

2014 Tasmanian House Of Assembly
Elections: Review Of Impacts of Ballot
Paper Damage in the Division of
Denison

Report by Dr Kevin Bonham to Tasmanian Electoral
Commission

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Summary Of Findings

In March 2014 over 2000 postal ballot papers were damaged in an incident during counting for the Tasmanian House of Assembly election for the division of Denison. As a result of the incident 164 damaged ballot papers were ruled informal, and six votes exhausted from the distribution of preferences prematurely.

Based on analysis of the damaged ballot papers and the distribution of preferences, including a simulated re-run of the latter, this report finds as follows:

1. The incident did not affect the outcome of the election for this division.
2. The incident did not alter the order of exclusions of unsuccessful candidates. It may (with low probability) have caused Elise Archer to have been elected one exclusion later than otherwise, with no impact on the order of other events if so.
3. The impact of the incident on the contest for the final seat between Labor candidates Madeleine Ogilvie and Julian Amos was probably to very slightly reduce Ogilvie's margin of victory. In a simulated re-run, the impact on the final margin was eight votes.
4. The maximum mathematically possible impact of the incident on the margin between Ogilvie and Amos is estimated at 35 votes in either direction.
5. There was some variation in standards applied in determining whether given damaged ballot papers were formal.
6. The intention of many of the ballot papers that were declared informal is clear, if it is assumed that those ballots were originally formal.

Recommendations

1. That any process involving the automated opening of ballot paper envelopes, or any other automated process capable of damaging papers, be frequently monitored to check that the process is operating correctly. In the case of letter-opening devices, this should be checked every 50 papers.
2. That options are explored for designing postal ballots so that fold lines do not run through the squares next to candidate names.
3. That staff training and/or supervision arrangements are reviewed to prevent a recurrence of this incident.
4. That appropriate means - legislative and/or procedural - are explored to increase the chances of damaged ballots being ruled formal in similar situations in future. Damaged ballots should be assumed to have been originally formal, and interpreted on that basis, unless in the returning officer's view there is reason to believe they were originally informal. Also, it should be assumed the elector has numbered boxes in sequence and without mistakes unless there is evidence otherwise.

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1. Introduction

On 15 March 2014 an election for all 25 seats in the Tasmanian House of Assembly was held. The House of Assembly is elected from five electorates, each of which elects five members using the Hare-Clark system of proportional representation. Voters are required to number at least five candidates with the numbers 1-5 once each for a formal vote, and can optionally number as many more candidates as they wish.

The electorate of Denison attracted thirty candidates, whose names appeared in a record ten columns on the ballot paper. On polling night it was clear based on party totals that the Liberal Party would win two seats in Denison, the Australian Labor Party two and the Tasmanian Greens one. One Labor candidate, Scott Bacon, secured well over a quota of primary votes, but it was very unclear on polling night which of his four ticketmates would be elected with him.

On Sunday 16 March the Tasmanian Electoral Commission issued a press release entitled "Damage to Denison ballot papers". This stated that during a count of 3,727 postal votes, 2,338 ballot papers had been damaged as a result of "improper operation" of a letter-opening machine and "poor quality control measures". 163 ballot papers were described as "irreparably damaged" such that they "had to be treated as informal." There were some subsequent slight changes in the number of ballot papers affected by the incident.

The incident had the potential at that stage to cause the election for the last seat to be inconclusive. The main candidates for the final seat, Madeleine Ogilvie and Julian Amos, remained separated by about 200 votes for most of the distribution of preferences. However Ogilvie eventually won the seat with a margin of 331 votes. This margin, while close, greatly exceeded the number of ballot papers known to have been excluded from the count, and the outcome has not been disputed either by formal challenge or by any public speculation that it was anything but correct.

