

Under **THE COMMISSIONS OF INQUIRY ACT 1908**

In the matter of the **CANTERBURY EARTHQUAKES ROYAL COMMISSION
OF INQUIRY INTO THE COLLAPSE OF THE CTV
BUILDING**

FIRST STATEMENT OF EVIDENCE OF ALAN MICHAEL REAY

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BRIEF OF EVIDENCE OF ALAN MICHAEL REAY

1. My full name is Alan Michael Reay. I reside in Christchurch. I am a Chartered Professional Engineer and a Company Director.
2. Primarily this statement of evidence deals with factual matters. I will file a supplementary statement of evidence dealing with issues on which an expert opinion is required. Insofar as this evidence can be considered expert evidence, in accordance with the requirements of Rule 9.43 of the High Court Rules, I confirm that I have read the Code of Conduct for expert witnesses and that my evidence complies with the Code's requirements.
3. Matters on which I express an opinion are within my field of expertise.
4. I am a Director of Alan Reay Consultants Limited ("**ARCL**"), an affected party in this Royal Commission hearing.

Qualifications and experience

5. I hold a Bachelor of Engineering with First Class Honours (1965, University of Canterbury) and Ph.D in Civil Engineering (1970, University of Canterbury). My Ph.D thesis was on the dynamic characteristics of civil engineering structures.
6. I am currently a Fellow of the Institution of Professional Engineers and hold the following memberships:
 - (a) New Zealand Concrete Society;
 - (b) New Zealand Society for Earthquake Engineers;
 - (c) American Concrete Institute;
 - (d) Heavy Engineering Research Association of New Zealand;
 - (e) Association of Consulting Engineers New Zealand;
 - (f) Tilt Up Concrete Association, USA.
7. After completing my qualifications, I commenced work as a structural engineer with Hardie and Anderson. Around two years later, I began business on my own account in 1971, as Alan M Reay, Consulting Engineer ("**ARCE**"). ARCL was incorporated in 1988. I have practiced under this corporate structure ever since. I have also lectured in steel structures at the University of Canterbury in the early 1970's.

8. My full resume is **annexed** to this statement.

Introduction

9. Most of the events that are relevant to my evidence occurred around 26 years ago. I set out below the events as I remember them, to the best of my recollection. The passage of time means that it is not possible to be precise about many of the events. While, for some reason, some details stand out, others do not.
10. ARCL does not have full files relating to the CTV Building. ARCL's record keeping and record destruction protocols related solely to statutory requirements under income tax legislation. The records that ARCL does still hold for the CTV Building have, over the years since the building was constructed, been subject to decisions on retention or destruction, made at the discretion of individual managers when the files ceased to have currency or thereafter. ARCL shifted premises in 2000 and a major cull of historical records was carried out at that time. The actual practice followed by individual principals and staff shows an emphasis on retaining drawings, calculations and geotechnical reports for significant projects. This is consistent with the records held by ARCL in respect of the CTV Building.

ARCE and ARCL – background and practice

11. As noted above, I established ARCE in 1971 and began practice on my own account. Initially it was just myself and a couple of drafters and tracers. Generally in these early days, ARCE had no other Registered Engineer. The business grew steadily and, by 1986, employed around 13 professional and support staff.
12. During the early 1970s structural engineering practice was generally stable with no price competition. The fees were set based on a recommended scale and generally each significant architectural practice utilised the services of its preferred engineer and rarely used others unless clients insisted.
13. The work available was from young architects setting up, architectural designers and contractors. This was the market I pursued in establishing a consulting engineering practice.

