Witness Name: Graham Allen

Statement No.: WITN0478_01

Exhibits: WITN0478_01/1 – WITN0478_01/17

Dated: 4 August 2022

POST OFFICE HORIZON IT INQUIRY

FIRST WITNESS STATEMENT OF *GRAHAM ALLEN*

I, *MR GRAHAM ALLEN*, will say as follows:

INTRODUCTION

1. I am the Operations Manager for Post Office Account at Fujitsu Services Limited ("**Fujitsu**"), a position that I have held since January 2022. This role incorporates part of my previous role in managing most of the teams that deliver application changes to the Horizon Online applications.

2. This witness statement is made on behalf of Fujitsu to assist the Post Office Horizon IT Inquiry with the matters set out in the Rule 9 Request provided to Fujitsu on 11 March 2022 and a series of further questions provided to me by the Inquiry on 1 July 2022 (the "**Request**"), to the extent I have direct knowledge of such matters.

3. The topics set out in the Request relate to events that took place more than 12 years ago. These topics relate to the initial and high-volume pilots of Horizon Online in the period 2007 to 2010, and the robustness of Horizon Online. In preparing this witness statement, I have provided information to the best of my ability where my recollection is strong; however, there are questions and events where my recollection is limited.

4. In preparing this statement, I have refreshed my memory by reviewing contemporaneous documents relating to the questions asked by the Inquiry in the Request. Where relevant to the Request, these documents are referred to using references WITN0478_01/1 – WITN0478_01/17 and are listed in the index accompanying this statement. To the extent that these documents have not already been provided to the Inquiry, they are exhibited to this statement.

BACKGROUND

5. I joined ICL Retail in 1991 as a Graduate Developer, later progressing and becoming an Application Development Manager. In 2007 I started working on the project to implement Horizon Online (the "**Project**"). From about 2012 to 2017, I did not work on the Post Office Account at Fujitsu, and I was not involved in any projects or other work relating to Horizon Online. In 2017, I returned to the Post Office Account and started again working on matters relating to Horizon Online.

6. The Project had two parts:

    a. developing a brand new branch application, called 'the counter'; and

    b. migrating the datacentre applications to a new datacentre.

7. When I joined the Project, it was halfway through its delivery and the initial pilot was due to commence. I recall that the architecture for Horizon Online was nearing completion, the design and development of the applications was underway, and the installation of hardware in the datacentre had commenced. Alan D'Alvarez had completed a review of the delivery challenges the Project was experiencing at the time, and had made recommendations concerning how the Project could be improved. My development teams would have been involved in implementing the

recommendations from the review that were taken forward, but I do not recall what these were.

8. The development teams that I oversaw had approximately 100 to 150 staff. I was responsible for ensuring these teams had enough resources to support the Project, and helping to resolve conflicts in resourcing or technical challenges. My teams only worked on Horizon Online. The resources I was responsible for were the people working on the design and development of software, including any amendments to the software. In terms of other resources relating to staffing, there were multiple other disciplines including project and programme managers, hardware and software architects, hardware engineers, and release specialists among many others. Other resources not relating to people and staffing included facilities and space, hardware, software tools and all things required to deliver an IT programme. Whilst this was my primary role, my role changed over time and my experience in applications development and the understanding I gained of the Horizon Online system allowed me to assist with understanding, describing, communicating and resolving issues as necessary.

9. My team and I reported into the Head of Applications, Barbara Perek, who reported into the Programme Director, who at the time I joined was Martyn Hughes. The members of the Project team changed for various reasons until Alan D'Alvarez, who was the Programme Manager of the Project at the time of the pilot and rollout of Horizon Online. Fujitsu is a matrix organisation and so the Head of Applications, myself and all my team worked for Application Services, which was part of Core Services and were on assignment to the Project. I recall observing that there was

generally good interaction between all teams involved in the Project, including teams from Fujitsu and the Post Office, and I am not aware of any technical or operational issues that could not be resolved due to poor interactions or relationships amongst individuals or teams working on the Project. I was also involved in Fujitsu's internal 'weekly programme boards', where the team managers and project managers reviewed the progress of the Project, and any challenges being faced, with the Project's senior management. I cannot recall any of the specific discussions in these weekly programme boards in relation to the Project but they were mainly focussed on the many issues that occurred and needed to be resolved.