This fully independent review into the impacts of ballot paper damage on the election for the seat of Denison was commissioned with the following scope:

* "assessing the capacity of damaged ballot papers to affect any stage of the outcome of the 2014 House of Assembly election in the division of Denison"

* "providing any commentary or recommendations you consider appropriate in relation to the damaged ballot papers"

2. The incident and its impacts on formality

2.1 The incident

Envelopes containing 3,727 Denison postal ballot papers were opened using an automated letter opener on the night of the election count, Saturday March 15. The letter-opener is normally set to make a cut right on the edge of the envelope so that the ballot paper can then be easily removed from the envelope. In this case, however, incorrect operation of the letter-opener (including an incorrect setting as well as envelopes being placed the wrong way around) meant that a larger section of each envelope than intended was sliced, cutting into the ballot paper inside. Depending on the exact location of the cutting, some ballot papers were cut into three segments (with two small strips of the paper falling out), while others remained entire apart from the loss of one or two small triangular wedges. Damage patterns are discussed further in section 2.2.

It is normal practice when operating such letter openers to check routinely to ensure that no damage is occurring, but for whatever reason this practice was not followed and the damage to ballot papers was not noticed until a very large number of papers had been affected.

The incident was the subject of an unreserved apology from Electoral Commissioner Julian Type by press release on March 16, and admissions that it could potentially affect the outcome of the final seat in Denison.

Damaged ballot papers were repaired using sticky tape and those that could still be clearly followed (in the opinion of the returning officers) were re-admitted to the count. Those considered not to display the intentions of the voter sufficiently and clearly as a result of the damage were ruled informal. There were slight changes in the number of ballot papers that were classified as informal over subsequent days. The process was complicated by three different returning officers working on the Denison count as a result of staffing issues. The possibility of fully reassembling ballot papers using the lost strips was discussed but the risk of incorrect matching considered too high.

All ballot papers damaged in the incident were scanned to provide a permanent record of the ballots, especially given concerns about the durability of the sticky tape used to repair them. Each ballot paper scanned was marked with a unique number and these numbers (minus the initial 0) are used to refer to specific ballot papers throughout this report.

2.2 Nature of damage

The nature of damage to the affected ballot papers varied depending on exactly where they were positioned in the envelope, and also whether the voter had refolded them.

Figure 1 shows the most significant pattern of ballot paper damage:

The image shows a Tasmanian ballot paper for the House of Assembly Division of Denison, titled "Tasmania—Electoral Act 2004 BALLOT PAPER". It is for an "Election of 5 Members". The paper is divided into columns for different political parties and groups. A vertical cut is visible through the Liberal Party column and Group G. The cut starts at the top of the Liberal Party column and extends down to the bottom of the paper, passing through the Liberal Party column and Group G. The cut is most pronounced in the Liberal Party column, where it passes through the boxes for candidates KLING, MALLET, ARCHER, and GROOM. In Group G, it passes through the box for candidate FOLEY. The cut also passes through the boxes for candidates EDWARDS, ALLOCCA, and GALA in the National Party column. The cut is less pronounced in the other columns. The ballot paper includes a red circle in the top left corner, a postal code "0 002449" in the top right, and a "POSTAL" logo. The instruction "Number the boxes from 1 to 30 in order of your choice" is printed above the columns. The instruction "Your vote will not count unless you number at least 5 boxes" is printed at the bottom.

AUSTRALIAN LABOR PARTY	TASMANIAN GREENS	PALMER UNITED PARTY	LIBERAL PARTY	NATIONAL PARTY	SOCIALIST ALLIANCE	GROUP G	GROUP H	GROUP I	Ungrouped
<input type="checkbox"/> AMOS Julian	<input type="checkbox"/> O'CONNOR Cassy	<input type="checkbox"/> STRINGER Justin	<input type="checkbox"/> KLING Rene	<input type="checkbox"/> EDWARDS Julian	<input type="checkbox"/> STEPHEN Shaine	<input type="checkbox"/> FOLEY Leo	<input type="checkbox"/> ZUCCO Marti	<input type="checkbox"/> SWANTON Michael	<input type="checkbox"/> HILL Freddy
<input type="checkbox"/> BACON Scott	<input type="checkbox"/> HARVEY Bill	<input type="checkbox"/> GRUBE Mark Christoph	<input type="checkbox"/> MALLET Robert	<input type="checkbox"/> ALLOCCA Domenic					<input type="checkbox"/> WILLINK Hans
<input type="checkbox"/> OGILVE Madeline	<input type="checkbox"/> WHYKES Alan	<input type="checkbox"/> FORREST Charles Pater	<input type="checkbox"/> ARCHER Elise	<input type="checkbox"/> GALA Vlad					<input type="checkbox"/> NOYES Lucas
<input type="checkbox"/> CARNES Sharon	<input type="checkbox"/> COCKER Philip	<input type="checkbox"/> ETTER Barbara	<input type="checkbox"/> GROOM Matthew						
<input type="checkbox"/> MULLUMBA Alphonse	<input type="checkbox"/> ANN Penelope	<input type="checkbox"/> NEWITT Rita	<input type="checkbox"/> De WILLIAMS Deborah						

Fig 1 The standard damage pattern.

