB/DR/017. Aker as Contract manager reminded you of this obligation (and the fact that you remained in breach) on 2 November 2010 ref 51203670/206B/MH/DR/054.

Aker was compelled to accept your rev 2 "Recovery Plan" as the working programme in the absence of an Approved Programme under clause 13.3 but we wish to make it clear that this did not relieve you of your original obligation under clause 13.3 or mean that your breach of this obligation was waived.

This Rev 2 programme was produced in June 2010. You have been repeatedly requested to revise this programme pursuant to clause 13.5 of the contract, in particular in the Contract Manager's requests dated 24 November 2010 ref 51203670/206B/CP/DR/079 and 22nd February 2011 ref 5120367/206B/DR/109.

Your failure to comply with the programming obligations under clause 13 are in our view material breaches of contract which have caused and/or contributed to the delay to the Completion date and your failure to proceed regularly and diligently.

Notification of Termination

In the circumstances of your continued breaches, and your failure and/or refusal to take steps to rectify these breaches, we hereby terminate your employment under the Contract pursuant to clause 43.

We require you to vacate the Site forthwith and we reserve the right to complete our Contract works using your Equipment and Contract Materials (which we are entitled to do pursuant to clause 43.3 (a)).

We also require you to deliver forthwith all Confidential Information, Documentation and technical Information you have prepared in relation to the Contract.

> *We shall notify you separately of which Contracts we require you to assign pursuant to clause 43.3(c). In an email sent by Mr Hornby to Mr Rousseau and Mr Anians at 2:50pm on Friday 11 March 2011 Mr Hornby reported that all contractors were off site and off the village that all gates were locked. It was reported that all Redhall's cards to the construction village had been blocked and all of Redhall's card for G1, the main BP gatehouse, were being blanked at that time*."

72. On 14 March 2011 Redhall wrote to Vivergo and Aker in the following terms.

> "*It is with great disappointment that we confirm that when our labour and staff arrived on site this morning they were barred and prevented from entering and gaining access to site thereby preventing us from properly carrying out and continuing with our Contract Works.*
>
> *Such actions by you are entirely unjustified and are without any legal excuse and further amount to a repudiation by Vivergo Fuels Limited of the Contract. We hereby accept that repudiation and the Contract is now brought to an end with immediate effect.*
>
> *For the avoidance of doubt, we shall bring claims against you for all loss, expense, liabilities and damages arising out of your repudiation of the Contract in due course.*"

73. It then wrote a further letter on the same date dealing with TUPE transfers and stating that it anticipated that Vivergo would either now undertake the Contract in-house or would be preparing tender documents for a new contractor.

Adjudication Proceedings

74. Redhall served a Notice of Adjudication dated 24 June 2011 which led to the nomination of an Adjudicator who accepted appointment on 30 June 2011. Redhall served its referral on 1 July 2011 and the parties exchanged submissions during July 2011 in accordance with the directions given by the Adjudicator. The issues referred to the Adjudicator concern the lawfulness of Vivergo's Notice of Termination of 11 March 2011 and whether Vivergo had repudiated the contract and Redhall had accepted that termination. In his decision of 29 July 2011 the Adjudicator came to the following conclusions:

> "*i. Vivergo did not give any valid notification for the purpose of Sub-Clause 43.2 in relation to the alleged failure of Redhall to proceed regularly and diligently with the works. Vivergo was, therefore, not entitled to terminate Redhall's employment on this ground;*
>
> *ii. The letter of 22 February, 2011 did constitute notification of a failure to provide a revised programme, as required by Sub-Clause 13.5);*

> *iii. Redhall was at the time of the giving of the notice, in breach of Sub-Clause 13.5;*
>
> *iv. Redhall's breach was "material" for the purposes of Sub-Clause 13.5;*
>
> *v. Redhall had, at the date of termination of its employment, commenced and was diligently pursuing rectification of its breach of Sub-Clause 13.5, as required by Sub-Clause 43.2;*
>
> *vi. Vivergo was, therefore not entitled to terminate Redhall's employment under Sub-Clause 43.2 on the grounds of material breach of Sub-Clause 13.5;*
>
> *vii. Redhall was not in repudiatory breach of contract as at the date of termination. Vivergo was, therefore, not entitled to terminate the Contract at Common Law;*
>
> *viii. By serving the termination Notice, Vivergo committed a repudiatory breach of contract;*
>
> *ix. By excluding Redhall's workforce from the site on 14th March 2011, Vivergo again committed a repudiatory breach of contract;*
>
> *x. That repudiatory breach of contract was accepted by Redhall by its letter of 14th March 2011.*"

75. In a subsequent decision dated 17 October 2011 the Adjudicator held that Redhall had incurred loss and damage in the sum of £697,150.00 as element of loss and damage resulting from Vivergo's repudiation of the contract.

These Proceedings

76. Vivergo commenced these proceedings on 29 September 2011 and in the Particulars of Claim served with the Claim Form sought declarations in relation to the termination. Vivergo relied on Aker's letters of 22 February 2011, alternatively 1 February 2011 and sought a declaration that a letter dated 11 March 2011 ("the Termination Letter") was a lawful notice determining Redhall's employment under the provision of clause 43 of the Contract so that the provisions of clauses 43.3 to 43.11 of the Contract would apply. In the alternative Vivergo also relies on other notices of default giving rise to a right to terminate by the Termination Letter on 11 March 2011. In the further alternative Vivergo alleges common law repudiation and acceptance by the letter dated 11 March 2011.

77. Directions were given in November 2011 leading up to the trial. Redhall served a Defence and Counterclaim on 9 December 2011. In that pleading Redhall denies that Aker gave a valid notice of default under clause 43.2 or were entitled to terminate Redhall's employment under that clause. Redhall also denies that it repudiated the Contract but rather contends that Vivergo repudiated the contract by its actions at the meeting on 3 March 2011 and/or the unlawful suspension of work

on 11 March 2011 and/or its email of 11 March 2011 at 20:19 and/or its letter of 11 March 2011 and/or its refusal to allow Redhall to attend site on 14 March 2011.

78. Redhall then pleads that it accepted that repudiation by its letter dated 14 March 2011.

79. Redhall also brings a counterclaim for an extension of time based on 17 events as follows:

Event 1 – Afternoon tea break.
Event 2 – Site bussing arrangements.
Event 3 – Site smoking policy.
Event 4 – Access lighting.
Event 5 – Unionised weather.
Event 6 – Snow.
Event 7 – Further union activity.
Event 8 – Toxic alert.
Event 9 – Waiting for permits.
Event 10 – Inadequate lay down areas.
Event 11 – Lack of access scaffolding.
Event 12 – Labour cap.
Event 13 – Purchaser Redwork, CVIs and CORs.
Event 14 – Inadequate site accommodation.
Event 15 – Late civil works/late steel erection works/late access.
Event 16–Conflicting instruction/change is in priorities/the [New York Skyline] /uncoordinated testing philosophy.
Event 17 – Disruptive effects of specific events.

80. On that basis Redhall pleaded that it was entitled to an extension of time of 158 calendar days to 28 July 2011 and an extension of time in respect of the Contract milestones as set out in Appendix 3 to the pleadings, which set out revised milestone dates as at 4 March 2011.

81. In its Reply and Defence to Counterclaim Vivergo joined issue on the termination allegation. In relation to the extension of time claim Vivergo challenged the process followed by Redhall and the particularisation of the claim. In relation to notification of claims for additional payment Vivergo contended that Redhall had not complied with clause 18 of the contract. Vivergo then dealt with each of the 17 events relied upon by Redhall and sought declarations that Redhall was entitled to an extension of time of 15 calendar days to 26 February 2011 and an extension of time to the liquidated damages milestones of 15 days. Vivergo also sought declarations concerning non-compliance by Redhall with Clause 18 of the Contract and the effect of any non-compliance. Vivergo has not pursued non-compliance with Clause 18 as a defence to extensions of time and has withdrawn that contention from the current proceedings whilst reserving its position in relation to the point in relation to claims in the future.

82. Vivergo raised a number of objections to the way in which Redhall pleaded its case and this led to Redhall serving a draft Amended Defence and Counterclaim. I gave permission to Redhall to amend its Defence and Counterclaim subject to certain conditions and amendments. That Amended Defence and Counterclaim

substantially amended the Counterclaim for an extension of time. It reduced the claim for an extension of time for Contract completion from 28 July to 6 June 2011 and sought an extension of time for each of the individual contract milestones to 30 April 2011 rather than the dates which were set out in Appendix 3 which was deleted by the amendment. Paragraphs 192A to 192D introduced an entirely new basis for the extension of time claim based upon a manhour database attached as Appendix 5 to that pleading. In response to those amendments Vivergo served an Amended Reply and Defence to Counterclaim. In that pleading Vivergo joined issue with the method adopted by Redhall in calculating the extension of time and amended its assessment of an extension of time from 15 days to 11 days, giving a completion date of 22 February 2011 rather than 26 February 2011.

83. Following the conclusion of the first week of trial, Redhall subsequently served a Rejoinder and Reply to Defence and Counterclaim. In addition Redhall served a draft Re-Amended Defence and Counterclaim in which, apart from the extensions of time for Event 6 (Snow) and Event 8 (Toxic alerts), it amended the period claimed. As a result the extension of time was further reduced from 114 to 108 calendar days changing the overall date from 6 June to 31 May 2011. In relation to each of the contract milestones an extension of time was sought to 24 April 2011 in place of 30 April 2011.

84. At the beginning of the trial I dealt with objections raised by Vivergo to the Rejoinder and to the Re-Amended Defence and Counterclaim. In respect of the Rejoinder and Reply to Defence to Counterclaim I did not permit Redhall to raise various new contentions which had not been properly pleaded previously. In paragraph 20 of that pleading Redhall, for the first time, alleged variations to the Bristol Agreement and a variation which was alleged fundamentally to alter the sequence of the Revision 3 Programme and extend the times for completion of the milestones. In addition I disallowed an amendment which Redhall sought to make to paragraph 192 B (9) in which it sought to pursue an alternative method of calculation in respect of Events 1 to 13 which put forward different periods of extension of time for the majority of Events 1 to 13, in addition to the Re-Amended primary case which Redhall was introducing by way of the Re-Amended Defence and Counterclaim. In relation to other amendments I directed that the parties should proceed on the basis that I would consider whether such amendments were to be allowed having heard the evidence and the closing submissions and having taken into account the importance of those issues and the opportunity which Vivergo had to deal with the late amendments.

Factual Evidence

85. I heard factual evidence called on behalf of Vivergo. The first witness was Mr David Rousseau, Aker's Project Director. He was involved in the Contract with Redhall from the tender stage in 2009 through to termination in March 2011 and thereafter. He provided three witness statements. In the first he dealt with the history of the Contract with Redhall from early 2010, dealing with the Bristol meetings in June 2010 and with progress up to the date of termination. He also dealt with the production of the Revision 3 and the Revision 4 programmes. He was also involved in discussion concerning the letter he sent out on 22 February 2011 and with events leading up to the Termination Letter on 11 March 2011. He also dealt with Redhall's Counterclaim for an extension of time and his assessment of their

entitlement. In his second witness statement he dealt with issues raised by Redhall as to the ability to change from an area to a system based completion. In his third witness statement he dealt with connectivity. He struck me as a competent and confident Project Manager, who, on the one hand had to deal with problems of progress in relation to Redhall's works and on the other hand had to deal with the increasing frustration of Mr Duncan Anians, who acted as Vivergo's Project Manager for the Project.

86. The second witness called by Vivergo was Mr Les Adam who had been employed by Aker since 2003 in the role of Senior Planning Engineer. He was assigned to the project in June 2009 and was involved until late 2011. He produced two witness statements. In the first witness statement he dealt with the programmes which had been produced by Redhall, his involvement in the Bristol meetings and the issue of the New York Skyline document. In his second witness statement he dealt further with commissioning, the New York Skyline document, the Redhall programmes and matters raised at the Bristol meetings. He was asked further questions on planning and programming during his oral evidence.

87. The third witness was Mr John Hornby who was involved full time on the Project from January 2010 until April 2012, with responsibility of managing all site construction activities being carried out by the various contractors, including Redhall. In his witness statement and in oral evidence he dealt with progress by Redhall and the various events which Redhall relied on as giving rise to an entitlement to extension of time.

88. The next witness was Mr Duncan Anians who was employed as Project Director by Vivergo. He joined Vivergo in February 2010 and in his witness statement and oral evidence, he dealt with Redhall's progress and the problems encountered leading up to Vivergo's decision to terminate the Contract with Redhall.

89. Mr Peter Clark was the next witness. As a Commercial Manager for Aker he started working on the project on 23 May 2011, after termination of the Contract with Redhall. He had carried out an analysis of the information provided by Redhall to support their claim for an extension of time under Event 13, arising out of Redwork and CVIs. He had produced voluminous exhibits PC1 and PC2 which set out that analysis.

90. Dr David Richards was then called. He had been employed in the capacity of Managing Director of Vivergo since 1 November 2007. He provided three witness statements. One supported the application to strike out Redhall's Counterclaim and another dealt with the position on claims between Vivergo and BioCnergy or Aker. In his third witness statement he dealt with Redhall's progress and the meetings he had held with Mr Foster and Mr Jackson of Redhall in 2010 and 2011, leading up to the termination letter of 11 March 2011.

91. The next witness was Mr Gwyn Jones who is employed as an Industrial Relations Manager by Aker. He had worked as an IR Manager on the project from January 2009 through to termination and beyond. He dealt with IR issues on site and the relevant claims made by Redhall arising out of IR issues.

92. Mr Nigel Burr was then called. He was a Materials Manager employed by Aker and worked on the Project since September 2009. He had overall responsibility for Aker's material management system for the project. He explained how materials management worked and the use of the VPRM Computer Management System. He dealt with criticisms made by Mr Featherstone of Redhall and with issues in relation to material supplied for the Project.

93. Vivergo's final witness was Mr Ken Hedley who in August 2009 was invited by Aker to come out of retirement to assist in the bid preparation, issue, negotiation and award of the mechanical and piping South contract. Shortly after the Contract was awarded to Redhall he retired again but became involved just before the Bristol meetings. He remained involved and dealt with various issues arising up to termination and in relation to aspects of Redhall's Counterclaim.

94. Redhall called evidence from a number of factual witnesses. Their first witness was Mr Tony Jester, the operations director of Redhall and previously the divisional director. He had joined Redhall in October 2008 when the company he formerly worked for had been acquired by Redhall. He became involved in the Project in about March 2009. He was then involved from the tender stage through to termination and in his witness statement gave specific evidence about the Bristol Agreement and Industrial Relations as well as more general evidence about the Project.

95. Mr James Ellwood was then called. He had 30 years' experience as a planner in the oil and gas industry and was involved with the tender planning for the Project from August 2009 and then with the production of the programmes for the Project once Redhall was awarded the Contract. He was involved in planning issues during the meetings in Bristol. He then produced the Rev 3 Programme and a draft Rev 4 Programme until about mid-November 2010 when his involvement diminished and he left Redhall. He gave evidence of the progress of the programmes and of the matters which affected the programming of the Project.

96. Mr David Irving then gave evidence. He had previously worked for Aker but joined Redhall in July 2010, initially for 6 weeks while Mr Paul Herman was on holiday. He then continued as improvements manager, focusing on Redhall's performance. He dealt with issues which arose from July 2010 and in particular dealt with the impact of the New York Skyline. He referred to a new approach which he then adopted from November 2010 and he dealt with the Revision 4 programme. He dealt with issues which arose on the project up to and including termination. In his second witness statement he responded to Mr Rousseau's witness statement dealing with the interconnectivity of the systems on the Project. In a further third witness statement he responded to the third witness statement of Mr Rousseau where he also dealt with the issue of interconnectivity.

97. Mr Paul Herman was the next witness he was involved from an early stage in the pre-fabrication assembled racks (PARS) phase of the project which Redhall had been awarded on 17 December 2008 long before the tender for the South and North phases of the Project. He had some involvement in the tender process but became more involved in May 2010 when he was brought onto the project as a project manager to assist Trevor Williams. He then dealt with issues which arose in relation to the project from that date until the date of termination in March 2011. He

produced a second witness statement responding to the witness statement of Mr Peter Clark and his analysis of the CVIs and Redworks.

98. The next witness was Mr David Noble. In October 2010 he was approached by Mr Jester and asked to assist Redhall as a consultant in relation to the Project. In particular he said he was to identify and implement a commercial strategy to overcome the financial difficulties which Redhall were experiencing and he became involved from 2 November 2010 as the Project Commercial Manager. He dealt with his involvement on the project from that date up to termination. He appears to have been involved in writing many of the important letters, although claims consultants were also involved.

99. The next witness was Ian Lynch who is a chartered mechanical engineer who commenced work on the project in May 2010. He was put in charge of the piping and mechanical installation on the South side of the project from June 2010. He dealt with matters which had affected the progress on site so far as it affected the South part of the project through to termination.

100. The next witness was Mr Jeffrey House who was engaged by Redhall and joined the Project in May 2010 as Human Resources and Industrial Relations Manager. He gave evidence on the IR issues which affected the project and the involvement of Aker in dealing with those IR issues. Redhall then called Mr Douglas Bones who was involved in the tender process, commencing with the pre-tender kick off meeting held on 28 July 2009. He dealt with the calculation of manhours used to prepare the tender. He was involved at various points during the Contract and, in particular, the Bristol meeting and he dealt with Actions arising from it.

101. The next witness was Mr Phil Gamble who was brought in as Planning Engineer at the end of October 2010 when Mr Elwood was leaving. He explained his involvement in the production of the Rev 4 Programme and the work he carried out on this programme up until termination. Mr Sean Featherstone was then called. He was involved from 2009 through to termination in roles concerned with the fabrication of pipework and materials delivery to site.

102. The next witness was Mr Thomas Mansell who was engaged as the Construction Manager responsible for the North side of the Vivergo project until termination in March 2011. He gave evidence of the problems incurred by Redhall in relation to the North side of the project. Redhall's final witness was Mr David Wileman who is currently Director of Planning at Driver Consult Limited and became involved after September 2010 in producing the Manhour Database which was relied upon by Redhall to support their extension of time claim.

103. All the witnesses evidently tried to provide their honest recollections of what happened although some evidently viewed the position from the perspective of the party who they represented. Equally some people felt more exposed than others. I have therefore had to assess the evidence taking account of these factors.

Expert Evidence

104. Permission was given to call expert evidence from an expert programmer/planner. I gave directions for the experts to meet to discuss questions of principle as to delay

and disruption, the use of any common program and the existence and use of common factual information in assessing delay and disruption. I asked that the experts should produce a statement setting out the extent to which they had agreed such matters. The purpose of such directions was to ensure that, at the outset, the experts can discuss and seek to agree principles for establishing delay and disruption, whether a common programme can be agreed as the base programme and to ensure that each expert is aware of what factual evidence might be relied upon by the other expert. In this way the court seeks to ensure, that, so far as possible, the experts approach their task using common principles, a common programme and common factual evidence or where those matters are not agreed, it makes sure that each expert is aware of the approach of the other expert.

105. Vivergo relied on expert evidence from Mr Garry Crossley, a Managing Director in the Global Construction Practice of Navigant Consulting in Asia. Mr Crossley is a member of the Royal Institution of Chartered Surveyors with degrees in quantity surveying and in law and an MBA in construction and real estate. He has over 24 years of experience and has been appointed as expert advisor and expert witness in relation to a number of international and domestic arbitration and court cases.

106. Redhall instructed Mr Gerry McCaffrey a Director of Acutus. Mr McCaffrey is a Chartered Engineer and Chartered Builder with degrees in Civil Engineering and in Construction Law. He is a fellow of the Institution of Civil Engineers, the Chartered Institute of Arbitrators and the Chartered Institute of Building. He has some 31 years' experience and since 1990 has worked in planning roles and roles in project management. He has been appointed as expert witness or expert assessor in a number of international and domestic cases.

107. Mr Crossley and Mr McCaffrey met and produced two joint statements. When the experts met there was already in existence a delay analysis carried out by Driver on behalf of Redhall. That delay analysis formed Appendix 1 to Redhall's claim submitted in February 2011. As explained in paragraph 4.4 of Driver's report they used a "windows" form of analysis in which they sought to identify the actual period of delay in each area than "*by slicing each area into short periods or 'windows' contemporary records and other evidence is used to determine the cause[s] of the actual delay.*" At paragraph 4.6 Driver stated: "*The actual period[s] of delay from each window which are attributable to matters outwith the Contractor's control will be collated for each area and form the basis of the Contractor's claim for extension[s] of time.*"

108. The conclusions of the delay analysis then set out in table 04 attached to Driver's delay analysis. When Redhall submitted their second claim on 3 March 2011 they provided an updated table. That table was then further amended and in that amended form was included as Appendix 3 to the original Defence and Counterclaim. When Mr Crossley and Mr McCaffrey met to discuss matters as the court had directed they therefore had the Driver analysis, which they referred to as Redhall's Window Analysis, as the delay analysis on which the claim in the Defence and Counterclaim had been based.

109. In their first joint statement Mr Crossley and Mr McCaffrey reached a number of agreements as follows:

1) That Redhall's Window Analysis cannot be regarded as a precise form of analysis for the purposes of assessing the extent of delay to the progress of the works. Mr McCaffrey referred to the reasons for this which he set out at paragraph 4.16 of the joint statement (para 2.1).

2) That a reliable and reasonably robust form of analysis for the purposes of assessing the extent of delay to the progress of the works cannot be established solely by adherence to critical path methodologies. The usefulness of logic linked "critical path" planning techniques on a dispute of this nature is very limited and is inappropriate. By its nature, it is a resource-driven project and consequently the degree of logic-links required sharply reduces in comparison to, say, construction projects. The word "solely" represented Mr Crossley's view but not Mr McCaffrey's view (para 2.2).

3) That the primary focus of their analysis should be to establish how Redhall's resources were directed, managed and how their work was prioritised. It should also focus upon establishing the levels of productivity achieved and the causes of reduced productivity where such reduction is material (para2.3).

4) That reduced productivity can cause delay to completion date(s) (regardless of whether such date(s) are sectional completions, area completions or overall project completion dates) unless the time lost caused by productivity losses is recovered by (a) additional resources being deployed, (b) existing resources being redeployed or (c) subsequent increases in productivity (para 2.4)).

110. The experts identified the Rev 3 Programme and the Rev 4 Programme as being common programmes for various purposes, with the previous programmes (Rev 2A, Rev 2, Rev 1 and Rev 0) being relevant to explain the background of the Rev 3 Programme (paras 3.1 to 3.3).

111. The experts identified that Redhall's Delay Analysis was supported by the Manhours Database and agreed that the Manhours Database would be relevant to their assessment of delay and disruption (paras 4.8 and 4.10).

112. The experts agreed that Redhall's Window Analysis was an estimate of delay as it was not possible to ascertain from it with precision actual critical delay for reasons discussed in section 2 and in paragraph 4.16 of the joint statement. If the steps taken by Redhall in reaching its estimated findings of actual delay were not reasonable both experts agreed that the analysis could not be regarded as reliable and further corroboration for the purposes of assessing the extent of delay to the progress of the works would be required. The reference to paragraph 4.16 being Mr McCaffrey's view and not Mr Crossley's (para 4.14).

113. Mr McCaffrey stated that he considered that theoretical estimates of delay were necessary because if, for instance, the smoking claim, the access lighting claim, the afternoon tea break claim and the claim that Vivergo prevented or impeded Redhall from negotiating with the union were upheld it would be impossible to record loss in production or loss in productivity (para 4.16).

114. The experts agreed that the window analysis was, in part, theoretical (para 4.15).

115. The experts agreed that any determination of the actual extent of non-productive time should be made by reference to the Manhour Database and the contemporaneous documents. Mr McCaffrey added that, if reasonable to do so, further evidence can be developed with the assumptions stated in order to substantiate matters which were not actually recorded at the time of their occurrence (para 4.16).

116. As stated above the basis of Redhall's extension of time claim changed in August 2011. Redhall no longer relied upon the Driver method of analysis in its later delay analysis but on a method of analysis which had been carried out by Mr McCaffrey.

117. Both experts produced expert reports and Mr McCaffrey served a supplemental report in which he dealt with matters raised in Vivergo's opening and in Mr Crossley's report. He also made adjustments to the extension of time calculation set out in his report and this led to the need for Redhall to Re-Amend its Defence and Counterclaim. In order to address the evidence produced by Mr McCaffrey a supplemental report was produced by Mr Crossley.

118. From this it can be seen that the expert evidence in this case developed, in particular during the course of the hearing. I have generally preferred the evidence of Mr Crossley particularly on programming matters and found his evidence the more helpful. In relation to extensions of time I regret that Mr McCaffrey's evidence was unsatisfactory, as I have set out when considering that aspect.

The issues in this case

119. Whilst the main issues relate to the termination and focus on the position in February and March 2011, it is necessary to resolve the other issues between the parties as to the Bristol Agreement and as to Redhall's entitlement to an extension of time and performance before I can properly deal with those termination issues.

The Bristol Agreement

120. There is a degree of common ground between the parties as to what was agreed as part of the Bristol Agreement. There is no dispute that there was agreement as to the matters set out on the first two pages of the typed document drawn up by Mr Hedley and Mr Bones which was signed by Mr Rousseau and Mr Bones on 18 June 2010. The matters on these two pages were then later transferred into the draft Contract Amendment No 1 which was sent by Aker to Redhall but Redhall at the time refused to sign it.