10. The Project also involved a team from Post Office Limited (the "**Post Office**"), and there were communication mechanisms in place regarding project progress and about which Post Office branches were to be migrated from the existing Horizon system (now referred to as "**Legacy Horizon**") to Horizon Online, as well as success markers for those Post Office branch migrations. This process was planned and operated by the implementation team. I do not recall being responsible for any specific communication mechanisms. Having reviewed the 'Notes of Horizon Next Generation Joint Progress/Release Board Meeting of 25 February 2010' (WITN0478_01/1) and 'HNG – Post Office Highlight Report (for Joint Release Board)' dated 3 March 2010 (WITN0478_01/2), I do recall being involved in a weekly joint steering board meeting, which is an example of a communication mechanism involving Post Office and Fujitsu during the pilot and rollout of Horizon Online where the progress of Post Office branch migrations was discussed.

11. Post Office staff were often on site in Fujitsu's office in Bracknell ("**Bracknell**") and at the time, the Post Office were operating a joint test team with Fujitsu based at Bracknell and so Post Office employees were always present. Based on my experience, the relationship between Fujitsu and the Post Office was a typical customer and supplier relationship, which was naturally challenging if project timelines were running later than anticipated for example. Whilst I do not recall specific issues that occurred at the time, I do recall that when I joined there was an expectation the Project would be completed in approximately six months, which as we know now took approximately three years. This gives an indication that there were significant challenges to overcome.

12. I was not involved in any contractual matters relating to Horizon Online, nor aware with any certainty of Fujitsu's or the Post Office's contractual obligations in relation to Horizon Online.

TECHNICAL ISSUES IDENTIFIED DURING THE INITIAL PILOT

13. Horizon Online initially experienced many issues, which in my experience, were typical of large IT projects, both in terms of the volume and types of issues. As I was responsible for overseeing the development teams, technical issues would only be escalated to me if the issue was complex or serious. An example of a complex or serious issue is where the issue is affecting Post Office branches, likely to cause a delay to project timelines, or needs particular focus from one or more of my teams. Given how long ago these events took place, my recollection of specific technical issues that were identified during the initial pilot of Horizon Online is limited.

14. I can recall that the first night of the Horizon Online pilot was problematic. The mechanism of migrating a branch from Legacy Horizon to Horizon Online was complicated; the branch could not trade on a mixture of the two systems and was therefore designed to ensure that sufficient counters switched over or the whole branch rolled back automatically. I cannot recall the cause of the failure, how serious the technical issue was, or the impact of the technical issue on those first branches; I only recall being woken early on a Saturday morning to join calls to help support the people diagnosing the problem. However, having reviewed the documents which I reference below at paragraph [14(b)], I am able to provide the following information:

   a. The initial technical issues experienced during the initial pilot related to the upgrade mechanism for migrating Post Office branches from Legacy Horizon to Horizon Online. These technical issues resulted in some branch migrations being unsuccessful and two Post Office branches not being able to trade for part of the first day following their migration to Horizon Online until those branches were rolled back to Legacy Horizon. As the initial pilot was a significant step for the Project, I was part of the team involved in co-ordinating teams to investigate and resolve the issue.