14. During the late 1970s and early 1980s the design build market became more prevalent, where the contractor employed the architects and engineers, and I undertook work for various contactors.
15. During that time I developed construction systems for the design of precast concrete onsite cast structures and also for the use of cold form steel in the light industrial and farming sector of the building industry throughout New Zealand and parts of the South Pacific.
16. Prior to the early 1980s I had been responsible for the design of an eight storey office building in Hereford Street, a seven storey apartment block in Carlton Mill Road and a six storey concrete frame building in Liverpool Street (with Hardie & Anderson).
17. In the late 1984 I employed John Henry to undertake primarily medium height multi-storey buildings, a number of which I had started to take on at this time. Amongst other works he designed the Landsborough House Building [BUI.DUR287.0003E].
18. Following John Henry's departure to set up his own consulting practice around the end of 1985, I had been advised by a common acquaintance that David Harding, who had worked with me previously, was considering changing jobs. Mr Harding had worked with ARCE for a period around the late 1970s before leaving to pursue other interests. In late 1985 or early 1986 Mr Harding accepted a job with ARCE which was to include the design of medium height multi-storey buildings. I considered that he had the experience, was a Registered Engineer and was competent to undertake the work.
19. ARCL was incorporated on 18 August 1988 and took over the assets of ARCE.
20. David Harding left the practice around October 1988 and set up his own consulting practice, which I understand still operates today. Geoff Banks joined the practice at that time. Mr Banks had previously worked for Holmes and he had left to set up his own firm called Cambridge Consulting Engineers Limited. He shut down his business after he came to work for ARCL. Mr Banks later became a shareholder and director of ARCL.
21. Geoff Bank's role initially, as had been Mr Henry's and Mr Harding's, was to be responsible for the design and construction observation of the multi storey structures that were being designed at that time.

22. For many of the projects that were undertaken by ARCE, I had the role of Principal Consultant. Under this role, ARCL employed the architect services together with the required electrical and mechanical engineering consultancy and the quantity surveying services for the projects. I note that Landsborough House was undertaken and delivered by this methodology. This contrasted to the CTV building which was designed after the Landsborough House building and was a project in which ARCE was involved solely with the structural design and not as Principal Consultant.

Responsibility for design of the CTV Building

23. I am unable to recall how the CTV Building job came to ARCE. It was a design build project by Williams Construction (Canterbury) Limited ("**Williams**") for Prime West Corporation Limited ("**Prime West**"). At the time I was fully engaged on other projects and would not have had the time to take on this job. Mr Harding took responsibility for it.
24. I have read Mr Harding's letters to the Royal Commission [**BUI.MAD249.0041.RED.1, BUI.MAD249.0235.RED.1, BUI.MAD249.0231A.RED.2, BUI.MAD249.0286A.RED.2, BUI.MAD249.0413.RED.1**]. I disagree with many of Mr Harding's statements as to my involvement in the project. I set out below the extent of my involvement in the project.
25. Despite what Mr Harding says, I was not involved in the design of the project. As with all significant projects my role was to check the quality of the client, in this case Williams and, given that it was a design build contract, ensure that the contractor had the knowledge and experience to undertake the work proposed. At the time, Williams had a strong reputation for building quality buildings. I also verified that the engineer, in this case David Harding, considered himself capable and prepared to commit to undertaking the work. I would also have ensured that an appropriate draughtsman was allocated together with any other staff required to assist in the work the engineer was undertaking.
26. On the basis of my enquiries, I would not have foreseen any significant issues relation to undertaking the job and would have been happy for Mr Harding to undertake the work. Therefore with my approval as manager and following an agreement being reached with Williams in terms of a professional services contract, Mr Harding took on the responsibility for this project for ARCE.

27. It is standard practice to look at drawings, calculations and other records of other buildings for background information when starting a new job and I expect Mr Harding would have done this.
28. The drawings would have been prepared by draughtspersons and tracers at the direction of Mr Harding.
29. Mr Harding would have carried the project through, including dealing with Council, any site visits and any other necessary attendances. I would not have been involved in any of these stages in more than a minor way.
30. Mr Harding prepared structural drawings, calculations [**BUI.MAD249.0008**, **BUI.MAD249.0272** and **BUI.MAD249.0273**] and a structural specification [**BUI.MAD249.0199**].
31. I cannot be certain that these calculations or drawings represent the full set of calculations for the CTV Building. It is possible that Mr Harding did other calculations or drawings which are no longer on ARCE's or the Council's files.
32. There was no review procedure in place at that time. Mr Harding was a qualified, experienced and capable engineer and would have taken responsibility for the project. He was employed in a role where he wanted to, and was expected to, take on projects such as the CTV Building without supervision. He was also expected to be building up his own client base. Mr Harding, and any other qualified engineer employed by me, was expected to seek advice if he needed it. I do not recall reviewing the drawings, calculations or specification and I would not have expected to have done so. At the time, Mr Harding was more familiar with the Concrete Code (NZS 3101:1982) than I was.
33. A geotechnical report was obtained from a specialist soils engineer, Soils and Foundations (1973) Limited [**BUI.MAD249.0203.1**]. This report would have been used to design the foundations of the building. I cannot say specifically how the report might have influenced Mr Harding's design.
34. In the mid-1980s, the economy was strong and the construction industry was performing well and experiencing good growth. It was not a particularly competitive environment for engineers and there was not a lot of pressure on fees. I believe that Mr Harding would have been involved in setting the fee, which was probably set as a percentage of the total build cost, probably

a percentage of the structural value. I do not believe there would have been any great pressure on Mr Harding to meet any financial constraint.