121. What is not agreed is whether the matters listed as "[Redhall] Actions", "Aker Actions" and "Joint Actions" also form part of the Bristol Agreement. It is therefore necessary for me to consider what was agreed in relation to those "Actions" and whether, as alleged by Redhall, they give rise to obligations on behalf of Aker and/or Vivergo which formed the basis various claims made by Redhall for extensions of time.

122. I heard evidence from a number of witnesses who were present during the discussion in Bristol from 15 to 18 June 2010: Mr Rousseau and Mr Hedley of Aker, Mr Anians of Vivergo and Mr Jester and Mr Bones of Redhall. Mr Jester was

not present for the whole period and Mr Herman joined the discussion on 16 June 2010. The planners, Mr Adam and Mr Elwood attended to work on a revised programme a Vivergo planner Mr McIntosh was also there.

123. Whilst it is not quite clear who was present at the session where "actions were discussed" it seems to be common ground that a flip chart or NOBO Pad was used to record various matters which came out of a "brainstorm session".

124. At paragraph 77 of his statement Mr Bones said "*we were doing what I would call a 'white boarding' exercise: having put our various lists of issues together separately we were brainstorming them out and then agreeing what each of us would do to solve the problems if we agreed that they were problems.*" In relation to the tea break he said that Aker were "fairly confident" that it could achieve it and the position was that, for all Aker Actions, Aker said it would go away and see if it was possible to arrange it.

125. Mr Rousseau in paragraphs 58 and 59 of his first witness statement said it was agreed that all parties should list what they considered to be the major problems that were impacting on successful delivery of the project. He said:

> "*this was a very open brain-storming session. If any party perceived that something was an issue, it was noted down on a flip chart. ... These items were aspirational. They were things that the parties in the room felt that, if we could affect them, may assist in project execution. Not everybody in the room held the same view regarding the potential impact of the identified items, but in the spirit of open discussion/brain storming all items were noted down. Everyone also knew in my opinion that they could not be firm commitments as they were dependant in some cases on the agreement of third parties, (in particular the Trade Unions, and in some cases were so vague as to be totally incapable of recording any kind of commitment.*"

126. Mr Anians said at paragraph 80 of his witness statement:

> "*I can best describe this discussion forum as a joint "brainstorming session", during which all parties put forward a 'shopping list' of ideas that they considered might assist Redhall in performing their obligations under the Contract. It is important to make it very clear that the ideas that were floated during the open discussion forum were not binding on the parties in any way, and in many cases could not possible have been binding on the parties even if they had intended them to be. It was my belief that all the parties understood this.*"

127. After the meeting Mr Hedley and Mr Bones drew up the 5 page document which was then signed by Mr Rousseau and Mr Bones on 18 June 2010. Mr Rousseau then sent an email to Mr Herman on 24 June 2010 with a PowerPoint presentation dated 22 June 2010 with the title "Actions/Agreements Arising from Meetings with Redhall in Bristol during w.c.14th June." He listed a number of bullet points under "Key Agreements". These included "Organisational changes", "Changes to working

arrangements/Team alignment" as well as "Revised programme (under-pinned by additional working hours off-site fabrication shops" and "Contractual changes". He listed various "Organisational Changes" and "Revised working arrangements/Team alignment" such as "changes to working patterns breaks/smoking policy etc."

128. Redhall submits that the parties agreed that the three pages of actions would be implemented as part of the Bristol Agreement. It says that at the end of the meetings the five page document was produced and signed by the parties showing agreement to all the matters on those five pages and not just those on the first two pages. Redhall says that this was consistent with Mr Rousseau's subsequent PowerPoint presentation which he sent to Mr Herman on 22 June 2010 which, it says, put the Aker Actions forward in terms of mandatory language. It also points to Mr Rousseau's evidence where he said that matters had been agreed with a little "a".

129. Vivergo submits that the three pages of Actions were the result of a brainstorming session and they were not intended to be final and binding obligations by either side. It relies on the evidence of Mr Bones to show that, certainly with issues such as tea breaks and smoking, Aker went away to see what it could achieve.

130. I have come to the conclusion that Vivergo is correct in their interpretation of what happened at the meeting where matters were set out on the flip chart or NOBO pad. It is evident that many of the matters listed were aspirational in the sense that problems were being raised by someone and were being noted down with one of the parties being identified then or subsequently as being the party who might be able to do something about that problem. I do not consider that there were binding agreements which committed any party to implement the "actions" or that any of the matters which were agreed were, in some way, conditional upon a party achieving an outcome in relation to the relevant "actions".

131. It was clearly a case where the matters in the actions would assist Redhall in producing better productivity and progress and I have no doubt that the parties left the meeting expecting that they would be able to achieve some of those actions. In my judgment that explains the evidence of both Mr Rousseau and Mr Bones and also the presentation which Mr Rousseau sent to Mr Herman.

132. That, however, did not mean that if Aker did not for whatever reason achieve the "Aker Actions" then Vivergo would be in breach of the Bristol Agreement or that the Bristol Agreement, as expressed in the first two pages, would not have effect. The same was true of the "[Redhall] Actions" and the "Joint Actions". The Bristol Agreement was therefore limited to the matters on the first two pages of the document signed on 18 June 2010 and the other pages did not form a binding agreement.

Extensions of Time

133. Redhall submitted their first claim which included an extension of time claim on 10 February 2011 in which they made a claim for extensions of time for matters up to and including 17 December 2010. Aker made a decision on Redhall's claim on 10 March 2011. In that document Aker made an award of an extension of time of 16 days calculated as 3.65 days for the afternoon clocking-off time (site bussing), 7.33 days for December snow, 0.6 days for toxic alarms, 0.2 days waiting for permits. To

this total figure of 11.87 days which they rounded up to 12 working days they added 4 days for weekends to give a total extension of time of 16 days.

134. Redhall submitted a second claim in March 2011 and then in these proceedings initially pursued a claim based on the critical path methodology which had been used in those claims. Redhall then changed its approach doubtless because, as is common ground between the experts in this case, the use of critical path analysis is not really an appropriate way of analysing this type of bulk build project. Redhall made a number of major changes to its case, first to introduce a new basis for the extension of time analysis and secondly to introduce a concept of connectivity which essentially was an explanation of what Redhall said was a complexity in the analysis caused by systems going beyond the boundaries of areas. This was also related to extensions of time for milestone dates. That caused a great deal of further evidence which, for present purposes I need not go into because in Redhall's closing submissions this was no longer relied on.

135. The extension of time claim as finally pursued at the hearing was largely formulated and was supported by Mr McCaffrey. I regret to say that his method of analysis became more and more complex and in his oral evidence he was unable to explain in a coherent sense how his evidence could be used effectively if matters were found to differ from his assumptions. I had the clear impression that he had become lost in a forest of analysis and figures and so had lost sight of the object of the exercise which was to assist the court to assess an extension of time. In its closing submissions Redhall decided, sensibly, that it was not in a position to pursue some of its extension of time claims, as finally formulated. The position was clearly unsatisfactory. I now, though, deal with the remaining parts of the extension of time claim.

Event 1: Afternoon tea break

136. Within the engineering construction industry trade unions and employers have established agreements which set out the terms and conditions on which operatives are employed by contractors on engineering construction sites. At the time of the Project the relevant agreement was the National Agreement for the Engineering Construction Industry ("NAECI"). On this particular project there was also a supplementary project agreement ("SPA") which set out certain additional terms and conditions for the employment of operatives on the Project.

137. Clauses 7.1 and 7.5 of NAECI dealt with the basic working week and meal break and refreshment times. Clause 15.1 of SPA said that the specific start and finish times would be determined to meet the requirements of the project or particular contract and might be staggered and that similarly meal and break times might be staggered in order to facilitate optimum productivity and the utilisation of any catering facilities provided. It stated that meal breaks and tea breaks would be organised in accordance with clauses 7.5(a), (b) and (c) of the NAECI.

138. Essentially, if the working day exceeded a certain length of time the relevant provisions of NAECI allowed for a further tea break. Redhall submits that a critical component of the Bristol Agreement was an agreement to move to a three-period working day and for the tea break to be dispensed with. That formed part of the "Aker Actions" which stated "three period working day with only two breaks".

139. As a result of my finding that the Bristol Agreement was not binding in relation to the Aker Actions, I do not consider that Redhall has any grounds for an extension of time for the failure to remove the afternoon tea break.

140. Clause 3.2 of SPA states that contractors awarded contracts to undertake work designated as within the scope of NAECI were required to work to the provisions of the NAECI and SPA in their entirety and such contractors were deemed to be signatories of the SPA. Whilst it can be seen from the SPA that Aker were a signatory for and on behalf of the contractors, Redhall as any other contractor on this Project was obliged to comply with the terms of NAECI and SPA. In this case that was dealt with in Paragraph 20.2 of Schedule 1 to the Contract. Thus Redhall was contractually obliged to provide such breaks in accordance with the SPA and, in particular, the NAECI.

141. At one stage Redhall contended that there was an underlying breach of NAECI and SPA by Vivergo but that was not pursued in closing. In order for there to be a change to the SPA then this would have had to be negotiated site-wide with the Project Joint Council (PJC) which contains members of the contractor organisations and the trade union organisations. It would therefore need agreement by both parties to the SPA and it seems, based on paragraph 31 of Mr Jones' witness statement that attempts were made in September 2010 to do this. Such attempts did not succeed and, as may be expected, the operatives would not have been keen to give up their tea break. In his evidence Mr Hornby expressed the attitude of the operatives as being entrenched and illustrated this by saying their attitude was "they may take our freedom, but they will never take our tea break".

142. Even if I had come to the conclusion that there was a ground for an extension of time there is some difficulty in assessing the relevant extension of time. Mr McCaffrey calculated a possible delay on the basis that 30 minutes a day was lost because of the tea break. This gave an overall number of hours from which he calculated an entitlement to an extension of time of 5.8 days. Mr Crossley's calculation based on that approach taken by Mr McCaffrey was 4.8 days. However there is evidence that the removal of the afternoon tea break would have had an effect on the length of the morning tea break together with walking time. Vivergo submit that this would mean that the maximum period attributable to the tea break would have been some 10 minutes. They also submit that the theoretical basis of calculation means that there is no evidence as to the actual delay caused by this event. In the event I have not needed to make an assessment. However I consider there is strength in the matters which are put forward by Vivergo and on the evidence before me any extension of time would have been very much less than even the 4.8 days in Mr Crossley's calculation.

Event 2: Site bussing

143. Redhall says that, in breach of paragraph 20.5 of Schedule 1 to the Contract, car parking facilities for the operatives were not provided in a suitable location. Instead, it says that buses were required to transport the operatives back to their cars parked on an off-site car park some 15 minutes away. Redhall says that the operatives were wasting time at the end of the day and were not being paid for that time. Redhall says that, as a result, it shortened the working day by agreeing a short break.

144. In the February 2011 claim at paragraph 2.3.4 Redhall calculated the programming delay associated with "loss of the time for the early clocking off" from 21 September 2010 to 17 December 2010 as 3.65 days.

145. Aker granted 3.65 days to Redhall in respect of this claim in the letter of 10 March 2011. Initially, in the Defence and Counterclaim, Redhall claimed a period of 2.23 days but in their Re-Amended Defence and Counterclaim it claimed a period of 7.1 calendar days based on a calculation made by Mr McCaffrey.

146. The overall delay caused by site bussing was agreed at 7.3 days but Vivergo says that responsibility for this should be shared between it and Redhall on the basis that it was a joint decision to make the change.

147. The matter was dealt with by Vivergo in its closing submissions at paragraphs 461 to 462. That certainly provides prima facie evidence that there was an agreement for a 50/50 sharing arrangement.

148. In this case there was a late amendment during the course of trial to put forward a calculation contained in Mr McCaffrey's expert report. I said that I would consider the extent to which those amendments would be allowed when I came to give judgment. Essentially it was too late for Vivergo to respond to Redhall's amended case in terms of factual evidence. In all the circumstances it seems to me that given the initial grant of the extension of time by Aker, the subsequent reduction in the original Defence and Counterclaim and in the Amended Defence and Counterclaim to make a claim of less than 3.65 days and the subsequent late calculation of 7.1 days, I consider that I should base the claim on the 7.3 days allowing the 50/50 sharing arrangement. In the circumstances I have come to the conclusion that, on the pleaded case and the evidence before me the appropriate extension of time for site bussing should be 3.65 days.

Event 3: Site smoking policy

149. In paragraph 6.0 of Schedule 1 to the Contract it is stated "smoking will only be permitted within designated external smoking areas." The Contract contained no other provisions as to smoking.

150. Redhall contends that, as part of the Bristol Agreement, it was agreed that Aker would "implement site-wide smoking policy enforced for all companies". Redhall says that this meant that Aker was required to implement a site-wide policy which confined cigarette breaks so that they could only be taken at official site break times. Redhall also says that on or about 21 June 2010 Aker located smoking huts within the construction site with the effect that there was greater encouragement for the workforce to smoke. It says that it was not until 4 January 2011 that Aker introduced a site-wide no smoking policy.

151. Redhall therefore seeks an extension of time. The pleaded basis for the extension of time was originally 20.79 calendar days. It was reduced to 11.1 in the Amended Defence and Counterclaim and to 9.9 days in the Re-Amended Defence and Counterclaim. In their closing submissions Redhall referred to Mr Crossley's calculation prepared on the basis of Redhall's method of calculation but applying

Mr Crossley's view of correct figures. On this basis Redhall submits that it is entitled to a minimum allowance of 4.7 calendar days.

152. Vivergo denies that there was any obligation under the Bristol Agreement and says that in any event that Vivergo and Aker had no obligation to prevent Redhall's employees from smoking outside the times when Redhall wished them to. It says that the question of when employees were permitted to take smoking breaks was a matter for Redhall to agree with individual employees. In relation to the smoking huts Vivergo accepts that they were installed but says that they were installed at Redhall's instigation as Redhall was complaining about the difficulties it was experiencing in managing the number of operatives leaving the site to smoke in the off-site smoking shacks. It says that therefore Mr Jones and Mr Hornby agreed to provide smoking shacks within the actual site so that Redhall's labour would always be within sight of Redhall's supervisors.

153. In relation to the delay caused by this event, Vivergo says there is no evidence of the actual delay caused and that all that Mr McCaffrey has done is to carry out a notional mathematical assessment and merely stated that this gives rise to a 9.9 day extension of time. It says that this has been based on 33% of the operatives smoking when the evidence of Mr Mansell and Mr Williams was that roughly 25% of the men smoked.

154. As I have stated above, Vivergo had no obligation under the Bristol Agreement to carry out those matters referred to as "Aker Actions". I do not consider that there are grounds for an extension of time based on a failure to implement a site-wide smoking policy enforced for all companies. There is, in any event, a degree of ambiguity identified in the submissions as to what the policy was to be and a site-wide smoking ban was in fact introduced in January 2011.

155. In relation to the placing of the smoking huts on site this was a change to the matters set out in paragraph 6.0 of Schedule 1 to the Contract which provided that smoking would only be permitted within designated external smoking areas. There is evidence that this change was made at Redhall's request and, indeed it is difficult see why smoking huts would be located on site by Aker/Vivergo unless, as seems likely, that had some perceived benefit for Redhall.

156. In any event, as I have found that Redhall has no claim based on the Bristol Agreement, even if I had found that the change made by providing internal smoking huts was a change which entitled Redhall to an extension of time, I do not consider that there is any evidential basis on which I could assess an extension of time for that. It would only be the additional time caused by the operatives smoking in huts on-site compared to smoking in huts off-site. Provided that Redhall's supervisors properly managed the workers, that change would be likely to reduce the time taken by the operatives on their smoking breaks.

Event 4: Access lighting

157. Redhall relies on the following provisions of Schedule 1 of the Contract:

1) At paragraph 12.8: "*The EPCm Contractor shall provide all necessary lighting to the temporary facilities.*"

1) At paragraph 16.0: "*EPCm will provide safety lighting at construction areas. Such lighting shall in no way be construed as flood lighting or lighting of the Construction Contractor's work face*"

158. Redhall therefore says that Aker/Vivergo had responsibility for providing lighting to facilitate safe access to and egress from the workface particularly in the winter months when the daylight hours were shorter. Redhall says that Aker failed to provide adequate access lighting but merely provided 3 to 4 lighting towers around the site which later increased to 10. However it says that even 10 were not sufficient as they only lit up the roads and did not light up areas inside the structures or on walkways and stairs inside the plant. Redhall says that the failure to provide lighting prevented the workforce from starting until 8:00am and meant that they had to leave site at 4:00pm, reducing the working day by 30 minutes in the morning and, after making allowance for the site bussing time, 1.58 hours in the evening.

159. Vivergo accepts that there was an obligation to provide necessary lighting to the temporary facilities and at the construction areas but says that the "temporary facilities" refer to the West village and the site village which comprised accommodation and canteen and messing facilities. It points out that Redhall had other obligations in terms of flood lighting and/or task lighting at the workface.

160. Vivergo accepts that issues arose in relation to lighting and at the site meeting on 3 November 2011 it was reported that Redhall's workforce was leaving the site early due to lighting problems in the DF area, which was under Redhall's control. Vivergo says that this situation was improved by the installation of flood lights which were Redhall's responsibility. It says that on 8 December 2010 at the monthly meeting it was agreed by both parties that there were no outstanding issues in relation to access lighting.

161. In relation to this claim Redhall has based its calculation of delay on the basis that there was regular disruption to the workers on site because of lack of access lighting. This led to Mr McCaffrey's calculation of 4.1 calendar days which reduced the claim from 13.65 and 11.1 calendar days in previous versions of the pleadings. Redhall accepts that, as Mr Crossley states, there are four CVIs in the manhour database in respect of disruption caused by insufficient access lighting. However Redhall says that this does not record all of the disruptive effect because supervisors did not always record such matters on the CVI forms. Based on regular disruption, Redhall claims that 18,000 manhours disruption was caused as a result of inadequate access lighting. In their closing submissions Redhall claims an entitlement of extension of time of "say 1.2 days" based on the CVIs.

162. Vivergo says that access lighting did not lead to any significant delay and it refers to references in the minutes of meeting which say that access lighting was acceptable or identified "a couple of marginal areas" but generally it says that no problems were reported. Vivergo says that on this basis it is erroneous to apply a constant site-wide delay caused by access lighting. It refers to the four specific CVIs recording 1793.5 hours.

163. On the basis of the evidence I consider that the CVIs provide better evidence of what happened than vague allegations of site-wide problems. On a project such as this the conversion of hours of disruption into an extension of time requires a degree

of assessment. I accept that some 1800 hours were incurred because of the failure of access lighting and, doing the best I can, assess this as giving rise to an extension of time of 1 day. I have reached this assessment by considering the manhours for snow (as corrected by Mr Crossley) and toxic alerts and the extensions granted by Aker, agreed by Vivergo and accepted to be reasonable by Mr Crossley. I have then made an assessment by converting hours to days from these figures.

Event 5: Unionised weather

164. In their closing submissions whilst Redhall set out submissions on liability caused by the way in which the trade unions dealt with the impact of periods of poor weather on their operatives, those contentions were not pursued and no extension of time is now claimed.

Event 6: Snow

165. As I have said, Aker granted an extension of time of 7.33 working days for snow. This is now the extension of time claimed by Redhall and therefore there is an extension of time of 7.33 days for snow.

Event 7: Further union activity

166. Like unionised weather there were submissions in the written closings dealing with liability but those were not pursued and no extension of time is now claimed for this event.

Event 8: Toxic alerts

167. As stated above, Aker granted an extension of time of 0.6 days for toxic alerts and this is now the sum claimed by Redhall. There is therefore an extension of time of 0.6 days for this event.

Event 9: Waiting for permits

168. In paragraph 199 of Vivergo's opening submissions it made an offer to agree an extension of time of 0.45 days in respect of this event. In paragraph 111 of Redhall's closing submissions it said that it was content to accept that offer. An extension of time of 0.45 days is therefore agreed for this event.

Event 10: Inadequate lay down area

169. This claim was no longer pursued in Redhall's closing submissions.

Event 11: Lack of access scaffolding

170. Redhall refers to paragraph 14.0 of Schedule 1 to the Contract which provides as follows:

> "*Purchaser shall supply to the Construction Contractor the services of a Common Service Provider, who shall provide the access requirements of the Construction Contract, subject to adherence to the site rules prevailing.*"

171. Redhall also relies on Section 13 of Exhibit 6 to Schedule 1 which provided at paragraph 13.1.1 as follows:

> "*All scaffolding work will be carried out by the 'Common User Provider', unless specifically stated to the contrary in the Scope of Work.*"

172. Redhall also relies on the following "Aker action" in the Bristol Agreement:

> "*Scaffolding-we [Redhall] require sufficient scaffold to meet our ongoing requirements-core crew strength plus sufficient mod squads to give us required flexibility. Working session to be arranged*"

173. Redhall says that Aker/Vivergo failed to provide it with adequate scaffolding resources either in terms of erecting new access scaffolding as and when required or making modifications to existing scaffolding as and when required. It refers to the minutes of a number of progress meetings where these matters were raised. Redhall now claims 0.7 days extension of time but previously claimed 2.47, 1.4 and 1.2 calendar days.

174. In their written closing submissions Redhall says that, for this event, the question is whether or not Aker and Vivergo honoured the Aker Action to provide better scaffolding resources contained in the Bristol Agreement.

175. Vivergo says that no obligation was agreed as part of the Bristol Agreement and that, in any event, any delay or disruption was caused by Redhall's failure to provide lookahead programmes and to provide three days' notice of its scaffolding requirements. Vivergo refers to a number of items of correspondence and says that Redhall did not raise scaffold issues when it had the opportunity to do so. Further it says that from July 2010 Redhall itself had control of the scaffolding modification squads. As a result Vivergo says that any scaffolding issues after that date arose from Redhall's poor coordination. As a result Vivergo submits that Redhall is not entitled to any extension of time and that, in any case, the court is not be in a position to make any award based on the analysis carried out by Mr McCaffrey.

176. As I have stated above, the "Aker Actions" do not give rise to enforceable obligations. Therefore I do not consider the Bristol Agreement was enforceable. Accordingly, I do not consider that Redhall can base a claim on the Bristol Agreement. Further to the extent that any claim was still pursued in respect of the underlying obligations under the contract, the supply of scaffolding require Aker to have knowledge of Redhall's programming and also to have notice of the particular scaffolding requirements. As dealt with below in relation to programme, Redhall produced no proper programmes for Aker/Vivergo to plan the scaffolding and, on the evidence before me, I do not consider that Redhall gave the necessary notice of the scaffolding requirements. Accordingly I find that Redhall are not entitled to an extension of time for this claim.

Event 12 Labour Cap

177. The Claim for an extension of time for the labour cap is only pursued now as to 0.2 working days on the basis that there were no welders. This arises out of the labour cap which Redhall says was in force from 25 August 2010 until 23 November 2010.

In the expert joint statement on events 1 to 17 this item is shown as being agreed as 0.2 days calculated by reference to the hours contained in the manhour database. Redhall submits that it is entitled to that extension as a fair and reasonable extension.

178. Vivergo submits that the evidence does not support Redhall's case that the labour cap caused it any disruption. It says that the labour cap was not an absolute prohibition on increasing labour but rather that Redhall was permitted to take on additional labour if it could demonstrate that this had a strategic rationale and it refers to the weekly progress meeting No.36. It says that this is demonstrated by the fact that as stated in that meeting Redhall were able to take on 10 platers and also as stated in Mr Herman's witness statement at paragraph 137 Redhall were able to recruit 6 welders during the period of the labour cap.

179. Further Vivergo says that on the basis the labour cap was 323 men Redhall's labour levels in the period was substantially below that level. Further it says that after the lifting of the labour cap Redhall did not increase the number of men on site. In addition Vivergo says that when the labour cap was lifted Redhall did not increase the number of men on site and if anything the evidence showed that Redhall had higher productivity when it had fewer men on site.

180. Vivergo therefore submits that no extension of time is due and that the experts' joint statement indicates a period of 0.2 calendar days. I note from Mr Crossley's expert report at paragraph 4.14.15 that the figure of 0.2 calendar days is the result of his calculation of lost manhours adopting Redhall's approach to the claim. The basis of Redhall's claim is that it has looked at manhours lost by reference to the manhours database where such manhours are coded as "Redwork no welders". The general evidence in this case does not support Redhall's claim that the labour cap was the cause of delay. The fact that there were no welders, on the basis of Redhall's original claim in the period from 21 June 2010 to 26 January 2011, does not support Redhall's contention that the lack of welders had anything to do with the labour cap. When that is set against the fact that the labour cap was not an absolute prohibition on increasing labour and the document show that Redhall could increase welders as shown by the exchange of emails on 16/17 November 2010 and that, in fact, it did not do so as shown by the fact that when the labour cap was lifted, the manhour database still continues to make this claim.

181. For those reasons I do not consider that Redhall have established an entitlement to an extension of time, even of the 0.2 days, which would be the maximum figure based on the man power database for the period in which the labour cap was in place.