   b. Following the resolution of the initial technical issues noted at paragraph [14(a)], there were some further issues with three Post Office branches, which required significant attention and hence my involvement. Two of these issues would have resulted in discrepancies in Post Office branch accounts, which were resolved and the root cause of the issues fixed before the initial pilot was continued. 'Root Cause Analysis' reports were produced at the time which indicated what occurred

for two of the issues, for example, the 'Issue of Duplicate Settlements found at Derby' (WITN0478_01/3) and 'Rollover Issues at Warwick' (WITN0478_01/4). At the time, these issues were monitored jointly by Fujitsu and Post Office in an 'HNG-X Daily Issues' report, which was discussed during meetings concerning 'Horizon Next Generation Implementation'. Examples of these documents are the 'HNG-X Daily Issues' report (WITN0478_01/5) and notes of the 'Horizon Next Generation Implementation' meeting on 8 February 2010 (WITN0478_01/6), which were emailed to Post Office and Fujitsu employees, including myself, on 8 February 2010 (WITN0478_01/7).

15. I can also recall the following issues:

a. There were constraints which made it harder to deliver the technical solutions. For example, the newly developed counter application still had to work on the Microsoft NT4 Operating System ("**NT4**"), as it was viewed as too expensive to upgrade to more current technology. This created challenges for the architecture and development of the application. I do not recall being involved in the decisions concerning whether to upgrade the operating system in Post Office branches from NT4, and I do not have knowledge of which persons or entities considered such an upgrade as too expensive, however I assumed that it was the Post Office at the time. I cannot recall further specific instances of other constraints that related to the Project.

b. The work required to deliver the Project was greater than what was expected when the work was proposed and contracted, and therefore took longer to deliver. As the Project progressed in detail, a lot of additional work was uncovered. As I

was not responsible for any aspect of the commercial agreement between Fujitsu and Post Office, I have no knowledge as to whether Fujitsu charged Post Office for this additional work. I recall that there was a 'Capped Time and Materials' arrangement, however I cannot explain what these arrangements were. I can recall that there were three specific reasons why the work required was greater than expected, and in my experience these three issues occur on many projects:

i.   When contracts relating to large IT projects are entered, the exact detail of how something will be achieved is not always known and assumptions have to be made regarding how it will be done. If those assumptions prove false, work and costs may increase.

ii.   Work can simply take longer than originally thought; this can also have knock-on effects and delay the next part or stage of the project, causing costs to increase.

iii.   Products that are relied upon or otherwise important to the operation of the system do not do exactly what is expected, or detailed development work uncovers unknown problems.

c.   There were challenges around explaining the requirements to the development teams in a way that allowed them to understand what they needed to do. For example, the Horizon Online counter application needed to be functionally equivalent to the Legacy Horizon application but to ensure no infringement of intellectual property rights, developers were not allowed access to the Legacy Horizon application. Hence, if requirements were not very detailed (which they were not in my recollection in all cases), it was much harder to develop the

application. My understanding is that Post Office set the requirements in a system called 'Doors', which was managed by Post Office. Fujitsu had a Requirements Manager who managed the requirements on behalf of Fujitsu, and who would have distributed the requirements to the relevant Fujitsu teams. I recall that there was a mechanism to trace that requirements had been met and have this agreed by Post Office, but beyond this, I cannot recall being involved in the process day to day nor recall any more detail as to how this operated or how the requirements were provided to the development teams.

16. Other technical issues would have been in relation to specific Post Office branches, involving matters such as printers not working, or an issue with the connection between the network and the counter at the branch. I recollect an awareness of these technical issues but no specific details, however I would have made aware of such technical issues as I received information typically via email about the volume of incidents affecting Post Office branches. For example, on 27 May 2010, I received an email from Graham Welsh (Migration Governance Manager for the Royal Mail Group Account at Fujitsu) (WITN0478_01/8). The email was sent to a number of Fujitsu and Post Office employees, and attached to the email was a 'HNGX trends and restarts' report dated 27 May 2010 (WITN0478_01/9), which contained information concerning incident trends relating to the migration of Post Office branches from Legacy Horizon to Horizon Online.