35. This environment can be contrasted with that of the late 1980s / early 1990s, when the economy took a significant dive and the construction industry suffered as a consequence. The cost environment was considerably more competitive during this time.

Computer modelling

36. I am unable to recall whether any computer modelling was carried out during the design process. I was not involved in any modelling for this building.
37. I found on ARCL's historic files an invoice from the University of Canterbury for computer charges that may have related to the CTV Building [BUI.MAD249.0233.1]. It refers to the ARCE job number for the CTV Building (2503). The invoice also refers to another job number (2548), so I cannot be certain that the invoice relates to the CTV Building job. Based on the quantum of the account, it appears to be for computer time only, which (if it does relate to the CTV Building) would suggest that the inputs were prepared by Mr Harding and run through the computer. If a University staff member worked on the analysis, I would expect this to be noted on the account and the account to be higher. The computer analysis was probably an earlier version of the ETABS program.

Council permitting

38. In those days it was the contractor who applied for a building permit and to whom the permit was issued. However, in this case it appears that the permit application was submitted by the architect, Alun Wilkie Associates on behalf of the contractor [BUI.MAD249.0141.8]. Mr Harding handled the permit process from ARCE's perspective. I was not involved with the Council permit application process. I expect that Williams would have submitted the structural drawings to Council.
39. I note that ARCE received a letter dated 27 August 1986 from Mr Tapper at the Council [BUI.MAD249.0141.14]. Mr Harding would have dealt with the letter. I do not recall having anything to do with the letter or its response. I do not know who wrote the notation on the letter "*rec'd a day or two after letter sent*", the ticks in the left hand margin or the notations next to items S26, S28, S29 and S30 on the second page of the letter. I am unable to

say how the items raised in Mr Tapper's letter were addressed or dealt with by Mr Harding or ARCE, as I do not recall any involvement.

40. Mr Harding appears to have responded at least in part with a document transfer form that enclosed certain documents [BUI.MAD249.0141.1]. The calculations referred to (Bondek structure after fire, pp G78 and G79) would not have been the complete set of calculations and I am unable to say when or how the full set of calculations was provided to the Council.
41. Engineers and Council staff would sometimes meet or speak on the phone during the building permit application process. I note, for example, a letter dated 19 August 1987 from ARCE to Williams [BUI.MAD249.0259A.4]. The fourth paragraph of the letter refers to detailed discussions between ARCE and the Council at the time of building permit application. Those discussions would have been between Mr Harding and the Council engineers.
42. Council engineers would do a full engineering review of some buildings and other times they would appear not to. Bryan Bluck knew all the engineers around Christchurch. He knew the strengths and weaknesses of the Christchurch structural engineers. He would have weighed up the complexity of the proposed building with these qualities of the design engineer in determining the extent of structural review. Usually the Council engineers would do the review themselves and sometimes they would arrange an independent external review.
43. Mr Bluck and Mr Tapper were both dedicated and competent engineers. Mr Bluck had been at the Council for many years. I am unsure of Mr Tapper's background, but his role at the Council was secondary to that of Mr Bluck. I had a professional relationship with Mr Bluck and I respected him.
44. If the Council engineers were not sufficiently satisfied with their interpretation of compliance, they would not issue the permit. That was my experience.
45. It is evident that the Council engineers reviewed this building closely themselves. The Council engineers must have believed that the building complied with the relevant code or they would not have issued a permit.
46. I do not recall any discussions with Council engineers about the building. I was not involved in the design so would not have been in a position to discuss the details of it with Council engineers. I deny any suggestion that I

pressured Council engineers to process or grant the permit. I do not recall any discussion with either Mr Bluck or Mr Tapper about the project.