182. Redhall no longer pursue any other claim for extension of time in respect of the labour cap.

Event 13 Redwork/CVIs

183. Redhall says that Aker/Vivergo instructed and/or required a number of changes to the contract scope of works which were recorded as Redwork or CVIs. As pleaded Redhall's case was that it was entitled to an extension of time of 2.2 calendar days for Redwork (originally pleaded at 29.71 and then as 5.4 calendar days). In respect

of CVIs Redhall seeks an extension of time of 12.3 calendar days (originally claimed as 13.19 and then as 14.5 calendar days).

184. Redhall submits that the evidence of quantum of these numerous variations is a complicated matter. The basis of Redhall's case is a list of thousands of documents produced by Redhall claiming that it carried out extra works which were provided as appendices C and D to Redhall's response to Vivergo's second request for further information. Appendix C set out examples of Redwork and appendix D set out examples of CVIs which Redhall said caused them delay and disruption.

185. Vivergo asked Mr Peter Clark, a commercial manager employed by Aker and who started working on the project in May 2011 to carry out an analysis of appendices C and D. His analysis of appendix C is some 100 pages long and his analysis of appendix D is some 400 pages long. Mr Clark has analysed each of the items of Redwork and CVIs and coded them with comments setting out his view as to whether or not the claims are justified. In relation to Redwork his conclusion was that of some 8,775 hours allocated within appendix C, approximately 5,000 hours either had not been particularised or were Redhall's responsibility. He said that of the remaining allocated hours, which appear to relate to extra work, approximately 75% either did not or should not have had a disruptive effect on Redhall's work. He also has compared the allocated hours that he has been able to check against site gate swipe cards and considers there is an over allocation by around 25%.

186. In relation to CVIs after a similar coding exercise, he came to the conclusion that of some 23,770 allocated set hours within appendix D, approximately 18,000 hours either had not been particularised or were Redhall's responsibility. He said of the remaining allocated hours which do appear to relate to extra work, he considered that those were more than allowed for by the 10% increase manning allowed by Redhall for instructed changes. Again, where he has been able to check allocated hours against site gate swipe card records, there has been an over allocation by approximately 25%.

187. However, within the Redworks and CVIs there is a code for Redwork (code 6) which Mr Clark says refers to sundry technical queries and site instructions that have been agreed by Vivergo and Aker as being genuine extra work and the hours allocated to those instances of Redwork by Redhall appear correct and in respect of a similar entry for CVIs there is a code (code 2) which Mr Clark says refers to hours spent by Redhall on CVIs that have been agreed by Vivergo/Aker as extra work and the hours that Redhall have allocated as these CVIs is also agreed. The hours allocated to those are for Redwork some 389.5 hours out of a total of 8,775.25 hours and in respect of CVIs some 4,264.75 hours out of a total of 23,771.50 hours.

188. In its closing submissions Redhall says first that Mr Clark therefore considers some 4,264 hours on CVIs and 389 hours on Redwork making a total of 4,653 hours. Redhall claims an equivalent of 25,880 hours. In addition, Redhall has identified four categories which, to some extent, were analysed in the course of evidence at the hearing. Those relate to an issue of misallocation of hours raised by Mr Clark for which there are 5,979 hours, a category of green ends CVIs for which there are 4,500 hours, a category of Victaulic CVIs for which there are 1,600 hours and bolts and butterfly valves CVIs for which there are 490 hours. Redhall invites the court to "*do the best it can with the evidence available*". It refers to the written comments

of Redhall supervisors on the CVIs and other instructions and says that the supervisors were there but they have not been called to give oral evidence. It refers to the statement and oral evidence of Mr Herman, the statement of Mr Clark and the statement of Mr Wileman who was involved in the collation of the manhour database. It says that Redhall has now allowed 10 days, although Mr McCaffrey had allowed more.

189. Vivergo says that Redhall's case on Redworks and CVIs has not been properly thought through. It says that Redhall has given no or no adequate explanation as to what the relevant changes in the scope were, who instructed them, why they were deemed to be Redwork or CVIs and/or when and how they were recorded as such and why the CVIs and/or Redwork are said to have effected progress of the works. Whilst the court directed that the parties should meet to try and narrow issue, Vivergo says that it is evident from Mr Wileman's evidence that Driver has only just commenced looking at the CVIs and Redwork claim with the necessary critical or independent eye and they were still carrying out that exercise during the trial so that the relevant evidence was not before the court. It says that none of Redhall's factual witnesses had any hand in preparing the claim in respect of CVIs and Redwork and Mr Herman had not seen or had a hand in compiling Appendices C and D to Redhall's response to the second request for further information. It says that even if the court found that there was in fact delay due to Redwork and CVIs and that the court does not have the necessary opinion evidence because of Mr McCaffrey's flawed approach to make an assessment of delay.

190. It seems to me that the starting point for Redworks and CVIs must be the extra work which Mr Clark has assessed at a total of 4,653 hours. In terms of misallocation, Redhall says that the manhour database is a record of the hours worked and should be used and so it follows that the hours disallowed on the basis of misallocation by Mr Clark should be reinstated. In relation to Redworks, Mr Clark's analysis of misallocation relates to codes 4 and 5. Code 4 is where Mr Clark has identified part extra work and part incorrect allocation and code 5 is where he considers there is incorrect allocation. Mr Clark explained these codes in his witness statement, he says that in relation to code 4 there is justification in principle for the Redwork claim but the contemporaneous records do not support the number of hours allocated to those Redwork claims by Redhall. He said this category he looked at the contemporaneous information referred to and relied upon by Redhall and checked the hours that had been by Redhall against either the actual work scope measure, day work sheets provided by Redhall or hours noted on CVIs or CORs. He said where he discovered that the hours claimed by Redhall were excessive, he corrected the excess by adjusting the hours in line with the contemporaneous records.

191. Code 5 is explained by Mr Clark on the basis that, upon review of the contemporaneous documents, it was apparent that the hours claimed by Redhall related to work that was not actually performed by Redhall, work that was actually already part of Redhall's scope and therefore not Redwork at all, work that was recorded as being completed prior to the date when Redhall's hours were claimed or instances where the hours allocated by Redhall did not match the hours shown on Redhall's own day work sheets or did not match the work scope shown on measure sheets. He explained that this differed from code 4 because there was no basis at all

for the instances of Redwork allocated to this category whereas the items in code 4 were acceptable as Redwork in principle, although the allocated hours were excessive. In relation to the CVIs, Mr Clark's evidence was that code 4 and code 6 were the equivalent part incorrect allocation and incorrect allocation codes on similar basis.

192. While Mr Wileman produced a witness statement in which he explained the basis upon which the manhour database had been produced, he did not carry out a similar exercise to that carried out by Mr Clark or provide detailed evidence in response to what Mr Clark has said. He referred to an exercise which was being carried out by Mr Clive Marshall, the person under whose supervision the manhour database had been prepared. Mr Wileman accepted that where in relation to Redwork and CVIs no description was provided though should be deducted. It was put to Mr Wileman that one of the exercises that Mr Clark carried out was to go through the items listed in the manhour database and also in the CVI and Redwork spreadsheets and compare those entries to other contemporaneous documents as such day work sheets and he found inaccuracies. Mr Wileman accepted that this was not an exercise which he or Driver had carried out, but he believed that Mr Marshall might be carrying that out at that stage.

193. On this basis I do not consider that the hours which have been eliminated from the claims for Redworks and CVIs by Mr Clark on the basis of misallocation can properly be reinstated given that it is only Mr Clark who appears to have made any attempt properly to analyse the document and compare them to other relevant records.

194. I am left with a total of 4653 hours which have been allocated by Mr Clark to extra work. The problem is whether I accept Redhall's invitation to do the best that I can on the basis of that evidence. Without knowing where and when those hours were expended, it is not possible for me to say how these hours of extra work impinged in terms of delay to the Project. Whilst I accept that this is a bulk build project so that manhours spent on extra work would mean that those manhours cannot be expended elsewhere, it is not possible, given the unsatisfactory nature of the evidence to convert that number of hours to an extension of time with any degree of certainty. However, with some reluctance, as I consider that an extension of time is appropriate, I consider I can carry out a conservative assessment and grant an extension of time of 2.2 days for this claim. I have reached this assessment by considering the manhours for snow (as corrected by Mr Crossley) and toxic alerts and the extensions granted by Aker, agreed by Vivergo and accepted to be reasonable by Mr Crossley. I have then made an assessment by converting hours to days from these figures.

Other matters

195. Redhall also relies on other matters such as green ends, Victaulic fittings and indeed replacement of bolts and asserts an entitlement to an extension of time for these matters. Given the approach which Redhall has taken to its extension of time claim and the unsatisfactory nature of the evidence linking manhours to a period of extension of time, I do not consider that I am in a position properly to assess the scope and extent of any liability for these matters or the impact in terms of delay so as properly to assess an extension of time.

Event 14: Inadequate accommodation

196. Redhall no longer seeks an extension of time for this event but it says it continues to rely on the factual evidence on the limits of accommodation as a defence to any complaints about productivity and as part of the causal chain between events causing productivity losses and lost time and the overall delay to the project.

Event 15: Late works

197. Redhall no longer pursue this as an extension of time claim and says that it was only pleaded in any event as part of event 17.

Event 16: Conflicting instructions

198. Redhall no longer pursue this as a ground for extension of time but says that it is pleaded only as part of event 17. It says that this event which includes the New York skyline is important because it remains Redhall's defence to the allegation that DET2 was critical and the failure to resource DET2 demonstrated failure to proceed regularly and diligently with the works. It says that it is also closely linked to the instruction to focus on higher priority areas. It also says it remains important as a reason why the Rev 4 Programme was not produced quickly and as a general defence to the allegation of poor productivity.

Event 17: Disruptive effects of specific events

199. Redhall says that claim 17 was pleaded and opened as a global claim which depended on the evidence of Mr McCaffrey and that the duration of 40 days pleaded for event 17 is therefore affected by his evidence. It says that the individual events in claim 17 were not pleaded as giving rise to specific periods of time.

200. Redhall says that the individual defence in claim 17, particularly the labour cap and the New York skyline remain very relevant in relation to various issues in the case. Furthermore Redhall says that if the 40 days pleaded for Event 17 are rejected the court should not therefore conclude that no claim should succeed. However in their summary in their written closing submission Redhall accepts that it cannot pursue an extension of time claim for event 17.

201. As a result, on the basis of the evidence and submissions I consider that Redhall is entitled to an extension of time of 15.23 days as follows:

Event 1: Afternoon tea break:	nil
Event 2: Site bussing:	3.65 days.
Event 3: Site smoking policy:	nil
Event 4: Access lighting:	1 day
Event 5: Unionised weather:	nil
Event 6: Snow:	7.33 days

Event 7: Further union activity:	nil
Event 8: Toxic alerts:	0.6 days
Event 9: Waiting for permits:	0.45 days
Event 10: Inadequate lay down area:	nil
Event 11: Lack of access scaffolding:	nil
Event 12: Labour Cap:	nil
Event 13: Redwork/CVIs:	2.2 days
Event 14: Inadequate accommodation:	nil
Event 15: Late works:	nil
Event 16: Conflicting instructions:	nil
Event 17: Disruptive effects of specific events:	nil
Total Extension of Time	15.23 days

202. There was and is a degree of confusion as to how this relates to working days or calendar days. As set out above, when Aker awarded the extension of time on 10 March 2011 they calculated the 3.65, 7.33, 0.6 and 0.2 days for site bussing, snow, toxic alerts and waiting for permits as being 11.78 rounded up to 12 working days and added 4 days for weekends, evidently based on a 5 day working week. In Vivergo's pleadings the extension of time was again calculated on the basis of working days, with 4 days added to give 15 calendar days based on 10.47 working days. In Redhall's pleadings they pleaded those extensions of time but sought 7.1 "calendar days" for site bussing, 7.3 "days" for snow awarded by Aker, 0.6 "calendar days" for toxic alerts and 0.45 "calendar days" for waiting for permits. In the opening submissions Vivergo put forward an extension of time to contract completion of 0.31, 7.3, 0.6 and 0.08 working days for site bussing, snow, toxic alerts and waiting for permits making 8.29, rounded up to 9 working days and added 2 days for weekends to give 11 days extension of time. It was said that the extension of time for snow and toxic alerts was agreed. An offer of 0.45 days was made for waiting for permits. In its opening, Redhall said that time for snow and toxic alerts was agreed at 7.3 "days" and 0.6 "days".

203. In Vivergo's closing submissions it was said that the extension of time was 7.3, 0.6 and 0.45 days for snow, toxic alerts and waiting for permits and the only issue was for site bussing where Redhall claimed 7.3 "days" and Vivergo said it should be 3.65 "days". In its closing submissions Redhall claimed 7.1 calendar days for site bussing, 1.2 working days for access lighting, 7.3 working days for snow, 0.6 working days for toxic alerts, 0.45 working days for waiting for permits and 10 working days for Redwork/CVIs. This led to a discussion during the oral closing submissions which also indicated a degree of confusion. In a document produced by Redhall as a clean copy of the table in the closing submissions all these days were then described as calendar days.

204. It can thus be seen that the position on whether days were calendar or working days has neither been consistent nor clear. I consider that I should look at the basis on which I have awarded extensions of time. The heads under which I have awarded extension of time were based on awards or claims which I consider are properly calculated in working days. First, I have awarded 3.65 days for site bussing which were awarded by Aker as working days. Secondly, I have awarded 1 day for access lighting whereas 1.2 working, then calendar, days were claimed. However I have based the extension of time on hours on CVIs which are working hours. Thirdly, I have awarded 7.33 days for snow which were awarded by Aker as working days. Fourthly, I have awarded 0.6 days for toxic alerts which were awarded by Aker as working days. Fifthly, I have awarded the agreed 0.45 days for waiting for permits. The type of days were not clearly specified but the original 0.08 days awarded by Aker was based on working days and logically it must relate to a working day. Finally, I have awarded 2.2 days for Redwork/CVIs whereas 10 working, then calendar, days were claimed. However I have based the extension of time on hours on Redworks/CVIs which are working hours.

205. On balance I consider that these should all be taken as working days and so days should be added to allow for weekends. The original date for completion was Friday 11 February 2011 and therefore allowing for weekends and extending the last part of the day to a full day, I consider that the appropriately extended Completion Date was Monday 7 March 2011.

206. In relation to the milestone dates in Schedule 12 to the Contract, as amended, Vivergo accepts at paragraph 463 of its Closing Submissions that the extension of time for Events 2, 6, 8 and 9 should apply to the milestone dates. It pleads in paragraph 80.2 of the Reply and Defence to Counterclaim that the milestones ought to be extended by the 15 days extension of time. This was the extension of time in calendar days based on 10.47 working days which Vivergo pleaded should be granted to the date for completion. It conceded that the same extension was due to Redhall on the basis that the relevant matters would have impacted equally on each of the milestones. In its Closing Submissions Vivergo refers to this as a concession.

207. I have made an assessment of 1 day for Event 4 (access lighting) and 2.2 days for Event 13 (Redwork/CVIs) and whilst I consider it appropriate to extend the overall period for completion for these matters, particularly given the resource based nature of the Contract, it is not possible for me to come to any conclusion as to how these would have impacted on the individual milestone dates. I therefore consider that in the case of the milestone dates the extension of time should be 12.03 working days or 16.03 calendar days, given the increases in the periods for site bussing and waiting for permits accepted by Vivergo. On this basis the milestone dates should be extended by 16.03 calendar days.

208. Before turning to consider the issue of termination, it is convenient to deal with certain issues which, together with the position on extension of time, form the necessary background to the issues arising on termination.

Priorities and the New York Skyline

209. Redhall contends significant disruption was caused to Redhall's works by changes made to the priorities to which Redhall was required to work and also as a result of

the imposition of the New York Skyline by Aker in October 2010. Redhall also contends that its productivity was significantly impacted by the issue of the New York Skyline which required it to complete test packs across a number of areas which had differing priorities.

Priorities

210. In the Contract Clause 13.1 dealt with the obligation to complete the works in the following terms:

> *"Subject to the provisions of Clause 14 (Delays), the Contractor shall complete the construction of the Permanent Works including meeting the criteria for completion of construction and takeover as set out in schedule 15 (Take over Procedures) on or before the date, or within the period , specified in Schedule 11 and shall also complete and specified section of the Permanent Works and do any other thing in the performance of the Contract on or before the dates, or within the periods Specified in the said schedule."*

211. That provision refers to Schedule 11 which provided as follows:

> "*1.0 The Time of Completion for the work shall be in accordance with the overall Project Programme*
> *……*
> *Contract completion Date 11th February 11*
>
> *2.0 Dates for planning purposes are detailed in Mechanical and Piping Project Parameters dated 3rd march 10 (South rev 4 and North Rev3) refer Schedule 11 Exhibit1*"

212. Schedule 11 Exhibit 1 contained two bar charts on which priorities for systems were identified for the South area and the North area. For the South area priority 1 systems were utilities, cooling tower, pipe rack (towers); priority 2 related to chemical storage; priority 3 related to process condensate treatment; priority 4A related to dehydration 1 (MSDH), dehydration 2 (MSDH), evaporation trains 1 and 2 (CIP distillation) and distillation and evaporation train 1 (DET1); priority 4B related to distillation and evaporation train 2 (DET2), ethanol storage and tanker loading. For the North area priority 2 consisted of DGS pelleting, drying/decanting, wheat processing, DDGS storage, WDG storage and truck loading and thin stillage and priority 3 related to slurry mixing, liquefaction and fermentation.

213. In addition the contract incorporated provisions for damages for delay. At Clause 15.1 it provided that:

> *"If the Contractor fails to complete the Permanent Works or any specified section thereof or to do any other thing in accordance with Schedule 11 (Times of completion), the Contractor shall pay the Purchaser liquidated damages as prescribed in Schedule 12, but shall have no liability to pay*

> *damages in excesses of the maximum (if any) stated in Schedule 12."*

214. This referred to Schedule 12 which contained liquidated damages for delay. That provided that, subject to a limit on liquidated damages:

Milestone	MAX LD (£k)	COMPLETION DATE
Distillation & Evaporation Train 1	£210	30/09/2010
Distillation & Evaporation Train 2	£210	31/12/2010
Evaporation &Distillation Common/CIP	£130	22/09/2010
MSDH 2	£70	08/09/2010
Piperacks &Towers	£60	30/06/2010
M & P North	£380	31/12/2010
TOTALS	£1060	

215. As part of the Bristol Agreement it was agreed that liquidated damages would be realigned to the new target schedule which was then Programme Rev 2A but became Rev 3. Programme Rev 3 showed M&P completion for DET1 with an early finish date of 12 November 2010 and M&P completion for DET2 with an early finish date of 21 January 2010. It showed M&P completion of evaporation trains 1 and 2 (CIP distillation) with an early finish date of 29 October 2010. It showed M&P completion of dehydration 2 (MSDH) with an early finish date of 5 November 2010 and M&P completion of pipe rack with an early finish date of 26 November 2010. Programme Rev 3 did not make any express reference to priority areas.

216. Redhall says that a change of priorities was made at a Sponsors' Meeting on 14 September 2010. As can be seen from the notes at that meeting there was concern at repeated slippage by Redhall against the programme and the impact on the Project and on Vivergo's business. One of the issues raised was in the following terms: *"ensuring that notwithstanding delays in any other areas that the key priorities to allow an effective start by commissioning are completed and handed over within the contract dates or asap thereafter*."

217. The following was noted as being an initial action in respect of this item:

> *"[Redhall] were advised that [Vivergo] wished them to urgently consider redeployment of resources from distillation 2 (priority 4b) to ensure all available workfaces in the priority areas were fully manned per the Contract Schedule. [Redhall] should focus their resources on the priorities 1, 2 and 3 including Pipe-racks, Towers and the Utility systems that feed 1, 2 and 3. Also separately advise the impact this will have on distillation 1 and 2."*

218. Redhall also relies on the letter dated 1 October 2010 cited above in the chronology and item 3.1 of a progress meeting on 6 October 2010 at which the following was recorded:

> *"[Aker/Vivergo] have issued a letter to [Redhall] enforcing the instruction to work on Priorities 1, 2 and 3+ utilities and towers."*

219. Redhall says that the new priorities 1, 2, 3 and utilities were slightly different from the old priorities 1, 2 and 3 in Schedule 11 to the Contract because of the addition of utilities which had been priority 4.

220. Vivergo denies that there was any instruction and relies, in any event, on Clause 24.1.3 of Schedule 1 to the Contract which states:

> *"the Construction Contractor shall follow the programme priorities stated by EPCM Contractor for timely completion of all Works on Site."*

221. Vivergo also refers to Schedule 11 showing the areas broken down into priorities 1, 2, 3, 4A and 4B. It says that Redhall therefore had an obligation to follow those programme priorities.

222. The first issue which I must consider is whether there was an instruction to change priorities.

223. On 12 September 2010 Mr McIntosh prepared a document which he circulated and was called "New Proposed Priority 03SEP.xlsx". The document was discussed internally within Vivergo but Mr Rousseau said he had not seen it. This seems consistent with the fact that Vivergo were working out what should be done and Mr Anian's comments on an email from Mr Wilks of Castrol on 9 September 2010.

224. Mr Elwood of Redhall in his witness statement referred to a meeting held with Aker on 23 September 2010 to discuss area priorities. He said that the meeting was concerned with commissioning priorities and handover and ensuring that Redhall focused on the right areas. He said he made a presentation at that meeting and that one option was to redeploy Redhall labour from areas which were non-critical for the purpose of commissioning and focus on areas which were a priority for the purpose of commissioning, with the non-critical areas running on, as he put it, "indefinitely". He said that Aker put forward priority areas 1, 2 and 3 but it was unclear what the actual work scope was involved in each of those priorities. He says that following the meeting on 23 September 2010 Redhall received an isometric priority list from Aker which represented the commissioning priorities 1, 2, 3 plus utilities and the non-priority commissioning scope.

225. Mr Rousseau's letter of 1 October 2010 was consistent with the priority areas 1, 2 and 3 and I do not consider that matters changed at the meeting on 6 October 2010.

226. On 7 October 2010 Redhall asked for a formal instruction and on 8 October he responded to that letter saying there was no need for an instruction "*to simply reiterate what you are currently obliged to complete under the contract*". In his email of 13 October 2010 Mr Rousseau wrote to Mr Kirby of Redhall saying that at the Sponsors' Meeting on 13 October 2010 Aker had advised Redhall that "labour should be focused to work on priorities 1, 2 and 3 including the pipe racks, pipe rack towers and the utility systems that feed those priority areas".

227. On 19 October 2010 Redhall wrote to Aker referring to an instruction to maximise labour allocation to priorities 1, 2 and 3 saying it gave notice of delay in the performance of their obligation and of its intention to claim additional payments associated with the instruction. Aker responded on 1 November 2010 saying that the email of 13 October 2010 was neither an instruction nor a communication giving rise to a variation under the contract. This was then challenged in Redhall's reply on 5 November 2010.

228. It is clear that in September and October 2010, given that Redhall had fallen behind in their progress with the work, both Aker and Vivergo were keen that Redhall should concentrate on the priority areas and the necessary ancillary services so that areas could be completed which would then lead to systems being completed ready for the necessary commissioning. Under the Contract Redhall had an obligation to follow the programme priorities which were set out in Schedule 11 to the Contract. Whilst the Bristol Agreement may have changed some milestone dates, it did not affect the priority areas.

229. On 23 September 2010 Mr Elwood clearly saw the importance of the contractual priorities and the need to focus resources on those priorities. Priority 1 included utilities and it may be that there was a small change in priorities by including utilities in the priority 1, 2 and 3 areas but I do not consider that this was of any real significance. Equally, given the level of resources which Redhall had on site, it would follow that if it were to give the necessary priority to areas 1, 2 and 3 it would need to use personnel who would otherwise have been deployed elsewhere.

230. In those circumstances I do not construe what happened on 14 September 2010 or in the letter of 1 October 2010 or, as seems to have been contended in correspondence, in the email of 13 October 2010 as an instruction which varied the priorities on this Contract. So far as the effect of the Bristol Agreement on priorities is concerned paragraph 93 of Mr Elwood's statement shows that priorities were an inherent part of Programme Rev 2A which was agreed at Bristol and which subsequently became the Rev 3 Programme. Further, the fact that Redhall had an obligation to follow priorities which was reinforced in September and October 2010 did not, in my judgment affect in any way Redhall's obligation to complete the work and, if it failed to complete the milestones by the relevant date to pay liquidated damages.

231. In any event, had I found that there was some change in priorities, it is difficult on the evidence and submissions to identify any disruptive effect caused by that change, particularly now that an extension of time for Event 17 is no longer pursued.

New York Skyline

232. Under paragraph 1.1 of Schedule 22 to the Contract, it was provided as follows:

> *"Construction Contractor to take cognisance of the fact and allow in his contract rates that construction will convert to System installation at 60-65% completion."*

233. This reflected the fact that at some stage during the Project Redhall would change from area to system completion. The New York Skyline was issued by Aker under

cover of 8 October 2010 both to Redhall and, without the third and fourth paragraphs which applied only to Redhall, to six other contractors. Vivergo says that when the New York Skyline was issued then, as shown in Mr McCaffrey's evidence, 6 out of 19 of the areas were more than 60% complete and also other evidence showed that, except for two systems, the systems on the New York Skyline were 60% complete at that date.

234. The New York Skyline listed over 40 systems within priorities 1 and 2 which were to be completed so that the final "walkdown" could take place before Christmas 2010. Some of those systems would have crossed into other areas which may have been in priorities 4(a) or 4(b).