Ballot papers damaged in this manner may have been cut into three large pieces, with one cut through the boxes in the Liberal Party column and one through Group G away from the boxes. However, a small piece of paper running down the Liberal Party column was also cut off in these cases, meaning that numbers in those boxes could be damaged or lost entirely. Unfortunately the number most prone to be entirely lost is the number 1, as it is the thinnest number vertically.

(Note that an already-informal ballot paper that was returned blank by a voter has been used as an example, to avoid any risk of a voter's vote being identified as made by them as a result of their handwriting being recognised.)

Some ballot papers with damage to columns D and G were not cut into three large pieces, but instead were less seriously damaged. For instance a thin triangular wedge might have been cut into part of column D, damaging part of the column but not all. In some cases the damage did not affect any of the boxes next to candidate names.

Another damage pattern that was encountered frequently can be seen in Figure 2.

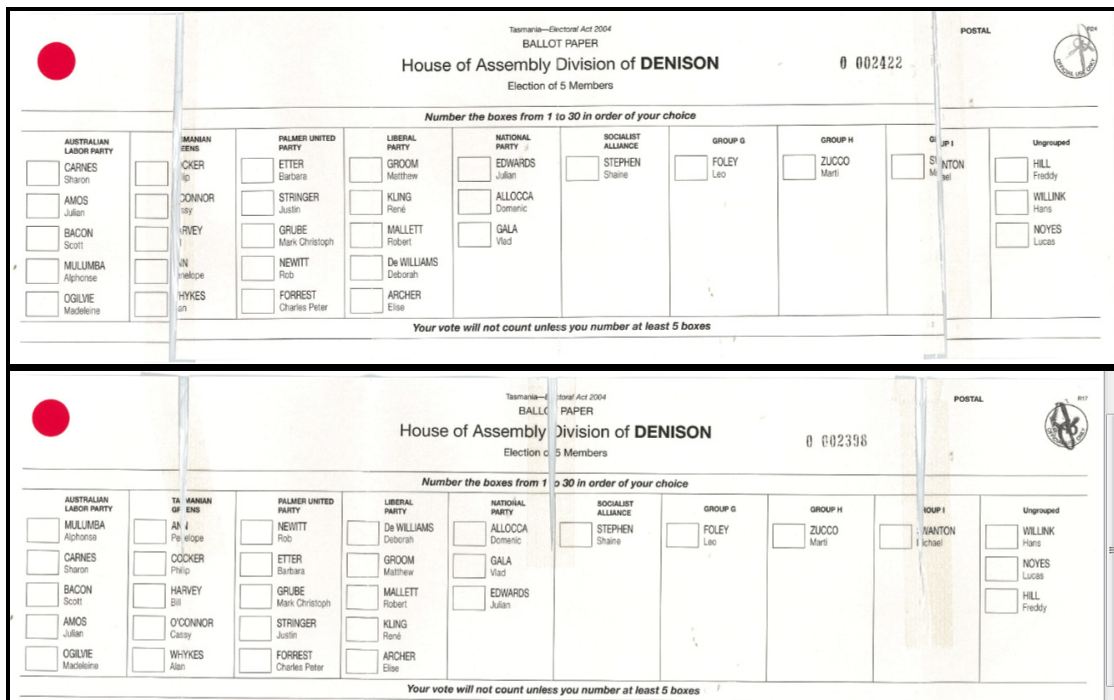


Fig 2 Versions of an alternate damage pattern

Ballots damaged in this manner had cuts through the name section of the Tasmanian Greens and Group I columns, and sometimes between the National Party and Socialist Alliance columns. This ballot damage pattern was generally cosmetic since the numbers written by the voter remained intact.