SUSPENSION OF THE HIGH-VOLUME PILOT

17. The high-volume pilot was suspended due to a problem involving Horizon Online's databases. Shortly before the high-volume pilot was suspended, approximately one

thousand Post Office branches had been migrated to Horizon Online. During this time an issue occurred that caused the database to crash, due to a bug in the Oracle database management software (the "**Oracle Database Issue**").

Horizon Online's databases

18. The Horizon Online database in the datacentre is designed to be resilient; the database is a four node cluster that balances the load from the Post Office branches. The database is designed to work at maximum load with only three of these nodes operating.

19. The Post Office branches need the database to be able to operate. The technical issue was that one of the database nodes had a problem; instead of the other nodes being able to take the load, the communications layer in the Oracle database management software between the four nodes exhibited a problem which caused the other three nodes to crash as well.

20. In going through this I am conscious that I cannot fully explain the cause of the issue that broke the first node. I have some recollection that the interaction of the 'Branch Access Layer', which sits between the counters and the database, was placing undue load on the database and causing the initial failure. However, I note that Oracle prepared a 'Root Cause Analysis' report ("**Oracle RCA Report**") for Fujitsu in relation to the Oracle Database Issue dated 5 July 2010 (WITN0478_01/10), which explains the cause of the issue.

21. The Horizon Online system is reliant on the database. The counter application was in effect directly accessing the database, and without it, the counter could not process transactions and could not work, and I do not believe the Post Office had a manual

back-up system. In my experience, the decision not to have a manual back-up system is a business decision based on the likelihood of the risk occurring, the impact of having a Post Office branch shut down and the cost of having a manual back-up system. I do not and would not have had access, at the relevant time, to the information necessary to determine if Post Office should have had a manual back-up system. In my professional experience, in the case of Post Office, many of the transactions are complicated by their nature, as they require a connection between the Post Office branch to systems outside of the branch in order to complete the transaction, and a manual back-up system would only cover certain transactions such as selling stamps, which are simpler in that they do not require a connection outside the branch to complete the transaction. For this reason, whilst there is benefit in a manual back-up system to keep a branch open, such a back-up system would not allow the full range of transactions to occur. I do not recall there being any discussions between Fujitsu and Post Office about whether Post Office should have had a manual back-up system. However, I believe that at the time, Post Office had the architectural understanding of how the Horizon Online system was reliant on the database and the consequences if that database experienced failure.

22. Consequently, the Post Office had to close those branches that were affected by the Oracle Database Issue as they could not trade. There were several repeated incidents, which occurred over multiple weeks, where Post Office branches had to close.

23. The Subpostmasters of Post Office branches affected by the Oracle Database Issue would have generally received an 'error message'. The type of error message would

depend on the stage of the transaction. An example would be that the transaction 'timed out'.

Escalation of the issue and suspension of the high-volume pilot

24. The escalation process that was followed in response to the Oracle Database Issue was the same as any 'Priority 1 Incident' at Fujitsu. When Post Office branches experience and report system failures, the matter is referred to Fujitsu's service team, and a communication is sent to all relevant technical staff and management. A 'bridge' is then set up, which is a conference call with all of the people who might be able to resolve the problem.

25. Independently of these reports from Post Office branches, Fujitsu's technical support teams could also see that there was a problem as part of its ongoing monitoring. Technical support staff could see that something was going wrong on the system before it happened. I cannot categorically say how this specific issue was identified by the technical support staff as I was not present with them at the time that the problem was identified. However, I do recall that the general process for system monitoring involved issues being flagged to technical support staff, such as memory or disk space being utilised beyond expected levels. If one or more of these monitored areas were flagged as operating outside of the normal or expected levels and worsening, this indicated to the technical support staff that an issue was likely to occur. After seeing a chain of events occur once or twice, the technical support staff would learn the pattern and predict that the problem would reoccur shortly. In many instances, this monitoring would allow technical staff to fix issues before they impacted Post Office branches, however in this instance, they could not.

26. Soon after the issue was identified, it was escalated to the Project's senior management, and I was part of a team who assisted in managing the issue.