235. Redhall's obligation in relation to installation of mechanical equipment and piping included an obligation to produce test packs or dossiers. These test system dossiers related both to piping and mechanical items and had to include:

> "*Highlighted P&ID and isometrics, a3 size, defining the scope of work contained in each test system dossier.*
>
> *…location of all test blinds and test spools used in testing in lieu of instruments or at test boundaries must be highlighted on the P&IDs and associated drawings, with a listing of all items.*"

236. Redhall had to complete systems which were shown on diagrams and isometrics and these had to be tested. The relationship between test packs and systems was a matter for Redhall. Redhall says that the issue of the New York Skyline and Redhall's attempts to work to the requirements in that document caused significant disruption to Redhall's productivity and progress until the New York Skyline was abandoned on 4 January 2011. It says that thereafter, although Redhall was required to devise its own approach to the prioritisation of works and handovers, it enjoyed much improved productivity as a result.

237. By 8 October 2010 a number of the areas had reached 60% completion and Redhall should therefore have been moving from an area bulk build phase to a system completion phase. Because system completion involved not only Redhall but other contractors, it was necessary to coordinate the way in which systems were finalised and tested. Redhall clearly had obligations to produce test packs which included the obligation to define systems or parts of systems within those test packs.

238. As is apparent from the letter of 8 October 2010 Aker issued the New York Skyline to identify a sequence in which Redhall could proceed to deal with system completion and testing. It dealt with priorities 1 and 2 only and showed some 40 systems in which Redhall was involved. On the evidence at the time of the issue of the New York Skyline, Redhall had only issued about half of the overall total of some 998 test packs for approval. Mr Adams says that the other contractors welcomed the New York Skyline but that Redhall appeared to be confused by it.

239. I consider that the New York Skyline sensibly indicated a process by which Redhall could achieve the "walkdown" of systems in the priority 1 and 2 categories prior to Christmas 2010 in circumstances where it was seriously in delay. It came at a time when Redhall itself was proceeding with test packs but had not provided any

sequence to Aker to show how it intended to complete the works. As the letter indicated the document was intended to assist Redhall in completion of the works. If there was confusion within Redhall then it seems it was likely to have been caused by the fact that they had not at that stage properly planned the way in which they were going to achieve system completion and testing.

240. Whilst the New York Skyline clearly defines a sequence in which the various systems were to be completed for walkdown, as stated in the covering letter of 8 October 2010, there was evidently the possibility of discussion and Redhall at the time do not appear to have had any other sequence of system completion in mind. To that extent therefore the New York Skyline communicated to Redhall a method of approach to system completion in circumstances where otherwise Redhall would have had freedom to choose how it would complete.

241. However given the tone of the covering letter, if Redhall had at that time a viable alternative programme for completion of the systems then I do not see that the New York Skyline would have been imposed on Redhall, but the matter would have had to have been discussed and I have no doubt that, as would normally happen, there would have been agreement to an amended sequence if Redhall had foreseen difficulty in carrying out the works in accordance with the sequence in the New York Skyline. In those circumstances I do not consider that the letter of 8 October 2010 enclosing the New York Skyline can be relied upon by Redhall as amounting to the imposition of the New York Skyline as a variation of the Contract.

Productivity

242. It is common ground that Redhall did not achieve planned productivity. The Rev 3 Programme was based on Redhall achieving 80% productivity. Mr McCaffrey has assessed Redhall's actual productivity at 64.23% by comparing achieved manhours with expended manhours, other than those attached to CVIs or Redworks. Vivergo says that 37% is the figure calculated by comparing achieved manhours with expended manhours (including all downtime and time spent on non-planned scope) to complete the relevant work. Vivergo also relies on a figure of 44% put forward by Mr Crossley based on the Manhour Database prior to the deduction of some 5,000 hours and assuming that Redhall does not succeed on any of the events for which liability is not conceded. This calculation also excludes the hours for CVIs and Redworks so that productivity will be lower if the hours claimed are reduced.

243. The issue between the parties is why the productivity is so much lower than planned. Vivergo relies on the lower productivity to say that Redhall was not proceeding regularly and diligently with the work up to the date of termination. In defence, Redhall says that there were reasons which caused productivity to be low and they are, essentially, matters for which Aker/Vivergo were responsible. In turn, Vivergo says that the real cause of the low productivity was Redhall's failure to resource the works, in particular the work to DET2 which was on the critical path to completion and Redhall's inadequate supervision of their workforce on the Project.

244. I shall now consider the various matters which have been raised in relation to productivity.

Industrial Relations

245. Redhall says that it suffered from Industrial Relations problems with its workforce but was unable to deal properly with the workforce because of the role of Aker in dealing with the site wide Industrial Relations problems. In particular it says that there were a number of specific issues which were encountered with the Trade Unions on the Project. Redhall says that the afternoon tea-break, site bussing and smoking were all Industrial Relations issues which were Aker Actions in the Bristol Agreement and which caused loss of productivity.

246. First, in relation to the afternoon tea-break, as Redhall says, concerted attempts were made by Aker to negotiate with the unions for the removal of the tea break but these efforts were unsuccessful because the unions strongly resisted the removal of the tea-break. This evidently affected productivity.

247. Secondly, in relation to site bussing, Redhall says that Aker made a concession to the Trade Unions in respect of the site bussing arrangements which Mr Rousseau agreed the Trade Unions had no right to. The site bussing arrangements again evidently affected productivity and Aker/Vivergo accepted there should be an extension of time which I have confirmed should be allowed at 3.65 working days.

248. Finally, in relation to site smoking Redhall says that its own company smoking policy restricted smoking to designated areas and to within authorised break times. However, it says that the fact that the men on site were able to and did leave the workface and return to the construction village outside of these times for smoking breaks caused significant disruption to the works on site. Redhall says that Aker changed smoking practices on site subsequent to the Bristol meeting, but instead of restricting smoking to break times as requested, placed smoking shelters on site, meaning that workers no longer had to leave the site to take cigarette breaks and this reduced productivity.

249. In relation to these Industrial Relations matters it has to be borne in mind that, under the Contract, Redhall had to comply with the NAECI and the SPA. There were undoubtedly great difficulties with the specific problems of tea-breaks, site bussing and site smoking. In relation to the afternoon tea-break that was part of the employment arrangements of which Redhall was aware when entering into the Contract. It was obviously sensible for Aker to try to avoid this break but the Trade Unions were adamant that they wanted to retain it. Therefore whilst I accept that the afternoon tea-break did cause lost hours and lost productivity, that was a risk which Redhall took when entering into the Contract. It explains why there was poor productivity but that was a matter for Redhall to deal with.

250. The site bussing arrangements did evidently cause a loss of productivity and this has been reflected in the extension of time awarded. So far as site smoking is concerned, the way in which Redhall's workforce took their smoking breaks was a matter for Redhall to arrange with their workforce and enforce through their supervisors. It is clear that this was a difficult task when other workforces were subject to a more liberal smoking policy. This was again, though, a matter for Redhall. In relation to the provision of on-site smoking huts, as I have stated above, I do not consider that this is a matter for which Redhall has a claim against Aker/Vivergo.

251. It follows that, with the limited exception of site bussing, for which an extension of time has been given, none of the industrial relations matters which affected productivity can be said to be the responsibility of Aker/Vivergo.

The effect of any productivity shortfall

252. Redhall in its closing written submissions at paragraph 48.1 properly accepts that on the basis that these matters had a detrimental impact on Redhall's productivity, in the ordinary circumstances, there would be no necessary link between reduced productivity and overall effect on progress and, insofar as there was a productivity shortfall, the extra workforce and resources required to maintain progress would be to the cost of Redhall. However Redhall says that, in the present case, the position is different as it could not recruit extra members of the workforce because of the combined effects of the labour cap imposed on Redhall by Vivergo in August 2010 and the subsequent lack of available accommodation on site.

The labour cap

253. Redhall complains that its ability to recruit members of the workforce was affected by a labour cap which was imposed by Vivergo between late August 2010 and late November 2010. As set out above the only effect of the labour cap quantified by Redhall was 0.2 days or about 2 hours delay for an inability to recruit welders onto the site. Any other effect was said to be unquantifiable and formed part of the disruptive items relied upon to establish the claim for an extension of time for Event 17. That claim is no longer pursued but Redhall submits that the labour cap not only impacted on Redhall's works by capping the overall number of men on site, but also by placing restrictions on the extent to which Redhall could vary the trades mix on site. Redhall relies on evidence of the disruption contained in Mr Rousseau's diary where he considered that Redhall should have been awarded an extension of time and also it says that this was the conclusion of Paul Nemec of Aker.

254. Redhall continues to rely on the labour cap as a defence to any complaints about low productivity and also as causing productivity losses and lost time leading to an overall delay to the project. The problem for Redhall is that it has never been able properly to articulate a claim based on the labour cap giving rise to a quantified claim for loss of productivity or a separate claim for an extension of time.

255. Vivergo accepts that the labour cap was in place from late August to late November 2010 but says that, as shown by the weekly progress meetings, it was not an absolute prohibition on increasing labour and that Redhall was permitted to take on additional labour if it could demonstrate that this had a strategic rationale. Vivergo points to the fact that Redhall was able to take on 10 platers and 6 welders in the period of the labour cap. Further it says that the labour cap was 323 men but that Redhall's labour levels in the period of the cap were substantially below 323 men.

256. Further Vivergo says that once the labour cap was lifted, Redhall did not increase the number of men on site and at the monthly progress meeting on 12 January 2012 stated that although the cap had been lifted*, it needed "to understand how labour can be utilised effectively before additional personnel brought to site*" It also refers to the evidence of Mr House indicating that Redhall had difficulties changing the labour mix because of what he describes as the intransigence of the unions. Vivergo

says that this indicated that if Redhall had wanted to alter the labour mix in the period when the labour cap was in place, it would have had difficulties in doing so, unrelated to any Aker/ Vivergo action.

257. Vivergo also refers to the evidence of Mr Lynch that when he had fewer men in his areas, productivity was at its highest and, in particular to his evidence that the most productive team in my area was DE2 especially over the period October/November 2010, when the labour cap was in place.

258. Whilst in principle a labour cap could have affected Redhall's ability to recruit so as to improve progress in circumstances where there was low productivity, Redhall have not been able to establish that they wished to recruit particular members of the workforce but were unable to do so because of the existence of the labour cap. Whilst Mr Rousseau and Mr Nemec clearly considered that there was or was likely to be that effect, I do not consider that Mr Rousseau's views are capable of founding a claim nor do I consider that Mr Nemec's calculation of delay has a proper foundation, given that Redhall have been unable to and have not sought to substantiate any extension of time other than 0.2 days.

259. The evidence relied on by Vivergo strongly indicates that, in fact, the labour cap did not cause the problems which might have been anticipated. In those circumstances I do not consider that Redhall's low productivity can be explained by the labour cap or that the labour cap provides any evidence that Redhall was prevented from taking steps that it would otherwise have wished to take to overcome low productivity caused by other matters such as Industrial relations and weather.

Site accommodation

260. In relation to site accommodation, Redhall says that one of the obligations upon Aker/Vivergo was to provide site accommodation but they failed to provide Redhall with adequate messing and welfare facilities so that Redhall was unable at times to increase its resources because there were insufficient welfare facilities available to accommodate extra resources.

261. Vivergo says that, as stated above in relation to the labour cap, there was no evidence that Redhall wished to recruit further members of the workforce but were prevented from doing so. Vivergo refers to Mr Bones' evidence that one of the advantages of Redhall being awarded the contract for the North side package was that Redhall would take less space and that Aker had space issues in that there was not enough office/cabin space available for additional people.

262. Whilst Redhall did state that it felt accommodation had been "an issue in the last week" at a Sponsors' Meeting on 28 July 2010 Vivergo points out that this was because Redhall were continuing to man up the site to the Rev 2 Programme rather than the Rev 2A Programme agreed in Bristol so that more workers than previously allowed for in cabin space were arriving on site. It is also noted that Aker/Vivergo ordered additional cabins which would start to arrive in one to two weeks and it was agreed that there were no issues with cabins on the day of the meeting. Mr Herman was not sure when the cabins arrived but said that there were cabins to bring the men to in mid-August. It was also noted that Aker and Redhall needed to work jointly to address the issues and avoid a further influx of resources.

263. Vivergo also says that there was an important link between the provision of accommodation and the need for a programme so that Aker/Vivergo knew when Redhall would need additional cabins which were a finite resource and needed to be blast proof so took time to order. Vivergo says that Aker did not know of Redhall's accommodation needs sufficiently in advance. It relies on what Mr McIntosh said after receipt of an unofficial programme from Redhall and what was said at a monthly meeting in February 2011 as demonstrating the need for programming information from Redhall.

264. Vivergo also relies on what Mr Rousseau said in evidence about the site messing facilities provided to Redhall being adequate for their needs and that he was not aware of any serious disruption being caused to Redhall as a result of not having enough accommodation for their men.

265. There is no proper evidence from Redhall in relation to any times when it wanted to recruit labour but could not do so because of a lack of accommodation. No specific delay is pleaded as having arisen out of the lack of site accommodation but rather a general and unparticularised claim is made. Originally this formed a claim for an extension of time under Event 15 and was part of the Even 17 general disruption claim.

266. I do not consider that Redhall has established that any lack of adequate site accommodation caused low productivity or prevented it from recruiting labour when it wanted to. If there were some periods when there were accommodation shortages then they seem to have been limited and, in circumstances where Redhall was not properly programming the work, it would have been impossible to make sudden changes in the blast proof site accommodation.

Other matters

267. Redhall also refer to scope growth, winter working, scaffolding and other contractors affecting productivity. I have dealt with the claim for snow, scaffolding and Redworks/CVIs but otherwise I do not consider that on the evidence and submissions Redhall have established that lack of productivity was caused by matters for which Aker/Vivergo were responsible.

Overall summary on productivity

268. With the exception of the lack of productivity caused by the site bussing issue snow and Redworks/CVIs, for which I have granted an extension of time, I do not consider that Redhall has established any reason for its lack of productivity. Nor do I consider that the labour cap or site accommodation either caused a lack of productivity or was a reason why Redhall could not make up for the lack of productivity by increasing the workforce.

269. It is evident from a comparison of the Rev 3 Programme productivity of 0.8 and the productivity actually achieved that Redhall's productivity was not sufficient and was probably about half of the programmed productivity.

Supervision

270. Vivergo says that Redhall's supervisors were inexperienced, were not up to the task and did not devote sufficient time to directly driving progress of the workforce activities. It says that management information on the priorities and the expected work schedule was non-existent.

271. Vivergo relies on the views of Mr Hornby in an email on 11 June 2010 to Mr Rousseau and Mr Anians in which he said he had raised a concern some time earlier about the Supervisor/Tradesman relationship. In particular he said that workers could be a supervisor on one job and back "on the tools" for the next. He said that half of Redhall's supervisors did not want to be supervisors and the "bears" were "making the most of it." Vivergo also relies on Mr Anians' evidence that around two-thirds of the 40 plus supervisors provided by Redhall were undertaking supervisory roles for the first time.

272. Mr Hornby also dealt with inadequacies in management and supervision. He noted that the project was located in Humberside, an area of high unemployment with a poor track record in IR matters, and he said it was important that Redhall's workforce should be properly supervised and disciplined. Mr Hornby said that the supervisors were supervising eight men, on average, which he thought they should be able to manage.

273. Vivergo also refers to Mr Jones' evidence in relation to Redhall managing and controlling its workforce. He said that Redhall did little to correct frequent issues such as men leaving the job early or men arriving at the workface late or men not being fully occupied while they were on site. He noted that during the period from September 2010 to March 2011 only 24 disciplinary warnings were recorded by Redhall. Vivergo also refers to Mr House's evidence that only one or two Redhall employees had been dismissed from the site and that he did not have records of the extensive disciplinary action that he said he had carried out during the works.

274. Vivergo refers to a presentation on 4 August 2010 at which Mr Kirby acknowledged that around 30% of supervisors were of poor quality and said that if he had been on the site from the outset they would not have been given supervisory positions. He said that this ineffective supervision had a *"significant impact on [Redhall]'s progress and productivity on site",* which was a concern regularly raised with Redhall. He said he regularly observed Redhall workers congregating at turnstiles as early as 30 minutes before the end of the working day, and as early as 15 minutes before their lunch and tea breaks.

275. Vivergo also relies on Dr Richards' evidence that he arranged site visits with Redhall's CEO and that during one of those visits in July 2010 with Simon Foster, large numbers of Redhall workers were stood around with break times not being adhered to. He said that when he toured the site again in August 2010, the position was the same and on 24 January 2011, he visited the site and saw large numbers of Redhall workers doing absolutely nothing, and there seemed to be a complete lack of supervisors exerting any control or influence on site. He said he saw Redhall workers standing around the distillation areas in groups of ten, chatting and not performing any work at all and at 4.50pm he saw that Redhall's workers were starting to queue at the turnstiles to get off site when the finishing time was 5.30pm. He said that there did not seem to be any attempt by Redhall's supervisors to get the workforce back to work or to discipline them.

276. Vivergo also refers to the following contemporaneous records:

(1) On Sunday 16 January 2011, it was recorded in a document attached to Aker's letter of 21 January 2011 that Aker personnel walked around the site and noted that, between 11:00 and 12:00noon, 66 Redhall employees were simply standing around doing no work and this was reflected in site tours between 8.30am and 9.30am. Further, it states that tools were being packed away at 2.45pm.

(2) On 24 January 2011, as recorded in Aker's letter to Redhall dated 26 January 2011, Vivergo's management toured the site and noted that at 4.00pm there were large groups of workers from all contractors apparently standing around the area, with very little, if any, supervision being observed.

(3) On 8 February 2011, Redhall stated that it was concerned about labour deployment and productivity but that the problem was site wide and not just confined to it, being a combination of *"the afternoon break, the walking time, the lighting and guys just generally not wanting to do work for the last hour"*.

277. Vivergo says that Redhall's supervisors spent an average of 33% less time on the site than the operatives, as evidenced by gate data and that the supervisors' average day was only 4.14 hours compared with 6.3 for the operatives who were supposed to be working a 9.2 hour day, as shown on a graph produced from the data. Vivergo says that this analysis demonstrates that the management/supervisors were not visible at various times of the day and that the workers were unsupervised for half of the intended working day of 9.2 hours. Vivergo says that this might explain why the average working day was generally only 6.5 hours for the non-supervisory workers.

278. Vivergo also refers to an exchange between Mr Hornby and Mr Irving on 11 August 2010 in which Mr Hornby suggested to Mr Irving, who agreed, that one problem was that the supervisors did not go out on Site before 08.00am at the earliest whilst the men are all in the village before 07.15am. Vivergo says that the impact of this lax discipline is shown in an internal Redhall email exchange on 6 July 2010 from Mr Smith asking how low productivity can be addressed and Mr Herman replying that proper discipline and supervision should have sorted it out.

279. Redhall accepts that supervision is important, but says that supervision has to be looked at in the context of a very difficult site and contends that there is no satisfactory case that the supervisors were poor. Redhall says that Vivergo has pleaded that the supervisors were not on site as often as they should have been and it supports that contention with some statistics and a graph. It says that whilst Mr Crossley has quoted the pleading, he speculates about the origin of the figures but appears to have undertaken no investigation of his own, so that Vivergo's case is not supported by any expert evidence.

280. Redhall refers to the evidence of the witnesses who were on site and who said that the supervisors had to leave site frequently to carry out those duties which required their presence at the site offices, which were in the site village. It says that this is the only evidence and that the statistics, if true, are therefore meaningless. Redhall says that those witnesses included the overall site manager, Mr Herman, and the manager of the North side, Mr Mansell, and the South Side, Mr Lynch and that they all spoke

up for the Redhall supervisors, although they recognised that this was a difficult site. Redhall says that Vivergo's case on supervision is ultimately based on the proposition that good supervision might have resulted in better productivity from the men and that the trade unions blamed Redhall management when challenged about poor performance. In fact Redhall says that Industrial Relation issues were always one of the greatest risks on the Project.

281. Redhall points out that many of their supervisors were hired again after termination and when Aker were asked to name incompetent or unsuitable supervisors, they refused to do so.

282. On the evidence it is clear that there were serious Industrial Relations issues on the site and that the workforce were difficult to deal with. In those circumstances whilst some and perhaps in certain areas some significant improvement in productivity could have been achieved by better management and supervision, many of the issues which caused low productivity would not have been resolved merely by better management or supervision.

283. On analysis I am not persuaded that, on its own, the evidence of inadequate supervision could found a separate ground for establishing that Redhall was not proceeding regularly and diligently. There was undoubtedly some poor supervision and I consider that the workforce on this site required supervision for a greater period of the working day than the analysis of the data would suggest there was. I therefore treat this evidence as providing further support for Vivergo's case that the low productivity achieved by Redhall was something caused by matters for which Redhall was responsible.

Programming

284. Vivergo says that Redhall's programming obligations were a fundamental part of the Contract. It says that Aker/Vivergo needed to know what Redhall intended to do when so that they could check that Redhall's works had been planned properly, confirm that there was regular and diligent progress, know where Redhall was in respect of completion dates, know whether and when other contractors trades would be required and know when commissioning could start. Vivergo submits that Redhall failed to submit a revised programme when it was contractually obliged to do so but only produced a Rev 4 Programme for approval on 3 March 2011.

285. Vivergo says that four months passed and that Redhall gave Aker/Vivergo no reason why it was not producing that programme nor was there any internal documentation explaining why it was not produced. Vivergo says that Redhall had a Rev 4 Programme ready for review in or around November 2010 but that despite the fact that Aker/Vivergo were pressing Redhall to produce the Rev 4 Programme, Redhall did not make any attempt to provide a Rev 4 Programme for approval until 3 March 2011.

286. Vivergo relies on Mr Crossley's evidence that it should have taken Redhall no longer than 30 days to produce the revised programme and points to the fact that under Clause 13.3 of the Contract an initial programme had to be submitted within 30 days and so Redhall ought to have been able to submit a revised programme within this period, that is before the end of December 2010. It says that nowhere in

the meetings or correspondence or in internal documents did Redhall provide any justification for not being able to produce the Rev 4 Programme. Rather Vivergo says that the internal documents show that the reason Redhall did not submit the Rev 4 Programme and the reason it did not tell Vivergo why it was not submitting the Rev 4 Programme was that it saw the Rev 4 Programme as a means of exerting commercial pressure on Vivergo.

287. Vivergo refers to Redhall's case that it failed to submit a revised programme in the period November 2010 to March 2011 because of a lack of any commissioning plan from Aker/Vivergo or confusion caused by the introduction of the New York Skyline and/or an instruction to work to changed priorities. Vivergo says that the lack of a commissioning plan cannot be a reason, as Redhall managed to produce a Rev 3 Programme without such a programme. Further Vivergo refers to the fact that during January, February and March 2011 Redhall did not say that this was the reason. In relation to the New York Skyline and changed priorities, Vivergo submits that Redhall's reliance on the NYS is misconceived as it was simply a tool or guide showing Redhall the systems to focus on and to complete before Christmas 2010. Further it says that as it only went up to Christmas 2010, it should not have caused Redhall to make any fundamental changes to its planning.

288. Redhall accepts that by 24 November 2010 when Aker wrote its letter, it was entitled as the Contract Manager to call for a revised programme. Redhall says that it then took Redhall 10 days until 2 December 2010 to provide a draft programme based on NYS and that this programme was then considered up to 15 December 2010, followed by the Christmas holiday up to 4 January 2011 when a further draft programme based on NYS was produced which was discussed at a meeting on that date at which criticisms of draft programme were given to Mr Gamble. On 12 January 2011 Mr Gamble began his own, more detailed Rev 4 Programme in Primavera, in a file called VF01, as explained in his witness statement at paragraph 37.

289. On 10 February 2011 Redhall says that a single front sheet of the information in VF01 was handed over to Aker/Vivergo and on 3 March 2011 a pdf version of VF01 was sent to Aker/Vivergo. Redhall says that the only long delay was in the period from 12 January 2011 to 3 March 2011, some 7 weeks, during which Mr Gamble developed his own more detailed Rev 4 Programme. Redhall says that Mr Gamble's evidence was that he did a great deal of work and worked very hard throughout that period, and it had to be done by him.

290. Redhall says, in relation to the time taken to prepare the Rev 4 Programme that if Vivergo had wanted a level 3 programme which did not contain much extra work and could be turned round quickly, then it had the two programmes produced by Mr Elwood on 2 December 2010 and 4 January 2011 but Aker/Vivergo were critical of both of them. Vivergo could simply have indicated that one or other of those two programmes was acceptable so that it could be submitted formally.

291. Redhall says that Vivergo wanted something more and producing it took the 7 weeks from 12 January 2011 to 3 March 2011. It relies on Mr Gamble's evidence of what he did to produce it. It had more than 13,000 activities and broke the work into testpacks, with individual priorities. He said that it was used as the basis for weekly lookaheads which identified individual isometrics and testing activities.

292. Redhall also says that another reason for the delay in producing the Rev 4 Programme related to the need for Mr Gamble to begin the Rev 4 Programme again when the NYS was abandoned. Redhall says that the process of preparing a programme for area build would be different from a programme to comply with the New York Skyline approach. Redhall also says that a commissioning plan to complete the Rev 4 Programme was necessary and that, contrary to what Vivergo contends, the contemporary Redhall documents do contain evidence that a commissioning plan was needed and that the New York Skyline was a problem.