An unusual related damage pattern caused the informality of two ballot papers (**002283** and **002383**). In this case a cut also occurred in the Group I column, but the piece of paper containing half of the Group I column and all of the Ungrouped column could not be reattached (most likely it fell out of the envelope as a result of the accident.) Although ballot 002283 very clearly showed the numbers 1 through 6, and ballot 002383 very clearly showed numbers 1 through 5, the initialisation normally present in the top right hand corner of the paper was missing, meaning that each ballot could not be confirmed as genuine. Presumably for that reason, or because not all squares on the ballot paper were present, these two ballot papers were ruled informal.

Horizontal damage was present on some papers as a result of unusual folding patterns. Such damage was cosmetic and did not cause any ballots to become informal.

2.3. Formality impacts of the incident

In total 2427 ballot papers were deemed to be affected by the incident. Of these 2204 were admitted to the count as formal. 163 ballot papers were classified as having been caused to become informal by the incident. 60 ballot papers that were damaged were classed as having been informal prior to the damage, as a result of the actions of

the voter. Of these 60, in my view one (paper **002421**) was probably originally formal and mis-classified.

A minority of the 2204 damaged ballot papers that were admitted as formal had the potential to exhaust prematurely as a result of rulings made based on the damage. These ballot papers (hereafter called "potentially prematurely exhausting" ballots) were papers that were formal based on the voter's first to fifth preferences being clear, but that had damage that caused the Returning Officers to deem them to be "good" to fewer preferences than the voter apparently intended.

Commonly, the potentially prematurely exhausting votes had most or all of the squares filled, but the damage in the Liberal column made the voter's ordering of the Liberal candidates unclear. This meant that had such votes passed through all possible choices ahead of the Liberal column, the vote would have exhausted from the distribution of preferences at that point. It may have done so at a reduced value with part(s) of the vote's value having been already used electing someone else.

In all, 157 potentially prematurely exhausting ballot papers were identified, typically marked with "Good to" stickers. Thus in total, at most 321 of the 2427 affected ballots were affected in a way that could have altered the vote totals of candidates either at the primary vote stage or at some stage of the distribution of preferences. The remaining 2106 were either only cosmetically damaged, or else were informal to begin with.

Of the 321, it is possible that a very small number of the 164 ballots that were ruled informal, were actually informal prior to damage. However, given the generally low rate of informal postal voting, and the number of informal votes that were already accounted for, it is likely that this number would have been very few indeed. One candidate for this status is ballot paper **002389**, discussed further in Section 4.7. Another is ballot paper **002354**, on which the number 5 very likely occurs twice.

Appendix 1 shows the total number of damaged formal votes for each candidate, whether the damage had any potential to cause the vote to exhaust or not.

3. Impacts on Candidates

3.1 Candidates whose primary votes were affected

For the purposes of assessing the extent to which voters were disenfranchised, I examined the scans of the 164 apparently formal votes that were rendered informal, to attempt to determine who the voter's first preference had been. The standard applied in assessing this was to assume that each vote had been originally formal (despite doubts in a small minority of cases), and to assign a vote to a candidate if I was certain or at least considered it highly likely that the 1 had been in a particular square. So, for instance, if a vote contained all the numbers from 6 to 30, and the Liberal column contained partial numbers in four squares that very strongly appeared to be the remains of numbers 2, 3, 4 and 5 in some order, I assumed the vote had originally been a 1 for the remaining Liberal candidate, and that the number 1 had been entirely lost.

For those votes classed as having been rendered informal that actually still had a 1 in an intact box, this was a trivial task. For votes for which the location of the 1 could only be inferred, it was often more difficult, and in 41 cases it was not possible to determine who the #1 vote was for with any confidence.