27. I was not involved in the decision to suspend the high-volume pilot, which involved the Project's senior management. Once it was identified that the problem was causing Post Office branches to close, the high-volume pilot would have been suspended. I cannot recall who was involved in the decision to suspend the high-volume pilot, however I do recall that from Fujitsu, Alan D'Alvarez was involved in the discussions.

28. Following the suspension of the high-volume pilot, the Post Office Account was put on 'Corporate Red Alert'. Fujitsu has a standard Corporate Red Alert process, which involves a daily call with senior staff from the relevant programme and Fujitsu to provide updates, try to resolve the problem, and then escalate the matter within Fujitsu or to any third parties. I do not recall being involved in the 'red alert' discussions relating to the suspension of the high-volume pilot, but I recall assisting with the process of resolution.

STEPS TAKEN TO RESOLVE TECHNICAL ISSUES PRIOR TO ROLLOUT

Fujitsu's processes for resolving technical issues

29. The implementation and development teams involved in the Project followed the processes described in Fujitsu's technical documents for resolving issues. These documents outline the steps that are to be taken by Fujitsu employees to resolve technical issues, which were followed in the case of the issues identified during the Horizon Online pilots and rollout. An example of a technical document specifically relating to my team and the interactions for resolving issues is the 'Operational Level Agreement for 4th line support of HNGX' dated 14 January 2010 (WITN0478_01/11).

30. Where technical issues were raised as part of the implementation process (i.e., the migration of Post Office branches as part of the Horizon Online pilots and rollout), Fujitsu dealt with those issues in the usual way: PEAKs would have been raised, and the development teams would have been involved in resolving the PEAKs. Higher-level issues would have also been discussed at the weekly programme board meetings. I do not recall being concerned in relation to the volume of PEAKs that were raised at the time, and I do not recall being concerned that PEAKs were not being addressed effectively, including in relation to Fujitsu communicating with Post Office about the existence of PEAKs. However any PEAKs that were identified as causing a discrepancy in branch accounts, such as the PEAK relating to the issue noted at paragraph [14(b)] above, would have caused me concern at the time.

31. Once a Post Office branch was 'live', any issues – technical or otherwise – would have fallen into standard support procedures. This generally involved the branch raising the issue with the helpdesk, which could then refer the issue to the support teams. However, as my role at this time was concerned with the implementation of Horizon Online, I was not involved with the helpdesk or support teams and my work did not involve the standard support procedures beyond my teams being 4th Line Support, as detailed in the operational level agreement document that I mentioned above (WITN0478_01/11). For this reason, I cannot provide further details about how issues were raised or the standard support procedures based on my own knowledge.

Resolving technical issues identified during the initial pilot of Horizon Online

32. As I have explained in this statement above at [13], Horizon Online experienced a number of technical issues that are typically experienced in large IT projects. These

technical issues were resolved by following the normal processes that were in place at that time to identify, diagnose and resolve these types of issues. I was not generally involved in resolving these types of technical issues unless they were complex or of particular significance. For these reasons, I cannot recall what steps were taken to resolve specific technical issues identified during the initial pilot of Horizon Online.

33. Whilst I was involved in resolving certain technical issues during the initial pilot, as I have noted at paragraph [14] of my statement above, I cannot recall if any of these technical issues remained unresolved through the rollout of Horizon Online. It is common practice in any IT project for technical issues that are typically experienced to remain unresolved during rollout, as long as each technical issue is assessed as not causing unexpected business impact. These issues would be resolved in further releases at a later date. In my experience, it is common for parties involved in a large IT project to agree to such arrangements.