293. In relation to Mr Crossley's view that it should not have taken longer than 30 days to prepare the Rev 4 Programme, Redhall relies on Mr Gamble's evidence about the task of extracting the information and importing it into the Primavera schedule which he described as a "colossal undertaking".

294. It is first necessary to consider the chronology in relation to programmes on this Project.

295. Following the Bristol Agreement the Rev 3 Programme was the Approved Programme from 16 August 2010. It showed completion by 11 February 2011, in accordance with Schedule 11 to the Contract.

296. At the Sponsors' Meeting on 25 August 2010 Redhall reported that progress had fallen behind the Rev 3 Programme. On 3 September 2010 Aker issued Redhall with a Clause 13.6 notice warning it as to its rate of progress.

297. In an email dated 10 September 2010 from Mr Anians to Mr McIntosh he was asking for a Rev 3 Programme which showed where Redhall were ahead of or behind each activity together with the number of men working where. He said that this was important for the next Sponsors' Meeting as if Redhall wanted to bring in more labour it would have to demonstrate that it was working in the right areas and to the right priorities.

298. By 29 September 2010, the Rev 3 Programme was, Mr Elwood accepted, "non-workable" and he said that it was very unusual to proceed without a monthly update of the programme. An updated version of the Rev 3 Programme was produced following a request from Vivergo on 15 October 2010. This showed that Redhall had fallen behind the Rev 3 Programme completion date by some 108 days.

299. On 3 November 2010 Redhall stated at a progress meeting that it was producing a Rev 4 Programme and at the progress meeting on 17 November 2010 it stated that the Rev 4 Programme was to be issued to Aker for review.

300. On 24 November 2010 Aker wrote formally to Redhall and requested a revised Programme. It said that the dates in the Approved Rev 3 Programme were no longer attainable and requested that Redhall submit a recovery programme in accordance with Clause 13.5 forthwith.

301. Redhall responded formally to Aker's letter of 24 November 2010 only on 11 January 2011. In its response, Redhall said that it was examining the impact of Variations, items of Claim, Contract management and would be presenting an Extension of Time submission. It said that: "*The term "Recovery Programme" is*

fallacious: the Contractual Completion Date will be a function of the overall Extension of Time".

302. In the meantime a draft Rev 4 Programme had been produced to Mr McIntosh unofficially on 2 December 2010 and was expressly stated to be "*forwarded to you without prejudice and is not to be interpreted as a revised contract programme.*" This programme was commented on by Mr McIntosh and Mr Nemec who said that it was *"of no use and has fundamental flaws*."

303. At the Monthly Progress meeting on 8 December 2010, Redhall said that the revised programme would be provided in the week commencing 13 December 2010 for comment. Aker and Vivergo said that the programme *"must be presented as early as possible to allow [Aker/Vivergo] to assess and prepare for recommencement of work in January*."

304. No programme was provided prior to Christmas 2010. An "informal" document was sent to Mr Adam on 4 January 2011 but it was not issued for approval and it was stated that a revised version would be issued shortly. At the Weekly Progress meeting on 5 January 2011 Redhall asked for feedback on that informal programme and a meeting took place between Mr Adam and Mr Hedley of Aker and Mr Gamble who had by then taken over from Mr Elwood as Redhall's planner. At that meeting 11 problems with the unofficial programme were identified and a further seven points were reported back by Mr Gamble to Mr Kirby.

305. On 12 January 2011 at the Monthly Progress Meeting, Aker/Vivergo noted that "*the promises made last month by [Redhall] re: programme and four week Lookahead had not materialised."* Aker/Vivergo said that this gave them a major problem as there were people waiting to come in to undertake completions and Aker/Vivergo needed to know targets on a week by week basis. At the same meeting Redhall confirmed that it would submit a revised programme to completion within 2 weeks and Aker/Vivergo stated that it was imperative that the new programme was issued in the time stated as at that time a workable programme to completion did not exist. Vivergo also said that there were other contractors on site and Aker/Vivergo could not inform them when work faces would become available because of the lack of a workable programme from Redhall and in particular they required system handover dates as a matter of urgency.

306. On 17 January 2011, Aker wrote to Redhall setting out its previous promises to provide a revised programme and stated that:

> "*For the sake of due progress on this project, we do not consider it unreasonable to finally require you to submit the revised programme by the close of play Thursday 27th January.*
>
> *If we have not received your programme by that date, we feel we will be left with no option but to implement the provisions of Contract Clause 13.7. This project, and particularly your element of the works, cannot afford any more unnecessary delays and decisive action must be taken.*"

307. In reply on 20 January 2011, Redhall noted that the parties were "*in discussions*" over the development of a Construction Programme and that the agreed deadlines would be met, stating that the deadline agreed in discussions was 28 January but the letter stipulated 27 January.

308. No programme was submitted by Redhall by 27 or 28 January 2011 and Aker wrote on 1 February 2011 noting that this breach "*exacerbates the difficulties caused by your delays*." By letter also dated 1 February 2011 Redhall said that it was "*attempting to have a Construction Programme with you by the end of business 31st January 2011."*

309. At the Monthly Progress Meeting on 2 February 2011, it was noted that the four-week lookahead requested by Vivergo at the Monthly Progress Meeting on 12 January 2011 was still outstanding and Redhall "*confirmed that the Rev 4 programme would be issued by no later than Friday 11/02/11*."

310. On 3 February 2011 Redhall stated that it was "working hard to provide a further programme analysis to you as soon as is practicable."

311. On 10 February 2011 Aker/Vivergo received Redhall's first extension of time claim seeking a 161 day extension of time. On the same day, Redhall handed over a "Completion Plan" at a meeting. The "Completion Plan" was a one-page document showing a completion date of 29 July 2011. In his evidence Mr Gamble said that this was the first page of a 444-page programme but the remainder was not provided.

312. In a letter dated 15 February 2011 Redhall stated that the "Completion Plan" was "not a plan put forward nor is it capable of being accepted as an Approved Plan." Redhall also said that "We are currently preparing our Revised Contract Plan, which is being targeted to be provided to you by 7th March 2011. By way of information, we confirm and anticipate that this Contract Plan will show a Contract completion date significantly later than that showing in the Completion Plan which we refer to below".

313. On 22 February 2011, replying to that letter of 15 February 2011, Aker wrote:

> "*We record that you are now in breach of the contract condition through your repeated inability to provide a revised Contract Programme (Clause 13.5).*
>
> *Your assertion that you are still preparing a "revised Contract Plan" is unacceptable.*
>
> *As you are aware we find it inconceivable at this late stage that you are still incapable of properly planning the Contract Works.*
>
> *We must record our opinion that you are failing to proceed regularly and diligently with the Contract Works, as reflected in your inability to produce a competent programme*."

314. It was then on 3 March 2011 that Redhall provided a Rev 4 Programme. It showed a completion date significantly later than that shown in the February "Completion Plan". In the covering letter it stated

> "*The programme does not refer to or consider any existing or further claims for extensions of time that we are making and may be entitled to make for any delays. We also reserve our position in respect of any entitlement or instructions that may be required or requested in achieving this programme.*"

315. Also on 3 March 2011 Redhall submitted a further extension of time claim which relied on the same claim heads as its February 2011 claim but sought a longer extension of time to 18 June 2011 and the sum of £12,858,979.33.

316. In my judgment, given the background to the Clause 13.5 notice on 24 November 2010, Redhall should already have been producing a Rev Programme by that date and indeed it indicated that it was doing so on 3 and 17 November 2010. Given that there was already an approved programme in the form of the Rev 3 Programme, there can be no reason for not producing the programme for approval within a period not significantly different from 30 days of 24 November 2010.

317. I do not consider that the drafts provided on 2 December 2010 which was expressly stated to be "*forwarded to you without prejudice and is not to be interpreted as a revised contract programme*" or the "informal" document, not issued for approval, sent to Mr Adam on 4 January 2011 can possibly be relied on by Redhall as complying with the Clause 13.5 instruction. This is particularly so when Redhall was setting out its position on 12 January 2011 confirming that it would submit a revised programme to completion within 2 weeks, followed by a number of further dates when that date was not met. I do not consider that Redhall are therefore correct to limit the period of delay to 12 January 2011 to 3 March 2011. The delay was from 24 November 2010 to 3 March 2011.

318. It is necessary to consider the reason for that delay. Redhall says, essentially, that it took Mr Gamble from 12 January 2011 to 3 March 2011 to gather the necessary information and produce the detailed Rev 4 Programme. Whilst it evidently took that time for Mr Gamble to produce the Rev 4 Programme, that is not the complete story.

319. Redhall relies heavily on the issue of the New York Skyline and, possibly still, a change in priorities. I do not accept that these were of any significance to the production of the Rev 4 Programme. By November 2010 Redhall had fallen behind the Rev 3 Programme by 108 days. It does not appear that it had given proper consideration to the way in which it was to proceed when the 60 to 65% area completion had occurred and it needed to move to system completion. Redhall's obligation to change to system completion after 60-65% completion was shown on the Rev 3 Programme as being achieved by early October 2010 and Aker sent the New York Skyline to Redhall on 8 October 2010.

320. All that the New York Skyline did was to break down limited elements of the works into systems and testpacks for completion pre-Christmas 2010 but did not change or affect the groupings of areas in Priority 1, 2, 3, 4a and/or 4b. As I have stated above, there was in fact no change to priorities and the New York Skyline issued on 8

October 2010 was an attempt to focus Redhall on the way in which it would complete and test systems, a process which it needed to programme and which had to be co-ordinated with the other contractors working on the site. It was not immutable and did not impose new obligations on Redhall.

321. Redhall also relies on the absence of a commissioning plan. It says that a commissioning plan was necessary to complete the Rev 4 Programme. Redhall did not say that it needed any further information to provide the Rev 3 Programme and I consider that Mr Crossley's evidence on this aspect, which I accept, accords with what would be expected. His evidence is that as Redhall had all the isometrics from which it had populated the trackers, had all pipe support drawings, had access to the model, and had completion dates by which it was required to complete the works, it did not require a commissioning plan to be able to properly plan its works to completion.

322. Vivergo says that contemporaneously the New York Skyline/changed priorities or the lack of a commissioning plan were not matters relied on by Redhall. Redhall challenges that and refers to two reports in January 2011. Redhall refers to the monthly report for 7 January 2011 which says:

> "*The 'New York Skyline' is in need of re-development to align with the Rev 4 construction programme. Currently the relationship between the Rev 3 programme and the completions skyline is proving difficult to align.*
>
> *The key difficulties appear to remain un-recognised and as such unresolved due to a lack of detailed plan which interfaces between construction, testing, completions, instruments/electrical, insulation and commissioning.*
>
> …
>
> *Schedule of system handovers needs to be generated as pre-Christmas handover skyline is now out of date.*
>
> …
>
> *The lack of alignment between [Redhall]/[Aker]/VFS planning systems and teams is hampering the ability to develop a meaningful completions plan. Proposal to work together to find a solution must be considered if we are to conclude work in the most time effective manner.*"

323. Redhall also refers to a 28 January 2011 monthly report which says:

> "*Delays in developing the Rev 4 programme have been encountered due to the continued complexities between bulk build, test packs and systems. There are a number of areas which remain unclear due to the lack of interface data between ourselves and the remainder of the project.*

…

The key elements to developing the Rev 4 programme have been:-
Clarifying system test pack relationships
Defining the critical chain for each test pack/system
Defining the interface milestones (such as civils release from [Aker])."

324. Redhall says that these monthly reports are entirely in line with what the evidence given by Mr Irving and Mr Gamble. I read those reports differently. It seems to me that these reflect the position that in January 2011 Redhall were starting to get to grips with the need to produce a detailed Rev 4 Programme to completion in circumstances where it had not previously given sufficient thought to these matters. The reference to the New York Skyline needing *"re-development to align with the Rev 4 construction programme"* must be considered in the light of the fact that the New York Skyline only went up to Christmas 2010.

325. Redhall were realising that it had to align the system completions (previously indicated in the New York Skyline) with the new Rev 4 Programme and that the detail in the Rev 3 Programme was inadequate for this purpose. The main thrust of what was being said in those reports was that there were delays in developing the Rev 4 Programme due to the *"continued complexities between bulk build, test packs and systems"*. All of that was a matter for Redhall to plan. Of course the process, in the end would lead to commissioning but the difficulties which Redhall were facing were in relation to such things as "*Clarifying system test pack relationships*", "*Defining the critical chain for each test pack/system*" and "*Defining the interface milestones*". Once Redhall had done these then Vivergo could co-ordinate interfaces and plan commissioning. Without Redhall's Rev 4 Programme this could not be done.

326. I therefore do not consider that Redhall can excuse its delay in providing the Rev 4 Programme either on the New York Skyline/changed priorities or on the lack of a commissioning plan. Rather I consider that there were two reasons why Redhall failed to produce the Rev 4 Programme from 24 November 2010 until 3 March 2011. The main reason seems to have been a commercial decision that any revised programme should be linked to an extension of time submission and claim so as to apply commercial pressure on Aker/Vivergo. In addition, Redhall's planning resources were inadequate and their management of the planning resources was poor.

327. Before and following on from the meetings in Bristol in June 2010, it is clear that Redhall continued to want to renegotiate the commercial basis for the Contract to get cost reimbursable or a total change in the contractual allocation of risk. During 2010 it strengthened the commercial team, first by involving Driver and secondly by recruiting Mr Noble. Initially Mr Porch of Redhall oversaw the commercial aspects of the Project but around the time of the Bristol Meetings Redhall considered that it was commercially weak and engaged Mr Woodall, a consultant with Driver Group. It was he who ultimately prepared the extension of time claim.

328. In November 2010, given Mr Woodall's inability to work full-time on the Project, Mr Noble was engaged, starting on site on 2nd November 2010. His evidence was to the effect that he was brought in to find the best way to solve Redhall's money problems on the Project and he accepted that Redhall had a commercially aggressive strategy.

329. The question of the commercial approach was clearly guided by the advice received from both Driver and Mr Noble and there is evidence that, at times, there was understandably a difference of view. I consider that the following evidence shows that the commercial strategy was not to issue a Rev 4 Programme unless it was linked to extensions of time/claims and commercial matters.

330. In an internal email from Mr Woodall dated 12 November 2010 he raised concerns that Redhall's claim position would be "*weakened if they submitted a revised schedule without consideration of commercial position."* This was followed up by a recommendation that the *"reschedule"* should be part of the search for an *"alternative commercial settlement"* so that the Rev 4 Programme should be *"heavily qualified commercially"* and a narrative describing the basis and assumptions made in preparing the Rev 4 Programme should be submitted with it.

331. It seems that a result of a high level meeting in Redhall it was decided that Redhall was "*between a rock and a hard place",* and "*the better option was not to issue the Rev 4 Programme.*" The basis for this, as explained by Mr Noble, was that Redhall did not know whether Vivergo was trying to "*get us off site*" as it had issued a letter saying that Redhall was in breach. He said that Redhall did not have a proper extension of time claim so that if Redhall issued the Rev 4 Programme showing a completion date beyond that in the Contract, it was in trouble, and if Redhall did not issue the programme, it was also in trouble.

332. Mr Woodall said in an email of 17 November 2010 that "*The draft rev 4 programme should only be tabled at this stage as part of the alternative scenarios and used to extract a contract amendment that is commercially acceptable to [Redhall].*" Whilst Mr Noble sought to distance himself from this advice it clearly went to senior management at Redhall and this rationale was evidently accepted.

333. In an email on 10 January 2011 Mr Kirby said that he had been asked about the availability of the Rev 4 Programme but had said "*I shall be straight batting this until advised differently"*. On 11 January 2011 Mr Kirby wrote to Mr Irving and said: *"The constraint on issuing rev 4 is driven from a commercial/legal aspect as we do not know what EOT we can prove, it is still work in progress. I was advised not to issue the programme last Friday which puts us, that is the site team, in a very difficult place…."*

334. On 30 January 2011 Mr Smith sent an email to Mr Jester in which he said:

> *"The key issue is going to be the end date and the EOT. Vivergo are desperate and it all hangs on the date any alternative settlement is going to hinge on this."*

335. When Redhall produced the "Completion Plan" at the meeting on 10 February 2011 it was submitted with the February 2011 claim. In the letter of 15 February 2011

explaining the "Completion Plan" it was stated that it was not capable of being accepted as an approved plan but it was *"to facilitate progress being maintained and maximised while the commercial and contractual position is resolved."* When Redhall responded on 1 March 2011 to the 22 February 2011 letter it again linked the production of the programme to that of the extension of time claim.

336. On 3 March 2011 Aker/Vivergo received the second Extension of Time claim and the Rev 4 Programme. Again the covering letter linked it to the claim and said:

> *"The programme does not refer to or consider any existing or further claims for extensions of time that we are making and may be entitled to make for any delays. We also reserve our position in respect of any entitlement or instructions that may be required or requested in achieving this programme."*

337. On this basis it is clear that the main reason for Redhall's delay in providing the Rev 4 Programme was its perceived need to tie in the revised programme to its claims and commercial matters. In addition there were clearly difficulties in Redhall having the necessary planning resources and managing the process. The initial task of producing the Rev 4 Programme fell upon Mr Elwood. However one of the key aspects was the planning of the systems completions and test packs. Mr Irving arrived on the project later on but as he accepted potentially it would have been better for the project if he had been brought on earlier. Mr Elwood said that the people who planned the test packs would usually not tell him of where the test boundaries would be and Mr Irving confirmed that there was very little interactivity between the programmers and the testpack producers. Mr Elwood clearly had other pressures on him and reservations were expressed within Redhall about Mr Elwood's ability to carry out the necessary programming work. The evidence shows that he was overworked, not properly supported by Redhall management and had some personal problems. Whilst at the Bristol meetings Redhall acknowledged the need for additional planners to support Mr Elwood that did not appear to happen. This in part explains why the Rev 3 Programme, which was intended to be produced by the end of June or early July 2010, was not in fact produced until 8 August 2010.

338. Mr Elwood produced the initial draft of the Rev 4 Programme at the same time as providing Mr Wileman and Mr Woodall of Driver with information to populate a version of the Rev 3 Programme to assist with the extension of time claim. By 12 November 2010 he had produced a draft Rev 4 Programme which was discussed with Mr Noble and a few days later forwarded to Mr Wileman. Mr Elwood left the site on 16 November 2010, although he continued to do some work on the Rev 4 Programme up to January 2011. From the documents it is clear that it was thought that Mr Elwood left at a bad moment.

339. Mr Gamble, Mr Elwood's replacement, was not it seems impressed by Mr Elwood's draft Rev 4 Programme and stated that the 500 line activity schedule was not sufficient. As a result Mr Gamble says that he did not use Mr Elwood's Rev 4 Programme as a starting point as it was not in the level of detail which he needed and it was easier to start from scratch. Mr Gamble started work on his Rev 4 Programme on about 12 January 2011, following a meeting with Mr McIntosh and Mr Adam where the problems with Mr Elwood's informally submitted Rev 4 Programme were discussed. This meant that, in terms of providing a Rev 4

Programme the time from early November 2010 to early January 2011 produced no useful Rev 4 Programme.

340. It seems that, whether because he was not properly supported and had to work on other aspects of the Project or more likely because of the commercial strategy, Mr Gamble failed to provide a Rev 4 Programme for approval until 3 March 2011.

341. It follows that I find that Redhall was in breach of its obligations under Clause 13.5 in failing to submit a programme from some 30 days after 24 November 2010 until it did so on 3 March 2011. It follows that at 22 February 2011 Redhall was in breach of its programming obligations,

342. Vivergo relies on that failure as being a material breach for the purpose of termination under Clause 43.2(c) which refers to the Contractor being in default in that he "commits any other material breach of the Contract."

Material breach: programming

343. Was the failure to provide the Rev 4 Programme a material breach? Redhall says that Vivergo's pleaded case on the materiality of the breaches in terms of delay in producing a new programme, failure to produce a Clause 13.5 programme and absence of any programme has not been made out.

344. In relation to the adverse effect on the contract manager's ability to manage the Contract Works Redhall's works Redhall says that there would have to be evidence to show which of Aker's management functions were affected by the lack of the programme but the function described was not Aker's management function at all. Aker as contract manager was not managing Redhall's works. Redhall was obliged and entitled to manage them.

345. In relation to it being impossible to gauge whether Redhall was using its reasonable endeavours Redhall says that is plainly wrong as the number of men Redhall was bringing to site and their productivity, was being monitored weekly as was progress on all aspects of the work which was broken down by area. Redhall's success or lack of it, and the resources Redhall deployed, were fully transparent without a programme and Aker/Vivergo had no difficulty in criticising Redhall's endeavours in relation to progress when making their case as to failure to proceed regularly and diligently.

346. In relation to it having an adverse effect on the Contract Manager's ability to manage and coordinate the entire project Redhall says that this is plausible in the abstract, but did not happen here. Redhall refers to the further particularisation in which Vivergo identifies the most important follow on contractor, SSEC, the E&I Contractor. Redhall says that Aker/Vivergo were able to make assumptions which shows that the programme was not material and those assumptions must have come from something such as Mr Elwood's Rev 4 Programme, the area handover sequence which was agreed or prolonging the whole SSEC programme, with a reduced number of men, given that it was known by early 2011 that the wheat in date was not going to be achieved. In any event Redhall says that it has not had the opportunity to deal with this aspect of the case because of late or inadequate

disclosure by Vivergo in relation to SSEC's programmes and the overall programme for the project and related documents.

347. In relation to whether a breach is material Redhall relies on Hudson on Building and Engineering Contracts at paragraphs 8-056 to 8-058, which refers to Glolite v Jasper Conran 1998 (unreported) and Dalkia v Celtech [2006] 1 Lloyd's Rep 598. Redhall says that these support a wide view of all the circumstances so that whether a breach is material will depend upon all the facts of the particular case, including the consequences of termination, the importance apparently attached to the particular type of breach in the contract, the actual circumstances of the breach on this occasion, and the commercial consequences of the breach.

348. Redhall says that, in this case, where the breach is a failure to provide a replacement for Rev 3 Programme, it is necessary to consider in what respects the Rev 3 Programme was no longer useful requiring another approved programme; how important were these matters; what were the commercial consequences of these matters; how much importance did the contract attach to the provision of a replacement or adjustment of the approved programme and how draconian was the remedy of termination for default under this contract.

349. Redhall says that this was a case where there was in fact a programme to work to. In relation to the importance of the deficiencies of the Rev 3 Programme and the commercial consequences, Redhall says that, in the light of the evidence, the real position was that the project had undergone a transformation and was now primarily cost driven, not programme driven as the original wheat in date had been lost and Vivergo was concerned that there was no new programme, rather than the precise contractual content of such a programme. Vivergo wanted a programme to get the project back on track, but it was not interested in the specifics of whether that plan reflected contractual provisions as to the content of any programme.

350. In relation to the importance placed by the contract on the provision of a new programme, Redhall says that the breach of Clause 13.5, if any, during November and December 2010 and January 2011 was to submit programmes informally. Redhall submits that this raises the issue of whether, in the context of clause 13.5, there was formality required in the submission of the revised programme and, if so, whether a failure to observe that formality is a material breach. It submits that it seems unlikely that there was something seriously wrong with the programmes produced on 2 December 2010 and 4 January 2011 which made them a nullity. Redhall says that the proper response to a failure to provide a programme under 13.5 is for the contract manager to use his powers under 13.7 to amend the existing programme; termination is too draconian a remedy, and so the breach cannot be considered material.

351. Vivergo says that by the time of the letter of 22 February 2011 Redhall was in breach of its contractual programming obligations and the failure to submit a programme following the request on 24 November 2010 was a material breach. Vivergo says that under clause 13.5, Redhall had not submitted any programme for approval and that the absence of a contract programme meant that the Contract Manager was unable to manage the Contract Works properly; without a programme it was impossible for the Contract Manager to assess whether Redhall was in fact using reasonable endeavours to perform its obligations pursuant to clause 13.3 or

progress regularly and diligently because the Contract Manager simply had no benchmark by which to assess Redhall's progress. In addition Vivergo says that the lack of a programme showing when Redhall was expected to complete sections of its Works had a knock-on effect for the follow-on trades and therefore the management and co-ordination of the entire project. It says that the Electrical and Instrumentation Contractors were reliant on the completion of the mechanical works in most areas to commence their works.

352. Vivergo says that the Contract Manager's powers under Clause 13.7 do not mean that Redhall was not in default and Clause 13.8 expressly provides that this discretion does "*not affect any of the Contractor's obligations to the Purchaser under the Contract.*" Therefore, Vivergo says, the fact that the Contract Manager could have instructed Redhall to submit a revised programme does not mean that Vivergo lost the right to terminate for a material breach of clause 13.5.

353. In relation to Redhall's contention that a failure to revise the Rev 3 Programme was not a material breach because the Rev 3 Programme continued to be used, Vivergo says that the Rev 3 Programme was admitted by Redhall to be out of date and of no practical use by, at the latest, November 2010 and the work shown on the Rev 3 Programme expired at the end of January 2011. As a result Vivergo says that there was a vacuum in terms of planning and monitoring Redhall's work, and in terms of planning the follow-on work. Vivergo says that Mr Elwood accepted this and it also relies on Mr Crossley's evidence that from "*24 November 2010 to 4 March 2011 when Redhall submitting its Rev 4 programme (pdf) for approval, Redhall had no up-to-date programme to work to and that the Rev 3 Programme was not representative of the true status of the works at that time and the more detailed Rev 4 Programme was required by Redhall to manage the construction.*"

354. Vivergo also relies on Mr Crossley's evidence that the absence of an up-to-date programme some 3 months after it was requested would have had an adverse impact on the Contract Manager's ability to manage the Contract Works; would have meant it was impossible to gauge whether Redhall was in fact using its reasonable endeavours to perform its obligations and would have an adverse impact on the Contract Manager's ability to manage and to co-ordinate the entire project, in particular with respect to the E&I Contractors.