47. A building permit was granted subject to conditions **[BUI.MAD249.0141.5, BUI.MAD249.0141.6, BUI.MAD249.0141.10]**.
48. There was no formal sign off of a building required at the time. There was no equivalent to today's Code Compliance Certificate under the Building Act 2004. The consent conditions sometimes required the building's designer to sign a form of construction completion certificate. However, often the Council did not request the completion certificate at the end of the job. ARCL's file does not disclose whether any such sign off was given in this case. If it had been given, it would have been by Mr Harding as the engineer responsible.
49. I do recall a Design Certificate was in use at the time and was sometimes given as a form of design sign off. A Design Certificate was similar to today's PS 1 and it stated that the engineer believed based on the information available to him or her that the building complied with Code. There is no record of a Design Certificate being requested for the CTV Building.

Construction

50. I do not recall being involved in construction of the building, or having any direct dealings with Williams.
51. As a design-build contract, the engineer's role was potentially diminished. Any site visits would have been carried out by Mr Harding or under his direction. I do not know to what extent he would have visited the site. At most, Mr Harding's role would have been one of observation, not supervision. He may have visited the site before major concrete pours.
52. I note that a Council engineer visited the site from time to time, as I would have expected **[BUI.MAD249.0117B.1]**.
53. As noted above, Williams had a strong history and a reputation as a high quality contractor, specialising in concrete construction. Its pre-cast concrete work, in particular, was of a high standard.

54. I do not recall becoming aware about the ownership issues of Williams on site at the time of construction of the CTV Building, which resulted in the building being finished by Union Construction Limited.

As built drawings

55. ARCL has no record of any as-built drawings for the CTV Building and it is unlikely that there would have been any. They were not normally prepared at that time and the Council would not normally have required them.
56. However, I note that there are differences between the set that ARCL has in its records compared to the Council's records. The set of drawings annexed to the DBH report [BUI.MAD249.0191] appears to be the set that I provided to Dr Hyland and which is held on ARCL's file. However, some of these drawings appear to differ from the Council's set. A slightly different set of drawings appears on the Council files [BUI.MAD249.0284].
57. For example on the ARCL S25 there are at least 3 additional details and in the bottom right corner it is noted that S25 was amended on 29 April 1987 [BUI.MAD249.0191.26]. This compares to the Council's signed plans dated 30 September 1986 [BUIMAD249.0284.26]. There are also differences on S26 [BUI.MAD249.0191.27 and BUI.MAD249.0284.27]. There is no notation as to date of amendment on the ARCL S26. Neither set are as-built drawings.

Compliance

58. As the design engineer, Mr Harding was responsible for ensuring that the design complied with the relevant codes. I expect that Mr Harding would have taken all reasonable care to ensure that this occurred.
59. Traditionally ARCE did not include a design review and, as a small firm, relied on the Council review process. ARCE was different in this respect from other, larger, firms where there was a core group of engineers who could review each other's work.

1990 Report by Holmes Consulting Group Limited ("Holmes")

60. In around January 1990 ARCL was contacted by Holmes who had been engaged to prepare a structural report on the CTV Building for a potential purchaser of the building from the receiver of Prime West. Holmes alerted

ARCL to a possible issue in the detailing of the connection of several shear walls to the floor diaphragms.

61. Geoff Banks reviewed the drawing and agreed that there appeared to be an issue. As noted above, Mr Banks had joined ARCE in 1988.
62. I had little direct involvement in the events that followed but I have a general recollection of issues and I have reviewed documentation relevant to the events which was obtained from ARCL's files and from its insurance broker.
63. The receivers provided us with a copy of Holmes' report dated January 1990 [BUI.MAD249.0130.1 to BUI.MAD249.0130.10]. Holmes identified a possible issue with the tying of the walls to some of the shear walls. Holmes otherwise considered that the building "*generally complies with current design loading and materials codes*".
64. On 1 February 1990 Mr Banks notified the possible issue relating to wall ties to ARCL's insurance broker, Adam & Adam Limited [BUI.MAD249.0129.2]. ARCL's insurance was arranged through Consulting Engineers Advancement Society Incorporated ("CEAS") and was underwritten by Indemnity & General Insurance Co Limited. Mr Banks copied his letter to Mr Peter Smith at CEAS. Mr Smith was (and is) a structural engineer at Spencer Holmes Miller Partners Limited and was a CEAS claims committee member appointed by Adam & Adam to oversee the file and provide advice to the insurer.
65. When making the insurance notification, ARCL was not sure whether there was an issue or not and, if there was an issue, whether ARCL (or ARCE) had any culpability. ARCL informed its insurers out of abundance of caution and to ensure that should extensive works be required, the necessary insurance cover would be available.
66. I contacted Mr Harding to enquire whether any site instructions were given to Williams in respect of the diaphragm connections. Mr Harding was unable to recall any site instructions and there was no reference to any such instructions on ARCL's file. I recall that Mr Banks used an electronic reinforcing bar locator at one level which indicated that some reinforcement was present but could not confirm the quantity.
67. As set out in Mr Bank's letter, ARCL proposed to have further discussions with Holmes to agree the precise scope of the issue and the level of load for