Resolving technical issues identified during the high-volume pilot

34. The Oracle Database Issue was a complex and significant technical issue, which required detailed data from log files and an in-depth understanding of the workings of Oracle software. The issue was extremely difficult to diagnose and the resolution involved many technical support staff from many teams. For these reasons, I was more directly aware of this issue and part of the team involved in helping the teams resolve it. At the time, I recall that the occurrence of the issue was not predictable, and finding the trigger and the cause for the Oracle Database Issue within the log files required highly specialised staff. There were multiple strands of investigation and many different resolutions and changes applied to resolve the Oracle Database Issue

and its associated problems, which in my experience, indicates it was not a simple problem to identify and resolve. In the end, it was the resolution provided by Oracle that allowed the high-volume pilot and rollout to complete.

35. Fujitsu increased the number of staff working to identify the cause of the Oracle Database Issue. The development teams considered the problem related to Oracle, and Fujitsu then raised the issue with Oracle.

36. Fujitsu engaged Oracle's support team and then Oracle's professional services team, and paid for their senior staff to come on site at Bracknell. The issue was eventually escalated to Oracle's senior management. This process took a number of weeks. Fujitsu managed the escalation of the issue with Oracle. As far as I can recall, the Post Office was not involved in the escalation of the issue with Oracle, but I recall that Post Office was aware of the Oracle Database Issue.

37. Oracle maintained for some time that the way Fujitsu was using their product was the cause of the issue, and Fujitsu argued it was using Oracle's product in accordance with Oracle's technical documents. Following further investigations by Oracle and a robust conversation between Fujitsu and Oracle, Oracle agreed that the cause of the problem was within Oracle. Examples of the correspondence between Fujitsu and Oracle, which involve individuals who were involved in the liaison between Fujitsu and Oracle, include:

a. an email from Richard Watt (Oracle) dated 26 May 2010 (WITN0478_01/12) attaching version 1.7 of the Oracle RCA Report (WITN0478_01/13);

b. an email chain involving Fujitsu and Oracle employees dated 30 May 2010 (WITN0478_01/14);

c. an email chain involving Fujitsu and Oracle employees dated 1 June 2010 (WITN0478_01/15); and

d. an email from Richard Watt (Oracle) dated 7 June 2010 (WITN0478_01/16) attaching version 1.8 of the Oracle RCA Report (WITN0478_01/17).

38. The emails noted in paragraphs [37(a)] and [37(d)] above also indicate that feedback from myself and Jim Singh caused Oracle to adjust the wording in the Oracle RCA Report as to the root cause of the Oracle Database Issue, which is noted at page 4 of versions 1.7 and 1.8 of the Oracle RCA Reports.

39. It had become apparent that Horizon Online was using Oracle's product in a way that was pushing an element of Oracle to its limit, which had not been done before. Oracle diagnosed the problem and then developed a software fix (known as a 'software patch') (the "**Oracle Fix**"), which was provided to Fujitsu. Fujitsu then took steps to prove the effectiveness of the solution, test it, and roll it out.

40. Before the Horizon Online system went 'live', volume and performance testing was completed on the volume testing environment, which was built on the hardware that would make up the live system. However, once Horizon Online went live, the Project did not have a separate volume testing system to test the Oracle Fix. To test the effectiveness of the Oracle Fix and prove that it would resolve the Oracle Database Issue, the teams created the Oracle Database Issue in another test environment by expanding it sufficiently to create an environment which was sufficient to replicate the issue and demonstrate that the fix would resolve the problem. Fujitsu then applied the Oracle Fix to the live solution, which resolved the issue, and continued monitoring the matter.

41. Following this, an agreement was reached between Fujitsu and the Post Office to start the rollout again. The migration of further Post Office branches then resumed, and I do not recall there being further problems concerning the database.

42. Following the resolution of the Oracle Database Issue, there continued to be technical issues of a more individual and typical nature, however I cannot recall any specific technical issues nor how they were resolved. These technical issues would not have been generally raised with me, for the reasons I outline in [13] in this statement.