355. Vivergo says that Redhall's reliance on the weekly lookaheads as filling the vacuum left by the lack of an up-to-date programme is misplaced because the weekly lookaheads were no more than lists of isometrics for the forthcoming 5 days, with no links being shown to the previous week's performance i.e. if a task on the previous week's looks ahead was not performed this task would be added to the next week; the lookaheads had no "time now" line which showed what had been achieved and what had not and were therefore wholly inadequate for the purposes of planning and did not comply with Redhall's contractual obligations.

356. Vivergo also relies on Mr Crossley's evidence that, having considered Redhall's weekly lookahead programmes, his view was that they were wholly inadequate for the purposes of planning (by Area and overall) as they did not demonstrate the then current status of the works (by Area and overall) and the then plan to completion (by Area and overall). Further he says that in so far as they did not correspond to the Rev 3 Programme they did not have sufficient detail to allow the Contract Manager

to use them to monitor Redhall's progress (by Area and overall), understand the work that Redhall was proposing to do and when (by Area and overall), or to understand how that work (by Area and overall) fitted in with the other works which were ongoing on the Site. Vivergo also relies on Mr Elwood's evidence in his first witness statement that the supervisors did not pay much attention to the lookaheads in any event.

357. In relation to Redhall's contention that the draft programmes submitted in December, January and February prevented any breach being material, Vivergo says that this is not tenable as there was no suggestion in the submission of those plans that they were to be used by either party to monitor progress or perform any of the other functions of an updated Contract programme. Rather Vivergo says in respect of each submission Redhall expressly stated that the draft programme was not to be relied upon.

358. In relation to Redhall's reliance on the programmes produced on 2nd December and 4th January, Vivergo states that Mr Gamble clearly felt there was something seriously wrong with those plans, since he discarded them and started from scratch in arriving at his own Rev 4 Programme.

359. In relation to the factors relevant to materiality referred to in Hudson, Vivergo submits:

(1) "*Not only what the breach consisted of, but also the circumstances in which it arose.*" Vivergo says that the breach consisted of a long-standing failure to submit a revised programme. The circumstances in which it arose amount to a deliberate decision on the part of Redhall's management not to issue the programme.

(2) "*Consider clauses which indicate the importance of the breach.*" Vivergo submits that Clause 13 makes clear the critical link between Redhall's primary obligation to carry out the Works in the time set out in the Contract, and the role of the Approved Programme in enabling that to be achieved.

(3) "*Consider whether the consequences of termination were draconian, although the primary focus of the enquiry into materiality is the effect of the breach on the innocent party.*" Vivergo says that Redhall seeks to rely on the consequences of breach being draconian but submits that this is not the primary focus of an analysis of whether a breach was material as it does not look at the position of the innocent party. Here, Vivergo says it was significantly prejudiced by Redhall's breach of the contract. In those circumstances it cannot be said that the impact on Redhall was unduly draconian.

360. Vivergo also says that the contemporaneous evidence clearly shows the materiality of Redhall's breach. Vivergo says that the lack of a programme impacted on Aker's ability to manage not only Redhall's works but also that of other contractors and refers to the notes of the meeting of 12 January 2011 where it was noted that Aker/Vivergo could not "*inform other contractors on site when work faces would become available due to the lack of a workable programme from Redhall and, in particular, system handover dates.*" Vivergo also refers to a Vivergo Board Update

in January 2011, where the impact of Redhall delays on SEC, the follow-on contractor were noted and a letter of 17 January 2011 stated that Redhall's delay in programming was having an impact on "*due progress of the project*."

361. Vivergo also relies on management difficulties such as those related to the provision of site accommodation referred to by Mr Hornby on 16 February 2011. It was also important in determining when the wheat-in date would occur. In an internal Vivergo email on 1 March 2011 it was stated that the Rev 4 Programme "*will enable us to plan all the other trades to arrive at an overall completion plan. The completions and commissioning plan will follow which will enable a wheat-in date to be determined.*"

362. Vivergo also refers to Mr Rousseau's evidence in his First Witness Statement that he needed the Rev 3 Programme to control the project, to ensure that the work of other contractors could be coordinated with Redhall's work, and to give some clarity as to when the plant would be completed. He said he had nothing against which he could properly monitor or measure Redhall's progress and was also having extreme difficulty in coordinating the works of the E&ME contractor.

363. As a result Vivergo submits that Redhall's breach of contract in failing to submit a revised plan prior to 22 February 2011 was material.

364. Evidently the breach of the contractual obligation has to be material because if not remedied it can lead to termination. The principles to be applied have been considered in the two decisions cited by the parties and referred to in Hudson Building and Engineering Contracts (12th Edition) at 8-058. In Glolite v Jasper Conran (Unreported, 1998) Neuberger J, as he then was, considered a termination of a production and sales agreement where there was an express termination clause based on material breach. The breach alleged involved the use of a logo on football shirts. In considering the question of materiality Neuberger J said that it would depend on the facts of the particular case, including the terms and duration of the agreement, the nature of the breach, the consequences of the breach, including to some extent the commercial consequences.

365. In Dalkia Utilites Services Plc v Celtech International Ltd [2006] 1 Lloyd's Rep 598 Christopher Clarke J considered a termination clause which required there to be a material breach in relation to obligations to pay. He considered the Court of Appeal decision in Fortman Holdings Ltd v Modem Holdings [2001] EWCA Civ 1235, Glolite v Conran and National Power plc v United Gas Company Ltd (unreported, 3 July 1998). He considered the extent of the failure to pay. He considered the circumstances in which the breach occurred, including any explanation as to why it occurred. He said that the termination clause was designed to protect a client where the default is minimal or inconsequential or (even if not) is accidental or inadvertent. He said that the primary focus should be on the character of the breach rather than the consequences, which were not draconian, if the innocent party availed itself of the contractual remedy.

366. In the present case, the breach which I have found is that Redhall failed to revise and re-submit the Approved Programme under Clause 13.5 when required to do so by the Contract Manager. The breach had been committed over a substantial period from some 30 days after 24 November 2010 until 22 February 2011. That was not a

minimal or inconsequential breach of the obligation. As I have found, it was not an accident or mistake or caused by some other similar factor but rather a deliberate commercial decision to await the claim for an extension of time and money before submitting the Rev 4 Programme.

367. The consequence of the breach is a matter which is in issue between the parties. In relation to the adverse effect on the Contract Manager's ability to manage the Contract Works, I do not consider that Redhall is correct to say that the Contract Manager does not manage the Contract Works. Whilst it is correct that Aker does not manage the labour, plant and material to construct the Contract Works, as set out in the Contract the Contract Manager, acting on behalf of the Purchaser, has a number of management functions in relation to the Contractor's performance of the Contract Works. I accept Vivergo's submission that the Contract Manager therefore needs a programme to be able to perform those management functions.

368. In relation to it being impossible to gauge whether Redhall was using its reasonable endeavours, I accept Vivergo's submission that without a programme it was impossible for the Contract Manager to assess whether Redhall was in fact using reasonable endeavours to perform its obligations pursuant to clause 13.3 or progress regularly and diligently because the Contract Manager had no benchmark by which to assess Redhall's progress. The comparison of progress against a current programme is essential for that purpose. Whilst Redhall are correct in saying that the Contract Manager would know the number of men Redhall was bringing to site and their productivity, without a programme the Contract Manager could not relate achieved progress, manpower or productivity to what Redhall intended in its current programme.

369. Obviously the Contract Manager could see that the contractual completion date was not going to be met and that Redhall were not achieving the Rev 3 Programme productivity but the purpose of the revised programme was to show what resources at what productivity Redhall intended to use on its current programme.

370. In relation to it having an adverse effect on the Contract Manager's ability to manage and coordinate the entire project, I accept that Vivergo needed a programme to manage the Contract Works in the Context of those works forming part of the Plant Works so that it was necessary for the programme for Redhall's Contract Works to be co-ordinated with the follow-on trades carrying out other works forming part of the entire project. Indeed as Redhall says, the need for this is plausible in the abstract. For the reasons set out by Redhall, I accept that I cannot make any particular findings as to the consequence for a particular follow-on contractor. However on a project such as this and as confirmed by the expert and factual evidence relied on by Vivergo, a programme was necessary to coordinate the whole project. The Contract Manager should not have to rely on assumptions when a programme would provide the relevant information.

371. Redhall says that the Rev 4 Programme was in the context of this project not so important because Aker/Vivergo had the Rev 3 Programme, they received the draft Rev 4 Programmes in December 2010 and January 2011 and had the lookahead programmes. Obviously the out of date Rev 3 Programme had some limited use as the previously Approved Programme but Redhall clearly thought it was inadequate, as I find it was. It cannot in any sense be a substitute for the Rev 4 Programme of

Redhall's then current intention. The draft programmes produced to Vivergo in December 2010 and January 2011 were clearly not intended to be relied on and the criticisms of them demonstrated their inadequacy, as did the fact that Mr Gamble discarded them when he came to start his version of the Rev 4 Programme.

372. The lookahead programmes, samples of which I have seen, provide a limited view of what work is intended to be carried out over a short period. However, without an overall Rev 4 Programme they cannot be properly prepared as programmes setting out the short term view of what is needed to comply with the Rev 4 Programme. Whilst Mr Gamble may have been able to relate them in the later stages to his draft Rev 4 Programme, he could not do so initially and it is evident that the basis of his Rev 4 Programme was changing up until 3 March 2011. As Mr Crossley said and I accept, Redhall's weekly lookahead programmes were wholly inadequate for the purposes of planning as they did not demonstrate the then current status of the works and the then plan to completion.

373. In relation to Redhall's contention that the proper response to a failure to provide a programme under 13.5 is for the contract manager to use his powers under 13.7 to amend the existing programme, I do not consider that this is a realistic option for the nature and extent of the changes necessary to the Rev 3 Programme in this case. It may be appropriate for minor revisions but Clause 13.7 cannot be used to impose the fundamental obligation of the Contractor to produce a major revision of the Contractor's programme on the Contract Manager. Whilst termination is a remedy with very serious consequences, the safeguard is that the breach has to be material in that context.

374. In summary therefore the need for the revised programme was not some mere unimportant obligation. Rather it went to an important aspect of the project, the time of completion and on a Project such as the present that was relevant not only as a matter of management of Redhall's works but the entire Project. It was not made less important by the existence of the Rev 3 Programme, the draft Rev 4 Programmes in December 2010 and January 2011 or the lookahead programmes.

375. Taking into account all the circumstances relating to the breach of the Clause 13.5 obligation including the scope, nature and extent of the breach, the circumstances in which the breach arose, the effect of the breach on Aker/Vivergo, the alternative programmes and remedies available, I consider that Redhall's breach of Clause 13.5 was material in the context of the provisions of the termination clause in this case.

Failure to proceed regularly and diligently

376. Clause 43.2(b) provides that if Redhall as Contractor is in default in that he fails to proceed regularly and diligently with the Contract Works, the Contract Manager may notify Redhall of this and if Redhall does not commence and diligently pursue the rectification of this default within 14 days Vivergo can terminate Redhall's employment by means of a notice.

377. Vivergo says that to assess whether Redhall was proceeding regularly and diligently, it is necessary to look at events throughout, but with a particular concentration on what happened from August 2010 to 24 February 2011, the date 14 days before the Notice of Termination. It says that Aker, as Contract Manager,

issued a series of notifications of default to Redhall, commencing from 3 September 2010 onwards, and Vivergo's case is that it is entitled to rely on any one of these notices under clause 43.2(b), as all are sufficiently close in time to the date of the Notice, and Redhall's defaults were not corrected.

The law: The obligation to proceed regularly and diligently

378. The meaning of the phrase "regularly and diligently" was considered by the Court of Appeal in West Faulkner Associates v London Borough of Newham (1992) 71 BLR 1 in the context of Clause 25(1) of the JCT Standard Form of Building Contract. An issue arose between the employer and the Architect as to the meaning of the phrase and whether the contractor was not proceeding regularly and diligently. The Court of Appeal dismissing the appeal held that the contractor was obliged to proceed both regularly and diligently and would be in breach if he failed to do either.

379. Brown LJ said that there was a measure of overlap between the two requirements. He said at 14 that "regularly" meant as a minimum attending site *"with sufficient in the way of men, materials and plant to have the physical capacity to progress the works substantially in accordance with the contractual obligations."* He said that "diligently" meant that the physical capacity must be applied *"industriously and efficiently"* with *"successful progress towards contractual obligations"* being *"a good touchstone by which to judge whether a contractor is proceeding regularly and diligently."* He said that the contractor's overall obligation was to proceed *"continuously, industriously and efficiently with appropriate physical resources so as to progress the works towards completion substantially in accordance with the contractual requirements as to time, sequence and quality of work."*

380. In the present case the requirement to proceed regularly and diligently had, in my judgment, to take account of Redhall's "*contractual obligations*" and the need for there to be *"successful progress towards contractual obligations*" and, in particular, "*the contractual requirements as to time, sequence and quality of the work*". An important obligation in this case was Redhall's obligation to complete each of the milestone dates and ultimately by the Contract Completion Date, as extended.

381. In the Particulars of Claim Vivergo relies on a number of matters as showing that by February 2011 Redhall was failing to proceed regularly and diligently. First, Vivergo says that there was a failure to use the physical capacity on site industriously and efficiently so as to progress the works substantially in accordance with the contractual requirements as to time and sequencing of the works, as reflected inter alia in Redhall's inadequate resourcing of the critical path works to DET 2. Secondly Vivergo relies on lack of productivity. Thirdly, it relies on lack of programming. Fourthly it refers to poor labour management and inadequate supervision. Finally it refers to poor materials controls, rework of defective fabrication and inadequate management of scaffolding resources.

382. I shall deal below each of those particular allegations.

Failure to resource critical path works – DET 2.

383. Vivergo says that Mr Crossley has found that the critical path for Rev 3 "passed through" Area 1 Distillation and Evaporation Train 2. It also says that this was the premise of Redhall's own claims in February and March 2011 and is evident on the face of the Rev 3 Programme. Vivergo also says that Mr Elwood's evidence was that this is how he had compiled the programme.

384. Vivergo says that the table at paragraph 113 of the Particulars of Claim (which Redhall admits) evidences that Redhall did not allocate the planned skilled manhours to the critical path works in the period from 13 June 2010 to 28 January 2011.

385. Vivergo responds to points made by Redhall as follows. First, Redhall says that DET 2 was not a critical area for its work. Vivergo says that this is not the point because even if DET 2 was the last area to be finished and was to be resourced accordingly, it was still an area which was part of Schedule 11 and the revised M&P completion dates agreed at Bristol and should have been taken into account and resourced in accordance with the Rev 3 Programme. It says that the table shows the planned skilled hours for the Rev 3 Programme and that Redhall did not resource the work as planned.

386. Vivergo relies on Mr Crossley's evidence that the fact that DET 2 was a Priority 4(b) area and was therefore the lowest priority work on the project did not alter the fact that it was programmed and resourced on the Rev 3 Programme by Redhall so as to be completed by 21 January 2011. Mr Crossley said that it followed that for Redhall to comply with the completion date as set out on the Rev 3 Programme, the actual manhours achieved on the planned works would need to match the planned manhours in that programme. He says that if the actual manhours achieved on the planned works for DET 2 were lower than the planned manhours in the Rev 3 Programme, then it follows that DET 2 would not be completed by the planned completion date of 21 January 2011.

387. Secondly, in relation to Redhall's contention that it was forced to allocate time to unplanned work, Vivergo says that this is not substantiated and if it were intended to be a reference to the CVIs or Redwork, Vivergo says that Redhall would have needed to set out what work it claimed it carried out in this area but has not done so and it depends on Redhall's claims for unplanned labour.

388. Thirdly, in relation to Redhall's claim that in "window 18" it was unable to carry out any work due to heavy snow, Vivergo says that Redhall states that the 396.5 hours allocated in window 18 was actually "unionised weather." Whilst Vivergo accepts that Redhall is due an extension of time for snow, unionised weather is disputed. In any event, Vivergo says that this is only a small window amid the general picture that Redhall simply did not have the right resources to carry out the works on DET 2.

389. Finally, in relation to Redhall's contention that there was an instruction to move men from DET 2 to other areas of the site, Vivergo says that there was never an instruction and in any case any instruction should not have had any impact on Redhall's ability to properly resource DET 2. Vivergo also says that Redhall has not

adduced any evidence of the impact of the alleged instruction on the remaining work it had to carry out.

390. Redhall says that Vivergo's case is based on showing that the critical path ran through DET 2 and that Redhall failed to send sufficient men to work in DET 2. Redhall says that DET 2 was not critical and, in any event, Redhall was instructed not to work there and Aker/Vivergo did not want them to work there and complained when they did.

391. Redhall refers to paragraph 2.2 of the Experts' First Joint Statement in which both experts agreed that the use of logic linked "critical path" planning techniques on a dispute of this nature was very limited and inappropriate. As it was a resource driven project the degree of logic-links required sharply reduces in comparison to, say, construction projects. Redhall also refers to Mr Crossley's evidence and says that he does not assert that there was a true critical path through DET 2. Rather he says is that the Rev 3 Programme contains a series of areas with their own critical path, and the longest of those areas in duration is DET 2. Redhall says that there is no basis for contending that the Rev 3 Programme contained a true critical path running through DET 2. Even if it did, Redhall says that does not mean that it remained the critical path and there is no critical path analysis or as-built critical path. As a result Redhall says that there was no critical path through DET 2 and any assertion that the critical path in fact ran through DET 2 during the period September 2010 to March 2011 is not supported by expert evidence.

392. Redhall also says that during the project the general consensus was not that Redhall should put more men into DET 2 but that sending more workers to work on DET 2 would not have accorded with Aker/Vivergo's wishes and instructions. Redhall says that it cannot have been failing to proceed regularly and diligently when it was complying with Vivergo's wishes and instructions not to resource DET 2 and priority 4(b) generally. Redhall refers to the instructions at the Sponsors' Meeting on 14 September 2010 when Redhall were advised that "*Vivergo wished them to urgently consider redeployment of resources from Distillation 2 (Priority 4B) to ensure all available work-faces in the priority areas were fully manned per the Contract Schedule*" and told that it "*should focus their resources on the Priorities 1, 2 and 3 including Pipe-Racks, Towers and the utility systems that feed 1, 2 and 3.*"

393. Redhall also relies on the letter of 1 October 2010 and what was said at the weekly progress meeting on 6 October 2010. Redhall also says that in the letter of 8 October 2010 relied on by Vivergo as a notice of failure to proceed regularly and diligently, Aker made it clear that it disapproved of Redhall working in DET 2 when they noted that Redhall's site management was "*directing your workforce to continually work out of sequence on less critical priority 4 areas.*" In addition Redhall says that the letter dated 1 November 2010, referred to in the termination notice, stated: "*quite clearly requires you to work to the priorities as re-clarified in our email dated 13th October 2010.*"

394. Redhall says that this is consistent with the evidence of Mr Adam, Mr Hornby and Mr Rousseau who when cross examined said that they disapproved when Redhall worked in DET 2 that they wanted Redhall to work in Priority Areas 1, 2, and 3, and not in Priority Area 4B. Mr Hornby explained that the work in DET 2 was "easy pickings" because there "*were some long metres of pipework to lay there*" *but "We*

wanted them to focus on the other priorities. We didn't want them in distillation 2". Mr Adam also indicated that if Redhall were behind in other areas "*we would have allowed 4(b) to go out.*"

395. Redhall also refers to Mr Crossley's evidence that there was no reduction in resources in DET 2 after the instruction in September/October 2010 and says that Redhall's resources devoted to DET 2 and rate of progress were correctly set out in the table at paragraph 113 of the Particulars of Claim. That table shows that the percentage of planned labour allocation sent to DET 2 reached 75% only in January 2011 and that, after being 73% in mid- September 2010 it reduced to about 50% from 27 September to 10 October 2010 and reduced further to below 50% and then to below 40%.

396. As a result, Redhall says that any failure to work in DET 2 was the result of the wishes and instruction of Aker/Vivergo.

397. On the Rev 3 Programme the last area to be completed was DET 2. Each area on the Rev 3 Programme contained its own critical path and the area with the longest duration was DET 2. It could therefore be described as critical as being the final area to be completed. However the Rev 3 Programme did not otherwise contain a critical path and the experts have done no analysis to show where the critical path was at termination.

398. The project was however one which was dependent on resources and each area therefore needed the necessary resources to be committed to it. If any area did not have the necessary resources applied to it or if those resources did not achieve the expected productivity that area would be in delay. Depending on the amount of delay to one area compared to another area then the delay to a particular area could cause critical delay to the overall completion of Redhall's work.

399. By September/October 2010 it was evident that Redhall's work had fallen behind and continued to fall behind the Rev 3 Programme. This meant that Aker/Vivergo encouraged Redhall to work at that stage on the early priority areas so that systems could be completed and tested. On this basis, I accept Redhall's contention that it cannot be accused of failing to allocate sufficient resources to DET 2 from September 2010 to the end of 2010 when Aker/Vivergo were encouraging to re-deploy resources from that priority 4(b) area to areas with an earlier priority. However the question, as emphasised by Vivergo in oral closing submissions, was whether by 22 February 2011 Redhall was deploying sufficient resources to DET 2.

400. In the Particulars of Claim Vivergo pleads that Redhall did not allocate the planned skilled manhours to the critical path works in the period from 13 June 2010 to 28 January 2011 and then set out the details in the table which is accepted to be correct by Redhall. That schedule shows that in the period from 20 December 2010 to 28 January 2011 Redhall deployed 75% of the resources planned in the Rev 3 Programme for that period. That was a step change from the figure of 43% for the previous week and even that was an increase from the figure of 28% at the end of November and beginning of December 2010.

401. Whilst generally Redhall was not achieving the required productivity or level of resources, I am not persuaded that Vivergo can rely on a failure adequately to

resource the critical path works to DET 2 in the period up to February 2011. The general lack of productivity and the failure to proceed with the priority areas led to Aker/Vivergo encouraging Redhall to move resources off DET 2 so as to complete areas with a higher priority and, whilst there was a fundamental problem with low productivity and inadequate resources, I do not consider that Vivergo can rely on Redhall's particular failure to apply resources to DET 2 when at the same time they were encouraging Redhall to move the resources off that area with the lower priority 4(b).

Lack of productivity

402. So far as productivity is concerned, as set out above, Redhall's failure to achieve the productivity required to complete the works to the Rev 3 Programme and to achieve the programmed productivity was a failure by Redhall properly to resource the Project and one for which they alone were responsible. That I consider is the best evidence in this case of a failure by Redhall to proceed with the works regularly and diligently, as that phrase was defined in West Faulkner.

Lack of programming

403. I have also dealt above with the programming breach and found that Redhall was in breach of its programming obligations. Whilst, in theory, it might be suggested that a contractor without a current overall programme might be able to proceed regularly and diligently if, in fact, it deployed proper resources to complete the works on time, that is not the position here. From at least November 2010 it was clear that Redhall had no proper programme on which to plan the work or by which to monitor and manage the work. The best that could be done was to use the Rev 3 Programme which by November 2010 had become hopelessly out of date.

404. Whilst Redhall was producing weekly lookahead programmes and other records, those were no substitute for a proper programme and, in particular, one produced in accordance with Redhall's contractual obligations. The lack of such a programme undoubtedly meant in this case that Redhall was unable to proceed continuously, industriously and efficiently with appropriate physical resources so as to progress the works towards completion substantially in accordance with the contractual requirements as to time and sequence.

Poor labour management and inadequate supervision.

405. As set out above, I am not persuaded that, on its own, the evidence of inadequate supervision could found a separate ground for establishing that Redhall was not proceeding regularly and diligently. There was undoubtedly some poor supervision and I consider that the workforce on this site required supervision for a greater period of the working day than the analysis of the data would suggest there was. However I do treat it as providing further support for Vivergo's case that the low productivity achieved by Redhall was something caused by matters for which Redhall was responsible.

Poor materials controls, rework of defective fabrication and inadequate management of scaffolding resources.

406. These matters were not dealt with by Vivergo in its closing submissions and, in any event, it seems very unlikely that they would add anything to what I have concluded about Redhall's performance.

Summary: Failure to proceed regularly and diligently

407. For the reasons set out above I consider that in the second half of February 2011, Redhall were not proceeding regularly and diligently and that this gave rise to the grounds for a notice to be given under Clause 43.2(b) of the Contract.

Notices: The relevant law

408. I have been referred to two decisions on the proper construction of unilateral notices. First, I was referred to the House of Lords decision in Mannai Investments Co Ltd v Eagle Star Assurance [1997] AC 749.

409. In that case there were two leases for a term of ten years from and including 13 January 1992. The tenant sought to exercise an early termination clause, clause 7(13), by serving notices in June 1994 stating that it wished to terminate the leases on 12 January 1995, when the first possible date of termination was in fact 13 January 1995. The House of Lords held that the notices were effective to determine the leases on 13 January 1995. Lord Goff and Lord Jauncey dissented.