- which the floor to wall ties should be designed. ARCL also proposed to design the remedial works if it was concluded that the ties were not present.
68. Mr Banks and I met with the receiver of Prime West on 1 February 1990 to discuss the issues. A letter from the receiver **[BUI.MAD249.0129.27]** records the content of the meeting. As recorded in that letter we were of the view that it would be more pragmatic to assume that the steel was not in place as the cost of further investigation into the matter would probably exceed the cost of the remedial works and the investigation could cause damage to the structure.
69. Mr Banks wrote to Holmes on 2 February 1990 confirming the scope of the possible non-compliance and the proposed remedial works **[BUI.MAD249.0130.11 to BUI.MAD249.0130.13]**. ARCL's insurance broker confirmed notification of the possible claim **[BUI.MAD249.0129.23]**.
70. It appears from file records that ARCL obtained a quote from Blake Bros. Contracting Limited dated 5 February 1990 **[BUI.MAD249.0227.9]**.
71. Mr Smith wrote to ARCL on 12 February 1990 recording the position **[BUI.MAD249.0129.29]**. As requested by Adam & Adam, ARCL completed a notification and questionnaire in respect of the possible professional indemnity claim **[BUI.MAD249.0129.31 to BUI.MAD249.0129.34]**. Mr Banks completed these forms.
72. A file note records a discussion between Mr Banks and Mr Hare on 14 February 1990 **[BUI.MAD249.0130.14]**. It appears that the discussion included agreed loads at various floors of the building. Mr Banks prepared calculations for the remedial works **[BUI.MAD249.0130.15 to BUI.MAD249.0130.20]**.
73. On 9 April 1990 ARCL completed an annual report form for CEAS **[BUI.MAD249.0227.7]** which recorded that ARCL was still investigating whether there was a deficiency and, if so, details of the remedial work.
74. ARCL heard nothing more about the matter from the Prime West receivers, Holmes or anyone.
75. On 4 February 1991 there was an article in *The Press* **[BUI.MAD249.0438.1]** about the sale of the CTV Building by the receivers. Having read this article, Mr Banks and I decided we should notify the new owners of the correspondence from the previous year.

76. It appears that Mr Banks contacted Mr Smith at CEAS to verify the obligation that ARCL had to notify anyone regarding the status of the review conducted the previous year [BUI.MAD249.0227.6]. Mr Smith suggested that Mr Banks engage either Austin Forbes (now QC) or Sam Maling from Lane Neave for a legal opinion before taking any steps.
77. ARCL engaged Lane Neave to provide the advice, the cost of which was met by CEAS. ARCL submitted a further annual report on the claim to CEAS on 25 February 1991, which reported that the building had been on-sold and ARCL was seeking advice as to possible obligations to the new owners [BUI.MAD249.0227.5].
78. Following receipt of the advice sought from Lane Neave, Mr Banks wrote to the new owners on 11 September 1991 although a copy of this letter is not held. CEAS also approved this course [BUI.MAD249.0129.38].
79. A reply dated 30 September 1991 was received from Pedofsky, Ibbotson & Cooney [BUI.MAD249.0129.50]. The owners agreed that steps should be taken as proposed by ARCL to ensure the building was compliant with the required design specification standard.
80. Mr Banks prepared construction drawings for the remedial works and sent the drawings to CBD Construction Limited [BUI.MAD249.0130.28 to BUI.MAD249.0130.31]. He also completed further calculations [BUI.MAD249.0130.21 to BUI.MAD249.0130.27].
81. CBD Construction Limited submitted a quotation of \$4,633.50 plus GST for the proposed remedial works [BUI.MAD249.0130.38]. Mr Banks wrote again to Pedofsky, Ibbotson & Cooney on 15 October 1991 [BUI.MAD249.0129.49], referring to the quote and advising the work would take approximately four days.
82. Mr Banks also notified the Ministry of Transport in respect of the remedial works in the lift shaft [BUI.MAD249.0130.32 to BUI.MAD249.0130.35].
83. The owners confirmed acceptance of the quotation [BUI.MAD249.0129.53]. Mr Banks wrote to Mr Ibbotson on 17 October 1991 recording that the work would take place the following week [BUI.MAD249.0129.54]. The remedial work proceeded as proposed.
84. I do not believe that a permit was sought for these works; however, I recall that Mr Bluck was aware that the works were being undertaken (for