THE ROBUSTNESS OF HORIZON ONLINE

43. During and after my involvement with the Project, I did not have any concerns regarding the robustness of Horizon Online. In my opinion as an IT professional, all IT systems have issues and I have highlighted that two of these issues caused discrepancies in Post Office branch accounts during the initial pilot of Horizon Online, and that these issues were identified, communicated and resolved. Whilst I cannot recall any other specific issues affecting the accuracy and integrity of the data recorded and processed by Horizon Online, it is likely there would have been other such issues, however I do not recall being made aware of any issues that were not identified, communicated and resolved appropriately. At the relevant time, I was and continue to be aware of the importance of data accuracy and integrity in relation to causing discrepancies and shortfalls, and I recall that this understanding of the importance of data accuracy and integrity was shared within Fujitsu.

44. I am aware that Horizon Online has processes to reconcile and audit transactions and that these processes are designed to identify errors in data and identify discrepancies and shortfalls but I am not an expert in this so cannot be more specific.

45. I am aware that Horizon Online has a number of built in back-up mechanisms, resilience and dual-running systems that are designed to allow Horizon Online to continue to operate in adverse conditions. For example, the Branch Access Layer that I mentioned at paragraph [20] above has several instances (or copies) running that work together and Horizon Online is designed to operate if one or more of these fail. Another example is the four node cluster I described at paragraph [18] above. And ultimately, there is a Disaster Recovery site for the Data Centre.

46. I have no awareness of any specific communication concerning the information that was provided to the Post Office or the government by ICL Pathway concerning the matters discussed in paragraph [45] of my statement.

Statement of Truth

I believe the content of this statement to be true.

Signed: _____GRO_____

Dated: _____4 August 2022_____

INDEX TO FIRST WITNESS STATEMENT OF GRAHAM ALLEN

Exhibit Number	Description	Date	Control Number	URN
WITN0478 _01/1	Notes of Horizon Next Generation Joint Progress/Release Board Meeting of 25 February 2010	25 February 2010	POINQ0100477F	FUJ00094306
WITN0478 _01/2	HNG – Post Office Highlight Report (for Joint Release Board)	3 March 2010	POINQ0100476F	FUJ00094305
WITN0478 _01/3	Issue of Duplicate Settlements found at Derby report	29 January 2010	POINQ0123649F	FUJ00117478
WITN0478 _01/4	Rollover Issues at Warwick report	29 January 2010	POINQ0123651F	FUJ00117480
WITN0478 _01/5	HNG-X Daily Issues RAG Report	5 February 2010	POINQ0099092F	FUJ00092921
WITN0478 _01/6	Notes of Horizon Next Generation Implementation Issues	8 February 2010	POINQ0099093F	FUJ00092922
WITN0478 _01/7	Email dated 8 February 2010	8 February 2010	POINQ0099091F	FUJ00092920
WITN0478 _01/8	Email dated 27 May 2010	27 May 2010	POINQ0100924F	FUJ00094753
WITN0478 _01/9	HNGX Trends and Restarts report	27 May 2010	POINQ0100925F	FUJ00094754
WITN0478 _01/10	Oracle Root Cause Analysis report version 2	5 July 2010	POINQ0123660F	FUJ00117489
WITN0478 _01/11	Operational Level Agreement for 4th line support of HNGX	14 January 2010	POINQ0086254F	FUJ00080083
WITN0478 _01/12	Email dated 26 May 2010	26 May 2010	POINQ0123652F	FUJ00117481

WITN0478 _01/13	Oracle Root Cause Analysis report version 1.7	26 May 2010	POINQ0123653F	FUJ00117482
WITN0478 _01/14	Email chain dated 30 May 2010	30 May 2010	POINQ0123654F	FUJ00117483
WITN0478 _01/15	Email chain dated 1 June 2010	1 June 2010	POINQ0123655F	FUJ00117484
WITN0478 _01/16	Email chain dated 7 June 2010	7 June 2010	POINQ0123656F	FUJ00117485
WITN0478 _01/17	Oracle Root Cause Analysis report version 1.8	4 June 2010	POINQ0123657F	FUJ00117486