410. Lord Steyn set out a number of propositions at 767 to 768, the relevant parts for present purposes being as follows:

> *"(1) This is not a case of a contractual right to determine which prescribes as an indispensable condition for its effective exercise that the notice must contain specific information. After providing for the form of the notice ("in writing"), its duration ("not less than six months") and service ("on the landlord or its solicitors"), the only words in clause 7(13) relevant to the content of the notice are the words "notice to expire on the third anniversary of the term commencement date determine this lease." Those words do not have any customary meaning in a technical sense. No terms of art are involved. …*
>
> *(2) The question is not how the landlord understood the notices. The construction of the notices must be approached objectively. The issue is how a reasonable recipient would have understood the notices. And in considering this question the notices must be construed taking into account the relevant objective contextual scene. The approach in Reardon Smith Line Ltd. v. Yngvar Hansen-Tangen (trading as H. E. Hansen-Tangen) [1976] 1 W.L.R. 989, which deals with the construction of commercial contracts, is by analogy of assistance in respect of unilateral notices such as those under consideration in the present case. Relying on the reasoning in*

Lord Wilberforce's speech in the Reardon Smith case, at pp. 996D-997D, three propositions can be formulated. First, in respect of contracts and contractual notices the contextual scene is always relevant. Secondly, what is admissible as a matter of the rules of evidence under this heading is what is arguably relevant. But admissibility is not the decisive matter. The real question is what evidence of surrounding circumstances may ultimately be allowed to influence the question of interpretation. That depends on what meanings the language read against the objective contextual scene will let in. Thirdly, the inquiry is objective: the question is what reasonable persons, circumstanced as the actual parties were, would have had in mind. It follows that one cannot ignore that a reasonable recipient of the notices would have had in the forefront of his mind the terms of the leases. Given that the reasonable recipient must be credited with knowledge of the critical date and the terms of clause 7(13) the question is simply how the reasonable recipient would have understood such a notice. ...

(3) It is important not to lose sight of the purpose of a notice under the break clause. It serves one purpose only: to inform the landlord that the tenant has decided to determine the lease in accordance with the right reserved. That purpose must be relevant to the construction and validity of the notice. Prima facie one would expect that if a notice unambiguously conveys a decision to determine a court may nowadays ignore immaterial errors which would not have misled a reasonable recipient.

(4) There is no justification for placing notices under a break clause in leases in a unique category. Making due allowance for contextual differences, such notices belong to the general class of unilateral notices served under contractual rights reserved…Even if such notices under contractual rights reserved contain errors they may be valid if they are "sufficiently clear and unambiguous to leave a reasonable recipient in no reasonable doubt as to how and when they are intended to operate": the Delta case, at p. 454E-G, per Slade L.J. and adopted by Stocker and Bingham L.JJ.; see also Carradine Properties Ltd. v. Aslam [1976] 1 W.L.R. 442, 444. That test postulates that the reasonable recipient is left in no doubt that the right reserved is being exercised. It acknowledges the importance of such notices. The application of that test is principled and cannot cause any injustice to a recipient of the notice. I would gratefully adopt it."

411. Lord Hoffmann stated as follows:

1) At 774:

> "*It is a matter of constant experience that people can convey their meaning unambiguously although they have used the wrong words. We start with an assumption that people will use words and grammar in a conventional way but quite often it becomes obvious that, for one reason or another, they are not doing so and we adjust our interpretation of what they are saying accordingly. We do so in order to make sense of their utterance: so that the different parts of the sentence fit together in a coherent way and also to enable the sentence to fit the background of facts which plays an indispensable part in the way we interpret what anyone is saying….*
>
> *If one applies that kind of interpretation to the notice in this case, there will also be no ambiguity. The reasonable recipient will see that in purporting to terminate pursuant to clause 7(13) but naming 12 January 1995 as the day upon which he will do so, the tenant has made a mistake. He will reject as too improbable the possibility that the tenant meant that unless he could terminate on 12 January, he did not want to terminate at all. He will therefore understand the notice to mean that the tenant wants to terminate on the date on which, in accordance with clause 7(13), he may do so, i.e. 13 January.*"

2) He added at 755 that:

> "*The principle is therefore clear. The agreement between the parties provides what notice has to be given to be effective to achieve the relevant result. The question in each case is: does the notice which was given, properly construed, comply with the agreed specification*".

3) And at 779 that commercial contracts were to be

> *"construed in the light of all the background which could reasonably have been expected to have been available to the parties in order to ascertain what would have been their intention."*

4) And at 780 he said the issues were:

> *"Is the notice quite clear to a reasonable tenant reading it? Is it plain that he cannot be misled by it?*

412. Lord Clyde said this at 782 to 783:

> "*The standard of reference is that of the reasonable man exercising his common sense in the context and in the circumstances of the particular case. It is not an absolute clarity or an absolute absence of any possible ambiguity which is desiderated. To demand a perfect precision in matters which are not within the formal requirements of the relevant power*

would in my view impose an unduly high standard in the framing of notices such as those in issue here. While careless drafting is certainly to be discouraged the evident intention of a notice should not in matters of this kind be rejected in preference for a technical precision.

The test is an objective one….

The notices were expressed to be "pursuant to clause 7(13)." It is plain from that that the tenant intended to invoke that clause. It is also plain that the tenant wished to determine the tenancy and that clause is the only clause under which the tenant could achieve that result. The landlord would be expected to know the terms of the lease and the date on which the lease fell to be determined under that clause. He would also be expected to know that there was no formal requirement for the tenant to specify in the notice the date of termination of the lease. There was no evident reason why the tenant should specify 12 January rather than 13 January. The close proximity of the 13th makes it the more evident that it was erroneous and that the date intended was the date which the " parties had agreed for a determination of the tenancy under clause 7(13). While there is a discrepancy evident in the notices between the reference to the clause and the statement of the date it seems to me that the notices were sufficiently clear and unambiguous. No reasonable landlord would in my view be misled by the statement of a date which in the context of a clear intention to invoke clause 7(13) was inaccurate. The landlord would in my view recognise that in each case the reference to 12 January was to be read as a reference to 13 January and I would so construe the notices."

413. I was also referred to the judgment of His Honour Judge Bowsher QC in Architectural Installation Services Limited v James Gibbons Windows Limited (1989) 46 BLR 91. In that case similar issues arose in relation to a similar clause. The first issue was whether a letter of 20 September 1985 was a default notice under the sub-contract and the second issue was whether a telex of 21 August 1986 was a termination notice under the sub-contract or, if not, a valid notice at common law terminating the sub-contract.

414. The relevant contractual termination clause in that case provided that the sub-contract could be terminated forthwith by the contractor by notice in writing to the sub-contractor:

"if the sub-contractor... fails to proceed with the Works expeditiously or to the satisfaction of the main contractor or to remedy defective work and remains in default for seven days after being given notice in writing thereof by the main contractor."

415. Judge Bowsher QC said as follows in relation to the first notice:

> "*On 20 September 1985, the defendants by letter gave to the plaintiffs notice that they required the plaintiffs to comply with condition 20 and work the full working day required by that condition. The defendants rely upon that letter as a notice of default under condition 8. I accept that it is such a notice despite the fact that it does not refer to condition 8 or to the consequences of non-compliance, although it would have been preferable if the threat of termination in the event of non-compliance had been made explicit.*"

416. He also added in relation to the connection between the two notices:

> *"Where, as often happens, a contract provides for termination of the contract by a warning notice followed by a termination notice, and two notices have been served, a party can only rely on that provision if an ordinary commercial businessman can see that there is a sensible connection between the two notices both in content and in time. Here there was no sensible connection in terms of either content or time."*

417. Vivergo submits that all that is needed in this case under Clause 43.2 is whether, applying those principles the notice complies with the limited requirement contained in that clause of stating that the Contractor is in default.

418. Redhall says that *Mannai* does not mean that one can ignore what the letters relied on actually say but merely enables the court to ignore obvious slips and to take account of context, in accordance with the modern approach to construction. The test is that the letters must be sufficiently clear and unambiguous so as to leave a reasonable recipient in no reasonable doubt as to how and when they are intended to operate.

419. Redhall also says that, in any event, the observations of Judge Bowsher QC on this aspect in Architectural Installations were *obiter* as the *ratio* was that the original warning notice did not relate to the final termination notice as the two notices were almost a year apart and referred to different defaults so there was no sensible connection between the two notices. In any event Redhall submits that the observations that the notice was a notice in Architectural Installations despite the fact that it did not refer to the relevant clause or the consequences of non-compliance with the notice does not assist Vivergo in this case because both clauses 43.2 (b) and 43.2 (c) are different from each other and different from the clause being considered here and the text of the notice is not quoted in the judgement or the commentary, so the extent to which it compensated for the failure to make the threat of termination explicitly is not clear. Further Redhall says that it is apparent that Judge Bowsher QC was aware of *Mannai* and must have found that, on the facts of that case, the notice was unambiguous despite the absence of express reference to the termination clause and that therefore some otherwise ambiguous notices may be rescued depending on those facts.

420. I consider that the following principles can be derived from Mannai and Architectural Installations. First that unilateral notices are to be construed in the same way as contractual documents and therefore it is necessary to construe them

objectively against the background or "*the relevant objective contextual scene*" known to both parties. Secondly the relevant meaning of the unilateral notices is the meaning that a reasonable recipient would have understood by the notices. The reasonable recipient "*would have had in the forefront of his mind the terms*" of the relevant underlying contract. Thirdly, that the purpose of the notice is relevant to its construction and validity. Prima facie, if a notice unambiguously conveys the purpose, a court will ignore immaterial errors which would not have misled a reasonable recipient. Fourthly, the notice must be sufficiently clear and unambiguous to leave a reasonable recipient in no reasonable doubt as to how and when the notice is intended to operate. Fifthly, in the context of clause which require a default notice and then a termination notice, the two notices must be connected both in content and in time. Sixthly, in this case the notice must notify the default. However I also consider that something is needed either indicating the seriousness of the situation or making some link to Clause 43.2 so that the reasonable recipient would realise that it was a Clause 43.2 notice. Obviously the background known to both parties may supply that. To that extent, I consider that the *obiter* statement in Architectural Installations requires some elaboration.

Notices: Failure to proceed regularly and diligently

421. Vivergo relies on letters dated 3 September 2010, 8 October 2010, 2 November 2010 and 22 February 2011. It says that reference to the relevant contextual scene and commercial background to the notifications makes it clear that Redhall was fully aware of the risks of termination in the event that it did not rectify its defaults. Vivergo says that it was at all relevant times quite clear that Redhall was required to rectify its defaults, and that if it did not do so, Vivergo could exercise its right of termination. Vivergo also makes a number of references to the evidence of Mr Noble concerning his view of matters.

422. Vivergo says that the notification of default does not need to be in any particular form or contain any specific words or information as the relevant part of Clause 43.2 provides that *"If the Contractor is in default ……… the Contract Manager may notify the Contractor of such default"*. It submits that all that is required is a statement that Redhall is in default. Clause 43.2 does not require anything further and, in particular, does not require Aker to indicate that if Redhall does not rectify the default then Vivergo may choose to exercise its right to terminate pursuant to Clause 43.2.

423. In relation to Redhall's submission that all the letters have different titles and do not mention clause 43.2, Vivergo says that there is no requirement in clause 43.2 for that provision to be mentioned or for any particular form of title. Vivergo says that the letters relied upon by Vivergo do notify Redhall that Redhall was in default of its contractual obligations.

424. Redhall says that none of the letters relied on by Vivergo, properly construed, are notices of default under clause 43.2 relating to a failure to proceed regularly and diligently.

425. In relation to Vivergo's submission, relying on Architectural Installations, that the warning notice merely needs to identify the default without more, Redhall says that this is of no assistance as the default is not unambiguously identified.

426. In relation to termination being a relevant matter of background, Redhall says that termination had been threatened in June 2010 at Bristol and in September 2010 but the threats had not been followed through. Redhall says that this background concern about termination is irrelevant because in February and March 2011 there was a negotiation about consensual termination. Redhall says that if and insofar as Vivergo wished to put in place a parallel process of termination for default, it was not enough simply to say that Redhall had reason to fear that termination was a possibility; it needed to be given unambiguous notice of the defaults which had to be rectified within 14 days.

427. It is clear that the letters have to be construed objectively against the background of facts known to both parties. It therefore follows that the references to Mr Noble's evidence where he stated what he thought the notices meant cannot be used to construe the letters as that is a matter of his subjective view of matters. It is however a matter of admissible background that the parties had been referring to the possibility of termination for some time and that there were negotiations for a consensual termination in February and March 2011.

428. It is evident that no particular form of notice is required under Clause 43.2 provided that it clearly and unambiguously communicates its purpose and if it does so errors which would not have misled a reasonable recipient will not affect the validity and effect of the notice.

429. I now turn to consider the particular letters relied on as being notices.

Letter of 3 September 2010

430. The relevant part of this notice stated:

> "*In accordance with the General Conditions of Contract Sub-Clause 13.6 we hereby give notice as follows:*
>
> *The rate of progress by the Contractor in carrying out the Contract works is likely to prejudice the Contractor's ability to complete the construction of the Permanent Works and specified sections thereof, in accordance with the provisions of Sub-clause 13.1, and this is due to a cause for which the Contractor is responsible.*"

431. Vivergo says that it is clear that the letter is notification of a breach of clause 13.6 which is inherently linked to a failure to proceed regularly and diligently and that, following such a notification, Redhall was obliged to use best endeavours to remedy the potential delay.

432. Vivergo submits that viewed in the objective commercial context, it would be quite clear that if Redhall did not use its best endeavours, including proceeding regularly and diligently, termination would be the outcome.

433. Redhall submits that there is no warning notice for failure to proceed regularly and diligently. It says that it is the words of the letters themselves which need to be considered objectively and that oral evidence of what the letters were thought to

mean is of no assistance because it relates to the subjective not the objective effect of the notices.

434. Redhall says that the title of the letter refers to it being a notice under clause 13.6 not Clause 43.2. It states that Redhall is in delay and clause 13.6 provides that "*Following such notice the Contractor shall use his best endeavours to remedy the potential delay at his own cost.*" Redhall submits that as the notice expressly mentions and addresses Clause 13.6, which is a different clause with a different purpose and a different consequence, it plainly fails the tests in Mannai.

435. Clause 13.6 provides as follows:

> *"Without prejudice to Sub-clause 13.5, if the Contract Manager decides that the rate of progress by the Contractor in carrying out of the Contract Works is likely to prejudice the Contractor's ability to complete the construction of the Permanent Works, or any specified section thereof, in accordance with the provisions of Sub-clause 13.1, and that this is due to a cause for which the Contractor is responsible, the Contract Manager may give notice to that effect to the Contractor. Following such notice the Contractor shall use his best endeavours to remedy the potential delay at his own cost"*.

436. The letter of 3 September 2010 has the title "Notice- Rate of Progress (Clause 13.6)." It states that the notice is being given in accordance with Clause 13.6. It refers to the fact that:

> *"The rate of progress by the Contractor in carrying out the Contract works is likely to prejudice the Contractor's ability to complete the construction of the Permanent Works and specified sections thereof, in accordance with the provisions of Sub-clause 13.1, and this is due to a cause for which the Contractor is responsible."*

437. That tracks precisely the wording of Clause 13.6. It is evidently a notice under Clause 13.6 and under that provision, following the notice Redhall had to use best endeavours to remedy the potential delay at its own cost. Whilst, in principle a letter can be a notice under two clauses, I do not consider that this letter can be. The fact that the rate of progress was likely to prejudice Redhall's ability to complete the works on time might reflect a failure to proceed regularly and diligently but as Redhall says Clause 13.6 is a different clause with a different purpose and a different consequence to Clause 43.2. The reasonable recipient of that letter would know that it had to use reasonable endeavours to remedy the potential delay at its own cost. It would not know that it had to take steps to remedy a default within 14 days to avoid termination.

438. It follows that the letter of 3 September 2010 cannot be construed as a notice under Clause 43.2 that Redhall is in default by failing to proceed regularly and diligently with the Contract Works.

Letter of 8 October 2010

439. The relevant part of this notice stated:

> "*We remind you that you have already been issued with a Clause 13.6 notice for failing to make due progress and your response clearly evidences that you either do not recognize the Schedule 11 priorities and/or are not using your best endeavours to rectify the delay to the contract works as required following such notice.*
>
> …
>
> *We require you to demonstrate practically that you are using best endeavours to recover the programme and work in accordance with the contract…*"

440. Vivergo says that the letter of 8 October 2010 was a clear reminder of Redhall's breach of contract in failing to make due progress.

441. Redhall says that this letter is not a notice at all and does not describe itself as one, having the title "Area Priorities". Redhall says that the letter merely reminds Redhall that the 13.6 notice has been issued and requires Redhall to prioritise its efforts in Areas 1, 2, 3 and Utilities. It says that the only reference to notices under the Contract is to the previous notice under clause 13.6 and again it submits that the letter plainly fails the tests in Mannai.

442. This is a letter notifying Redhall that it is in default either in not recognising the priorities in the Contract or in not using best endeavours to rectify the delay as required following the Clause 13.6 notice. Both of those matters might reflect a failure to proceed regularly and diligently. However, there is nothing to link that letter to it being a notice under Clause 43.2. It states not that Redhall has to take steps to remedy the situation within 14 days but that Redhall were required "*to demonstrate practically that you are using best endeavours to recover the programme and work in accordance with the contract.*"

443. I do not consider that a reasonable recipient of that letter would have had a clear and unambiguous notice under Clause 43.2. It follows that the letter of 8 October 2010 cannot be construed as a notice under Clause 43.2 that Redhall was in default by failing to proceed regularly and diligently with the Contract Works.

Letter of 2 November 2010

444. The relevant part of this notice stated:

> "*We would again refer you back to our correspondence throughout this contract to date. You have been in breach of contract since inception, commencing with your fundamental failure to comply with the essential provisions of Clause 13.3 (Approved Programme). Our letter dated 27th May refers.*

> *From the outset of the contract, you have failed to programme in logical detail, adequately resource and organise your works to even a basic acceptable level, which puts you in breach of clause 3.6. Your failure to resource correctly is further evidenced by the discussions held at Bristol where we reasonably offered, without prejudice, to assist with additional engineers, without any contractual obligation to do so, to help you overcome some of your own resource deficiencies at our cost. In summary, your performance on this contract to date has been deficient since the start. We have tried various initiatives to assist you along the way but your response each time has to fall further and further away from the required contractual performance level.*
>
> *Your letter is therefore completely rejected. We would remind you that you are still under clause 13.6 notice.*"

445. Vivergo submits that, again, there was no doubt that Redhall understood the nature of this letter as being related to termination and being a notice under Clause 43.2(b).

446. Redhall says that this letter is not a notice but under the title "Notice of Claim Headings" is an answer to the letter of 29 October 2010 in which Redhall notified a large number of grounds for extension of time and therefore plainly fails the tests for a notice in Mannai.

447. This letter is, in part, a reply to Redhall's letter of 29 October 2010 but clearly goes wider than that, although the heading reflects that purpose. It notifies Redhall that it was in default in failing to comply with Clause 13.3 but that is not a continuing default. It also notifies Redhall that it is in default because it has failed to programme in logical detail, adequately resource and organise its works to even a basic acceptable level which might be a failure to progress the works regularly and diligently but it relies on this being a breach of Clause 3.6.

448. It also notifies another default which might amount to a failure to proceed regularly and diligently which is in these terms "*your performance on this contract to date has been deficient since the start. We have tried various initiatives to assist you along the way but your response each time has to fall further and further away from the required contractual performance level.*" However all it then says is that Redhall's letter of 29 October 2010 is "*therefore completely rejected.*" It also reminds Redhall that it is still under a Clause 13.6 notice. This required Redhall to use its best endeavours to remedy the potential delay at its own cost.

449. As a result, I do not consider that a reasonable recipient of that letter would have had a clear and unambiguous notice under Clause 43.2. It follows that the letter of 8 October 2010 cannot be construed as a notice under Clause 43.2 that Redhall was in default by failing to proceed regularly and diligently with the Contract Works.

Letter of 22 February 2011

450. The relevant part of this notice stated:

> *"We record that you are now in breach of the contract conditions through your repeated inability to provide a revised Contract Programme (Clause 13.5) ... We must record our opinion that you are failing to proceed regularly and diligently with the Contract Works, as reflected in your inability to produce a competent programme."*

451. Vivergo says that this letter notified Redhall that it was in breach of its obligations both as to programming and as to proceeding regularly and diligently with the contract works. This was because Redhall's failure to submit an updated programme meant that it was failing to proceed regularly and diligently.

452. In relation to Redhall's contention that the letter relates only to programming issues, Vivergo says that the letter is also a notification of a breach of clause 43.2 as the letter specifically refers to the words used and only used in clause 43.2(b), that is a failure to proceed regularly and diligently with the Contract. The fact that the words are only used in Clause 43.2(b) means, Vivergo submits, that there could be no doubt in terms of the objective reasonable recipient that this was a notification under Clause 43.2 of the Contract and that the consequence would be termination if the default was not rectified within 14 days.

453. Redhall says that the title of this letter identifies the subject as "Programme" which is entirely accurate. Redhall says that it begins by discussing a completion plan submitted at a meeting and goes on to complain about the extension of time claim which, on the basis that it is referring to the February 2011 claim, was accompanied by supporting programming information taken from the Rev 03 Programme. Redhall says that the letter then moves on to an allegation of breach of Clause 13.5. Redhall says that the high point of Vivergo's case is the use of the phrase "*failing to proceed regularly and diligently with the Contract Works,*" in the last paragraph of this letter but it then refers back to the programming complaint when it says "*as reflected in your inability to produce a competent programme."* Redhall says that the letter is described as being about and is about programme.

454. Applying the Mannai tests Redhall submits that it would not be plain to a contractor reading that letter that it is talking about a failure to proceed regularly and diligently rather than programme. It submits that, in relation to a failure to proceed regularly and diligently rather than programme, the letter is not clear and unambiguous so as to leave a reasonable recipient in no reasonable doubt as to how and when it is intended to operate. In particular, it would not leave a contractor in no reasonable doubt that if no improvement in regular and diligent progress occurred within the next 14 days, Vivergo would be entitled to terminate even if a programme were produced. It submits that, based on *Mannai* any attempt to rely on the 22 February 2011 letter in respect of progress, as opposed to programme, is hopeless. Redhall also says that, in proceedings to reverse the decision of an Adjudicator, there is nothing that is put forward as additional support on this issue.

455. Redhall also submits that, whilst in principle a notice can notify two breaches, it must say that it is doing that and identify them separately. In the present case Redhall says that it was notifying a breach of Clause 13 which was said to be material and not a failure to proceed regularly and diligently within the meaning of clause 43.2.

456. As reflected in the title this letter was concerned with programming. It notified a particular default that Redhall was in breach of contract through its *"repeated inability to provide a revised Contract Programme (Clause 13.5)."* It then recorded an opinion but clearly that notified Redhall that Aker considered that Redhall was in default. I do not consider that it can be read otherwise. The default was a failure to proceed regularly and diligently with the Contract Works. That wording tracked Clause 43.2(b). A reasonable recipient of this letter would, as stated by Lord Steyn in Mannai, have *"in the forefront of his mind the terms of the [Contract]."*

457. I do not think that it is possible to proceed on the basis that the reasonable objective recipient would be ignorant of the terms of the contract. In the current contract, as in other standard forms, the use of the phrase "regularly and diligently" is recognised as a phrase which appears in the context of a serious breach and frequently part of a termination clause. When construing the Contract between two well versed commercial parties in this industry, Lord Steyn's statement that the reasonable recipient would objectively have the terms of the contract and, in particular, the termination clause in the forefront of their mind, is amply justified. If any further support were required for this then the admissible background shows that termination was a matter mentioned between the parties and being discussed, albeit on a consensual termination basis, at the time of the notice.

458. On that basis there is a clear and unambiguous link between the letter of 22 February 2011 and the terms of Clause 43.2(b) for the reasonable objective recipient of the letter. However, the question then arises as to what default was being notified. The phrase in the letter is a failure "*to proceed regularly and diligently with the Contract Works, as reflected in your inability to produce a competent programme*." Vivergo says that this is an example of the failure. I do not accept that. The phrase "*as reflected in your inability to produce a competent programme*" cannot be construed as a reference to a wider and different breach of the obligation to proceed regularly and diligently. When read in the context of the letter as a whole it is, as Redhall submits, a reference to Redhall being in default because of its "*inability to produce a competent programme.*" The notice would convey to a reasonable recipient that the default under Clause 43.2(b) which Redhall had to take steps to rectify within 14 days was the failure to provide the programme. I do not consider that it can be construed as giving a clear and unambiguous notice that Redhall had to take other steps within that 14 day period in relation to a default in failing to proceed regularly and diligently.

Notices: Programming

459. Vivergo relies on its letters of 1 February 2011 and 22 February 2011 which I will deal with in turn.

Letter of 1 February 2011

460. The letter referred to the fact that Redhall had said that the revised programme would be issued in two weeks in Redhall's letter of 20 January 2011 and at the monthly progress meeting on 12 January 2011. It added:

> "*Your continued failure to provide a programme to complete the works exacerbates the difficulties caused by your delays.*

> *This breach of your contract obligations denies us the most basic of project control tools required to mitigate the consequential impact of your delays.*"

461. Vivergo says that this letter refers to Redhall's "Breach of contractual obligations" in their "continued failure to provide a programme." As such Vivergo submits that, properly construed under clause 43.2, it is a valid notice of default.