example see [BUI.MAD249.0130.6]). I believe that his view would have been that the works were part of the original job and that no permit was required. He probably would have asked to receive details about what was undertaken. I base this on my experience in dealing with Mr Bluck over many years. ARCL does not have its full file on these works, so I cannot say whether there was any written correspondence with the Council over the works. The builder may also have sent details to the Council.

85. ARCL completed an annual status report on the claim which was submitted to Adam & Adam on 4 March 1992 [BUI.MAD249.0129.57 and BUI.MAD249.0227.4]. As recorded in Mr Banks' letter, the remedial work had been completed, the building owner invoiced by the contractor, and the contractor paid for the work. It recorded that Mr Banks had not had any contact from the building owner since the works were completed. ARCL never received any further contact from the owner and was not asked to reimburse the cost of the remedial works.
86. I accepted at the time that there was a potential deficiency. It was not possible to say if there was actually a deficiency. For the cost of the remedial works, it seemed sensible to carry out these works rather than carry out further investigations to see if the building complied without them.

Involvement with the CTV Building following retrofit

87. ARCL has had no further involvement with modification to the CTV Building structure since the retrofit works were completed.
88. We were not contacted following the earthquakes on 4 September or Boxing Day 2010 to undertake inspections or provide structural drawings.


Department of Building and Housing ("DBH") reports

89. In early May 2011 I met with Clark Hyland and Ashley Smith following Dr Hyland's request to meet so that he could advise us of the information that he considered would be helpful to their investigation of the collapse of the CTV Building.
90. He advised that he was being employed by the DBH. He also advised that there had been an Expert Panel appointed to provide review and advice regarding the report he would present which he indicated was to be provided by July 2011.

91. I received further requests from Dr Hyland for information, which I responded to **[BUI.MAD249.0439, BUI.MAD249.0130A.1]**.
92. Further information was sought by Dr Hyland in August and I telephoned him for clarification. Dr Hyland advised then or in another conversation around the same time that he could not say what was in his report but suggested there were serious construction deficiencies. I took from this that he had not found any design deficiency.
93. When I provided further information to Dr Hyland in response to his requests, I was surprised by his reply which was to thank me for the information as he had overlooked it **[BUI.MAD249.0440.1]**.
94. The draft DBH report into the collapse of the CTV Building was finally received by ARCL on 8 December 2011 **[BUI.MAD249.0122, BUI.MAD249.0125, BUI.MAD249.0126]**. ARCL, as an affected party, was given until 22 December 2011 to make comment. ARC provided a detailed response on 22 December 2011 **[BUI.MAD249.0195, BUI.MAD249.0195A, BUI.MAD249.0195B]**.
95. ARCL requested and the DBH agreed to provide a copy of the Final Report to ARCL 24 hours prior to release to the media on 9 February 2012. On 3 February 2012 Dr Hopkins advised me by email that the Materials and Testing section of the report was unchanged from the draft so that report would not be included in the early release **[BUI.MAD249.0442.1]**.
96. ARCL received the final report ahead of public release, as promised, with a covering letter addressed to another affected party **[BUI.MAD249.0443.1]**. In the event, although the email from Dr Hopkins was dated after the date of the final Materials and Testing report that report was in fact substantially changed when finally issued.
97. ARCL wrote to the DBH regarding the above issues and others on 24 February 2012 **[BUI.MAD249.0444.1]** and received an apology from the DBH on 5 March 2012 **BUI.MAD249.0445.1]**.

98. I remain dissatisfied about many aspects of the final DBH reports. I will address my concerns in my supplementary statement.

Dated this 7th day of June 2012



A handwritten signature in cursive script, appearing to read "A M Reay", is written above a horizontal line.

A M Reay