462. Redhall accepts that this letter and the letter of 22 February 2011 are letters about the programme. However it says that what is important in relation to the two letters is that they do not make it clear that Redhall had 14 days to remedy the breach or the Contract would be terminated under clause 43.2. Redhall says neither letter states on its face that it was a notice under clause 43, or says in terms that the breach complained of would or might be relied on as a ground for termination. In particular Redhall says that neither letter refers to termination, there is no reference to the 14 day time period, there is no reference to clause 43.2 and neither letter is described as a notice.

463. Redhall says that, under the test adopted by Lord Steyn and Lord Clyde in *Mannai*, these are serious defects in the notices. Redhall says that the letters must be clear and unambiguous so as to leave a reasonable recipient in no reasonable doubt as to how and when they are intended to operate. In order to say how the letter was to operate, Redhall says it required a reference to termination and to say when it was to operate required a reference to the fact that Redhall had 14 days in which to provide a programme.

464. I do not consider that this letter could be construed as a clear and unambiguous notice under Clause 43.2. There is a reference to a default in terms of a continued failure to provide a programme to complete the works and it is said to be a breach. It is however a letter complaining about the consequences of that failure. There has, in my judgment, to be something which leaves the recipient in no reasonable doubt as to how and when it is intended to operate. There has to be a link between the letter and Clause 43.2(c) but there is none in this letter.

465. As a result, I do not consider that a reasonable recipient of that letter would have had a clear and unambiguous notice under Clause 43.2. It follows that the letter of 1 February 2011 cannot be construed as a notice under Clause 43.2 that Redhall was in default by committing a material breach of the obligation to provide a programme.

Letter of 22 February 2011

466. The relevant part of this letter states:

> "*We record that you are now in breach of the contract conditions through your repeated inability to provide a revised Contract Programme (Clause 13.5). Your assertion that you are still preparing a "revised Contract Plan" is unacceptable.*

> *We must record our opinion that you are failing to proceed regularly and diligently with the Contract Works, as reflected in your inability to produce a competent programme.*"

467. As stated above Vivergo relies on this letter as notifying Redhall that it was in breach of its connected obligations both as to programming and as to proceeding regularly and diligently with the contract works. It says that this letter gave Redhall notice of default in relation to Redhall's programming obligations. Redhall, as set out above, contends that it is not sufficient to be a Clause 43.2 notice.

468. This letter refers in clear and unambiguous terms to Redhall being in breach of Clause 13.5. The context in which the breach is mentioned means that it is a clear notice of a breach of contract and is intend to give notice of a default. There is the link to Clause 43.2(b) which I have dealt with above and I consider that this places the notice of a breach of Clause 13.5 into the context of Clause 43.2 and, in my judgment, is just sufficient, particularly taking account of the discussions as to termination, to amount to a notice under Clause 43.2(c).

Rectification under Clause 43.2: programming

469. It follows from my conclusions as to the notices that the notice of 22 February 2011 was sufficient to notify Redhall of the operation of Clause 43.2(b) and 43.2(c) in relation to the failure to provide a programme as a failure to proceed regularly and diligently and as a material breach of Clause 13.5. The effect of the notice under both sub-clause was that, if Redhall failed to commence and diligently pursue the rectification of the default within a period of fourteen days after receipt of notification, Vivergo could by notice terminate the employment of Redhall under the Contract.

470. I therefore now turn to consider whether Redhall failed to commence and diligently pursue the rectification of the default in failing to produce a programme.

471. Vivergo says that Redhall had 14 days within which to "commence and diligently pursue the rectification of the default" and that this obligation was cumulative so that it was not enough for Redhall to simply commence rectification. Vivergo says that Redhall's submission on 3 March 2011 of the Rev 4 Programme was not in accordance with the Contract or a serious attempt to rectify Redhall's breach of contract. It contends that the programme submitted was useless and was neither the commencement of rectification of the default nor its diligent pursuit.

472. Redhall submits that it remedied the absence of a programme by producing one and therefore complied with any clause 43.2 notice in relation to programming. In relation to Vivergo's contention that the Rev 4 Programme was not in accordance with the Contract, Redhall says that Mr Gamble's Rev 4 Programme was a huge first step in remedying any programming breach. It says that action was taken within 14 days of the notice of 22 February 2011 and was still under consideration at the date of the termination letter.

473. Redhall says that Vivergo's approach is wrong because the question is not whether Redhall entirely rectified the breach, but whether it commenced and diligently pursued the rectification of the breach. Redhall says that the breach which was to be

rectified was the breach based on there being no programme. Redhall says that, in fact, the Rev 4 Programme was a genuine and useful document which was a good start to remedying the absence of the programme. Redhall accepts that the Rev 4 Programme was not completed in every respect. In relation to the matters raised by Vivergo, it says they are not complaints that there was no programme but that the programme omits certain features required by the Contract.

474. Redhall also says that it is significant that, at the time, the programme was not rejected out of hand by Aker but was still under consideration and, as Mr Adam said, Aker would have gone on discussing it with Redhall if the process had not been cut short by termination.

Contract Requirements

475. Vivergo refers to the requirements of the Contract Programme in Schedule 2, Exhibit 1, Clause 2.2.1 which provides

> "*Contract Programme*
>
> *In accordance with Clause 13 of the Conditions of Contract a Contract Programme shall be submitted by the Construction Contractor to EPCm Contractor for approval and shall demonstrate the Construction Contractor's entire scope of Works, in bar chart or network form scaled in weeks or days, corresponding with EPCm Contractor's programme requirements. The activities shown on the Contract Programme must include:-*
>
> *(1) All dates for the latest receipt of information, materials, access and services required from EPCm Contractor or other external sources which are critical to the Contract Programme.*
>
> *(2) Any design undertaken by the Construction Contractor.*
>
> *(3) Construction Contractor material procurement and delivery.*
>
> *(4) Sub-contract negotiation and mobilisation periods.*
>
> *(5) Prefabrication periods (both on and off-site).*
>
> *(6) Construction work and testing activities.*
>
> *(7) Clear-up work and handover.*
>
> *(8) Key interfaces with other Construction Contractors.*
>
> *Generally, any activities over 1 month duration should be broken down into quantifiable and measurable packages for progress calculations.*
>
> *The Contract Programme shall also comply with the following:-*

> *(a) Any Work Breakdown/Package Structure advised by EPCm Contractor.*
>
> *(b) Primavera or Microsoft Project based (unless agreed otherwise by EPCm Contractor).*
>
> *The Construction Contractor shall indicate against each activity the estimated manhours required for the activity, and the number of men required from each trade for each week of the activity.*"

476. The main issue between the parties is the extent to which the Rev 4 Programme fell short of being a programme which complied with the provisions of the Contract. However, I accept Redhall's submission that what it had to do within the 14 day period was to commence and diligently pursue the rectification of the default, not rectify the default completely.

477. That meant that it had to commence and diligently pursue the production of a programme. In particular, under Clause 13.5 Redhall had to revise the Approved Programme in the light of the circumstances and re-submit it for approval. The issue therefore is whether, to the extent to which there are matters complained of by Vivergo, those matters indicate that Redhall had not commenced or were not diligently pursuing that objective. I now turn to consider the main complaints.

PRX version

478. Vivergo complains that the Rev 4 Programme was inexplicably only submitted in PDF format and for that reason alone was of little use being incapable of interrogation. Vivergo also says that despite requests from Mr Adam, Redhall refused to provide an electronic Primavera PRX version to Vivergo.

479. Vivergo refers to Mr Crossley's evidence that the PDF version of the Rev 4 Programme made it a fundamentally worthless submission for the purposes of seeking the Contract Manager's approval for the purposes of clause 13.5 as the native Primavera file was needed to go behind the programme to check the basis of the programme itself, such as logic, float and criticality, the sequence and interrelationship between activities, constraints, resources, quantities, calendars with working days and hours, and dates. He says that the pdf as submitted did not show the Early Finish column and as a consequence it was difficult to determine with any degree of certainty in most instances the planned finish dates of activities and milestones.

480. Redhall says that there was an electronic version but it was not passed on when requested informally by Les Adam and there was no formal request. Rather, at the formal level of contract correspondence Redhall says that Aker ignored the Rev 4 Programme entirely.

481. The relevant provision of the Contract states that the programme must be "*Primavera or Microsoft Project based (unless agreed otherwise by EPCm Contractor)*".I have no doubt that in order for the Contract Manager to approve the Rev 4 Programme it would have been necessary to have access to a version of the Rev 4 Programme in Primavera for the reasons set out by Mr Crossley and that the

PDF version could not be approved. However the PDF version of the programme showed that it was a Primavera based programme and I consider that this was sufficient for the purpose of fulfilling the obligation required under Clause 43.2 within 14 days. It is not clear why a PRX version was not produced or why Mr Adam was not given a better explanation for Redhall not producing it. However I accept that what was produced by Mr Gamble indicated major performance of the appropriate obligation and that was sufficient for the purposes of Clause 43.2.

Completion Date

482. Vivergo says that the Rev 4 Programme showed a later date than the date shown in the "Completion Date" submitted less than one month before and therefore was not a "recovery" programme but pushed the completion date back to 31 August 2011 from 11 February 2011 in the Rev 3 Programme, 27 May 2011 in the February Claim and 3 March 2011 in the March claim. In this respect Vivergo says it did not comply with clause 14.3 or, indeed, show any intent to recover lost time.

483. In relation to this complaint, Redhall says that Vivergo's complaint is inconsistent and is not a serious criticism of the Rev 4 Programme as a programme. It says that a programme which is realistic is better than a programme which is unrealistic.

484. The programming assumptions which were made by Mr Gamble in preparing the Rev 4 Programme would, I have no doubt, have led to a discussion between Redhall and the Contract Manager, based precisely on the points that Vivergo makes. The end date in the Rev 4 Programme would be the result of such a discussion. However it is evident that what was needed was a programme which was a major revision to the Approved Programme and clearly Redhall could not at 3 March 2011 complete the Contract Works by the original date, as extended. I do not consider that the date, in itself, reflects a failure to carry out the necessary rectification under Clause 43.2.

Rate of progress, manhours and productivity

485. Vivergo complains that it was not apparent from the Rev 4 Programme how the future rate of progress was calculated or how many men/resources or what productivity was assumed. It refers to Mr Gamble's evidence that the programme assumed past poor productivity of an average of 3,500 of achieved manhours per week which reflected the average manhours achieved by Redhall since start of works on site.

486. Vivergo says that it was inappropriate to take that figure in circumstances where it was based on a period of time when Redhall said it was having problems with smoking, a labour cap and access lighting, which were not now affecting the work. Mr Gamble said he adopted the figure after discussion with Mr Herman.

487. Redhall says that Mr Gamble took a rate of progress which was derived from past performance by Mr Elwood and Mr Herman's achievable hours per week, taking account of Mr Irving's views on testing. Redhall says that the result might have been conservative and Mr Gamble hoped to do better which is common sense. In relation to not showing the manhours against each activity, Redhall says that the Rev 4 Programme did include manhours for many of over 13,000 activities. Redhall says that there was a manhour column and in each row containing an activity there is a box for the manhours and the vast majority of the activities have manhours in that box. To the extent that they do not, Mr Gamble was still working on the

programme and would have included them in the "colossal task" of the Rev 4 Programme.

488. In relation to not showing a manhour histogram, Redhall says that the PDF version did not include a labour histogram but that Mr Gamble did produce one. As he explained there has to be an assumption about a certain level of achieved manhours and then, using the electronic version, a labour histogram can be produced, once it has been levelled. Redhall says that the PDF version was produced after levelling the electronic version.

489. The assumption as to manhours per week was a fundamental assumption underlying the programme and obviously, with other assumptions, determined the end date. Again this assumption would, no doubt, have been the subject of discussion in the course of the approval process.

490. In relation to the manhours, the Contract required the programme to "*indicate against each activity the estimated manhours required for the activity, and the number of men required from each trade for each week of the activity.*" The evidence indicates that the version submitted on 3 March 2011 was being prepared on the basis that the final version would have complied with this obligation and it is that which I consider is relevant to the issue which I have to consider for the purpose of assessing whether Redhall had complied with its Clause 43.2 obligation.

Logic links and critical path

491. Vivergo complains that the Rev 4 Programme did not show any logic links or critical path or paths.

492. Redhall says that the Rev 3 Programme did not show a true critical path and nor did the Rev 4 Programme for the same reason. Redhall's work had a large element of bulk build so that activities on different areas could proceed simultaneously with the limiting factor being the number of manhours per week. In relation to it not showing logic links, Redhall says that there were logic links in the Rev 4 Programme but there could not be and did not need to be a complete set of logic links to reflect a critical path because there was no overall critical sequence.

493. I have already dealt with the existence of a critical path on this project. Clearly the programme needed to show and did show the activities which would have led to completion and, in that sense, were the critical path. It also had logic links although these would have been more apparently on the PRX version of the programme. I consider that the version produced on 3 March 2011 complied sufficiently with the necessary programming requirements as to critical path and logic links to satisfy Redhall's requirements under Clause 43.2.

Full scope

494. Vivergo complains that the programme failed to include the entire scope of works by including past works as well as future works,

495. Redhall says that it was sensible to programme at level 4 and to programme the remaining works and that to programme works already completed would have been a waste of time. Whilst the first contract programme needs to include the entire

scope of works, for a programme at the stage when, for example, fabrication was complete, programming that work would have been a waste of time.

496. The Contract provided that the programme should "*demonstrate the Construction Contractor's entire scope of Works.*" Whilst the programme might be expected to show past performance of a "time now" basis, it was the future performance of the entire scope of Redhall's future works which were likely to be the focus of discussions with the Contract Manager.

497. In discussions the extent to which the programme was going to show past performance for the purpose of approval would no doubt have come clear. I do not consider that the absence of the work already performed indicates that Redhall had failed to comply with the necessary rectification of the default under Clause 43.2.

Summary

498. It follows that I consider that the Rev 4 Programme produced by Mr Gamble and submitted to Aker on 3 March 2011 was sufficient to comply with Redhall's obligation under Clause 43.2 and showed that within 14 days Redhall had commenced and diligently pursued the rectification of the programming default notified in the letter of 22 February 2011.

Termination under the Contract

499. For the reasons set out above I have concluded that Redhall was in material breach of its programming obligation and was not proceeding regularly and diligently but that the only notice given under Clause 43.2 was that dated 22 February 2011 which in both respects required Redhall within 14 days to commence and diligently pursue the rectification of the programming default.

500. Redhall complied with this obligation under Clause 43.2 and therefore as at 11 March 2011 Vivergo were not entitled to terminate the Contract under Clause 43.2.

Termination at Common Law by Vivergo

501. Vivergo submits that on the basis of its performance of the Contract Works, Redhall was in repudiatory breach of Contract as at 11 March 2011 and that the letter of termination dated 11 March 2011 and/or its actions in barring Redhall from site on 14 March 2011 were an acceptance of Redhall's repudiatory breaches of Contract.

Entitlement to determine at common law

502. Vivergo refers to Clause 43.2 and refers to the fact that it is expressly stated to be without prejudice to *"any other rights and remedies which the Purchaser may possess"* and does not accordingly preclude Vivergo from terminating at common law.

503. This is not contested by Redhall and, in any event, I consider that Vivergo retains a right to terminate the Contract for repudiatory breach as well as having the contractual rights under Clause 43.2.

Repudiatory breach

504. Vivergo submits that Redhall was in repudiatory breach of Contract as at 11 March 2011 in that Redhall's failure to proceed regularly and diligently was also a repudiatory breach of the Contract on the basis that this is a breach of its obligations as to time, sequencing and quality of the works.

505. Vivergo says that these matters were all conditions of the Contract and, in particular, time was an essential stipulation of the Contract which Redhall guaranteed it would fulfil in Schedule 12 to the Contract, which stated: *"Contractor guarantees that the date of Completion stated in this Contract to be a firm and final delivery date for completion by the Contractor of all of the Works."*

506. Vivergo submits that the contractual context supports this because the standard IChemE terms which preclude the recovery of lost profits or loss of production was not amended and Redhall's liability for liquidated damages was capped at £1,060,000 in Schedule 12. Vivergo says that this meant that a breach of Redhall's obligations as to time would cause Vivergo to incur losses it could not recover, so that the obligation as to time was a condition of the type which, as stated in Wallis, Son & Wells v Pratt & Haynes [1910] 2 KB 1003 at 1012:

> "*go so directly to the substance of the contract or, in other words, are so essential to its nature that their very non-performance may fairly be considered by the other party as a substantial failure to perform the contract at all.*"

507. Vivergo submits that the extent and gravity of Redhall's breaches of its obligations as to time and sequencing of the works amounted to a repudiatory breach. In particular, Vivergo relies on Redhall "best case" as at 11 March 2011 was completion on 31 August 2011, a delay of 184 days and that the majority of the causes of this delay were all to Redhall's account and that Redhall's sequencing sought only to progress those areas which would bring the highest financial return.

508. Vivergo said that Redhall was notified of its failure to meet its obligations as to rate of progress by the letters dated 3 September 2010, 8 October 2010 and 22 February 2011.

509. Redhall submits that any failure to proceed regularly and diligently did not amount to a repudiatory breach of the Contract in this case. In relation to time, whilst Redhall had not completed the works, it cannot be said that the delay went to the root of the Contract which contained provisions for substantial liquidated damages and where time was not of the essence.

510. Redhall says that this is not a case such as that considered by the Court of Appeal in Hill v London Borough of Camden (1980) 18 BLR 31 where the contractor reduced labour and removed plant, an office and a quantity surveyor when there was a failure to pay and where Ormerod LJ observed that it was not arguable on those facts that there was a repudiatory breach. Redhall says that by 11 March 2011 it had completed over 80% of the Contract Works and had maintained at least 250 men on site. In those circumstances it submits that there was no repudiatory breach of the Contract.

511. Whilst I have held that Redhall was not proceeding regularly and diligently with the Contract works in the sense that it was not proceeding continuously, industriously and efficiently with appropriate physical resources so as to progress the works steadily towards completion substantially in accordance with the contractual requirements as to time and sequence, it was continuing to proceed with the works in a manner which would have led to completion, on the latest programme, at the end of August 2011. It had low productivity and needed more labour and better supervision so as to complete at an earlier date, given that by March 2011 it was in delay in relation to the completion date.

512. However Redhall's failure to proceed regularly and diligently with the works did not evince and intention not to be bound by the terms of the Contract or go to the root of the Contract. This is not a case where Redhall stopped or abandoned the works. Whilst it was late there were problems with Industrial Relations which were difficult to overcome and whilst not entitling Redhall to an extension of time were of a different character to, for instance, delay deliberately caused. Nor do I consider that any of the letters written by Vivergo and relied on by it had any effect upon the character of Redhall's delay at the time by, for instance, making a failure of the essence.

513. On the facts of this case I do not consider that Redhall's failure to proceed regularly and diligently amounted to a repudiatory breach.

Acceptance of a previous repudiatory breach

514. The law on this matter was set out in the judgment of Moore-Bick LJ in the Court of Appeal in Stocznia Gdynia v Gearbulk Holdings [2009] 1 Lloyd's Rep 461 at [43-44] where he said:

> "*43. The arbitrator held that the yard had repudiated each of the contracts by the time Gearbulk sent its letter of termination. As a result counsel on both sides addressed the court at some length on whether the letters of 7 November 2003 and 4 August 2004, neither of which purported in terms to accept the yard's conduct as a repudiatory breach discharging the contract, was nonetheless effective to bring about that result. We were referred in that connection to a number of authorities, including Stocznia Gdanska SA v Latvian Shipping Co [2001] 1 Lloyd's Rep 537; [2002] 2 Lloyd's Rep 436 (CA) and Dalkia Utilities Services plc v Celtech International Ltd [2006] 1 Lloyd's Rep 599. In view of the conclusion to which I have come on the construction of the contracts this question does not arise in the present case and I therefore propose to express my view on it shortly.*
>
> *44. It must be borne in mind that all that is required for acceptance of a repudiation at common law is for the injured party to communicate clearly and unequivocally his intention to treat the contract as discharged: see Vitol SA v Norelf Ltd [1996] 2 Lloyd's Rep 225; [1996] AC 800, pages 810G to 811B per Lord Steyn. If the contract and the general law provide the injured party with alternative rights which have*

> *different consequences, as was held to be the case in Dalkia Utilities v Celtech, he will necessarily have to elect between them and the precise terms in which he informs the other party of his decision will be significant, but where the contract provides a right to terminate which corresponds to a right under the general law (because the breach goes to the root of the contract or the parties have agreed that it should be treated as doing so) no election is necessary. In such cases it is sufficient for the injured party simply to make it clear that he is treating the contract as discharged: see Dalkia Utilities v Celtech, para 143 per Christopher Clarke J. If he gives a bad reason for doing so, his action is nonetheless effective if the circumstances support it. That, as I understand it, is what Rix LJ was saying in para 32 of his judgment in Stocznia Gdanska SA v Latvian Shipping Co, with which I respectfully agree*
>
> *45. In the present case the parties accept, and indeed the arbitrator has found, that the breaches on the part of the yard which entitled Gearbulk to terminate the contracts were in each case sufficient to amount to a repudiation. I accept Mr Dunning's submission that in its letters of 7 November 2003 and 4 August 2004 Gearbulk purported to terminate the contract pursuant to article 10.1(b) and (c) and not under the general law, but each of the letters treated the contract as discharged and in those circumstances each was sufficient to amount to an acceptance of the yard's repudiation."*

515. In the circumstances Vivergo says that, on the basis of Stocznia Gdynia v Gearbulk Holdings, the letter of 11 March 2011 was effective notice that the Contract was determined at common law, notwithstanding the fact that it did not purport in terms to accept Redhall's conduct as a repudiatory breach discharging the Contract. Alternatively, Vivergo says that its actions in barring Redhall from site on the morning of Monday 14 March 2011 clearly indicated it was treating the Contract as discharged for repudiatory breach.

516. Redhall says that, in any event, neither the letter of 11 March 2011 nor anything else was sufficient to amount to an acceptance of a repudiatory breach. It refers to the decision in Shell Egypt Manzala GmbH v Dana Gas Egypt Ltd [2010] EWHC 465 (Comm) where the court held that the reasonable recipient of the purported termination would have considered that the termination was unequivocally being exercised pursuant to the contractual machinery alone.

517. In the present case I have held that the matters relied on for termination under Clause 43.2 were not sufficient to amount to a repudiatory breach of the Contract by Redhall. In addition on termination under Clause 43.2 of the Contract would have different consequences to termination at Common Law.

518. In such circumstances then as Moore-Bick LJ said in Stocznia Gdynia at [44]:

> *"If the contract and the general law provide the injured party with alternative rights which have different consequences, as*

> *was held to be the case in Dalkia Utilities v Celtech, he will necessarily have to elect between them and the precise terms in which he informs the other party of his decision will be significant…."*

519. In my judgment, having found that the grounds under Clause 43.2 and the grounds for termination for repudiatory breach would be different, the terms of the letter of 11 March 2011 would not, in any event, be appropriate to amount to an acceptance of the a repudiatory breach. In the circumstances where there is no repudiatory breach, Vivergo's action in barring Redhall from the site cannot amount to an acceptance of a repudiatory breach.

Termination at Common law by Redhall

520. Redhall contends that, at the very least, the letter of 11 March 2011 wrongfully exercising rights to terminate the Contract under Clause 43.2 and the conduct by Vivergo in barring Redhall from the site were repudiatory breaches of the Contract by Vivergo. This is effectively not contested by Vivergo and I find that there was a repudiation of the Contract by Vivergo which was accepted by Redhall.

Summary and Conclusions

521. For the reasons set out above my conclusions on the main issues in this case are that:

1) Redhall is entitled to an extension of time of 15.23 working days to the overall completion date from 11 February 2011 to 7 March 2011.

2) Redhall is entitled an extension of time of 12.03 working days to the milestone dates.

3) Redhall was failing to proceed regularly and diligently with the Contract works on 22 February 2011.

4) Redhall was in material breach of its obligation to provide a programme in accordance with Clause 13.5 on 22 February 2011.

5) On 22 February 2011 Aker gave a valid notice to Redhall under Clause 43.2 of the Contract, notifying Redhall that it was failing to proceed regularly and diligently because it had failed to provide a programme and was in material breach of the Contract by failing to provide a programme in accordance with Clause 13.5.

6) By 11 March 2011 Redhall had complied with the obligation under Clause 43.2 and had within 14 days commenced and diligently pursued the rectification of the programming default notified in the letter of 22 February 2011.

7) Redhall was not in repudiatory breach of the Contract on 11 March 2011 and Vivergo's letter of 11 March 2011 was not, in any event, an acceptance of that repudiation, neither was Vivergo's conduct in barring Redhall from site on the morning of Monday 14 March 2011 such an acceptance.

8) Vivergo was accordingly in repudiatory breach of the Contract by barring Redhall from site on the morning of Monday 14 March 2011 and Vivergo's repudiatory breach was accepted by Redhall's letter of 14 March 2011 and the Contract was thereby terminated.