Table 1 shows the results of this assessment:

Candidate	Party	Votes	% of total
Groom, Matthew	Liberal Party	62	37.9
Archer, Elise	Liberal Party	20	12.2
Mallett, Robert	Liberal Party	10	6.1
De Williams, Deborah	Liberal Party	8	4.9
Kling, Rene	Liberal Party	3	1.8
(Indeterminate Candidate)	Liberal Party	41	25
GROUP TOTAL	Liberal Party	144	87.8
Bacon, Scott	Australian Labor Party	8	4.9
Amos, Julian	Australian Labor Party	3	1.8
Carnes, Sharon	Australian Labor Party	3	1.8
GROUP TOTAL	Australian Labor Party	14	8.5
O'Connor, Cassy	Tasmanian Greens	2	1.2
Harvey, Bill	Tasmanian Greens	1	0.6
GROUP TOTAL	Tasmanian Greens	3	1.8
Zucco, Marti	Independent (Group H)	2	1.2
GROUP TOTAL	Group H	2	1.2
Willink, Hans	Ungrouped Independent	1	0.6
GROUP TOTAL	Ungrouped	1	0.6
TOTAL	All Candidates	164	100

Table 1: *Estimated primary votes lost by each candidate as a result of damage causing votes to be classed as informal.*

The Liberal Party was the party most affected by the damage, because the damage occurred mainly in its column. Matthew Groom, as the highest polling Liberal candidate, was the candidate who lost the most votes to the accident. Beyond this, the Australian Labor Party was the next most affected. 18 of the 30 candidates, including all five Palmer United Party candidates and all three Tasmanian Nationals candidates, lost no primary votes.

It should be stressed that these are only estimates of the number of votes lost by each candidate. Aside from the impossibility of attributing some of the Liberal votes, it is also possible for inferences about partially visible numbers to be wrong. For example in some cases a curved line fragment was all that remained of a number. The great majority of voters write the numbers 2, 3 and 5 with some part curved and the numbers 1 and 4 without curving, but a very small minority of voters may depart from this practice (for instance by putting a loop at the bottom of the number "1".)

3.2 Votes that exhausted prematurely

Although it has been mentioned in section 2.3 that 157 votes had the potential to exhaust from the count prematurely, only six of these in fact did so. These included two votes for Scott Bacon (ALP), two votes for Penelope Ann (Tasmanian Greens), and one vote each for Barbara Etter (PUP) and Mark Grube (PUP). Each of these votes still functioned at full value for its originally intended candidate. Each vote was also active for some of those candidates who were preferenced highly on it, and part of the value of each of the two 1 Bacon votes helped elect Scott Bacon. However, these six votes exhausted from the count at a stage at which, had they not been damaged, they could have been passed to further candidates.

It is not surprising that most potentially prematurely exhausting votes did not exhaust. In any Hare-Clark election, many voters will not number all available squares, or will make a mistake in so doing without rendering their vote informal, but only a few percent of the total vote usually ends up classed as exhaust. The reason for this is that the Hare-Clark system's "last bundle" method for preferences means that many votes that are received by candidates who are elected during the distribution of preferences, are never distributed again. Therefore, the impact of an incident of this kind on the number of votes that actually exhaust is much less than it would have been in the Australian Senate system, in which all votes received by an elected candidate are redistributed at reduced value.

However, the number of votes that actually exhausted was especially low in this case because the election ended up as a contest between two Labor candidates, but the damage was in the Liberal column. Ballot papers that preferenced Liberal candidates highly were more likely to be ruled informal, while votes for non-Liberal candidates on damaged ballot papers often never reached the Liberal column.

3.3 Votes that had the potential to exhaust prematurely, but did not

The distribution of the 151 formal votes that could, in theory, have exhausted prematurely as a result of ballot paper damage, but did not, is given in Appendix 1. These votes were mainly received by the highest-polling Labor and Green candidates, Scott Bacon (64) and Cassy O'Connor (40). However O'Connor's primary votes were never distributed.

4. Impact on the contest in Denison

4.1 Details of the contest in Denison

The closest contest for a seat in Denison by far was between Labor candidates Julian Amos and Madeleine Ogilvie for the fifth seat. Ogilvie polled 2156 primary votes to 1917 for Amos. Amos moved to a lead of 187 votes after benefiting from Scott Bacon's surplus. A gap of around this size remained between the two candidates after most of the subsequent exclusions until Ogilvie gained over 100 votes on the exclusions of each of Alphonse Mulumba and Sharon Carnes (both ALP). The flow of preferences from Bill Harvey (Green) strongly favoured Ogilvie over Amos, and although Amos made some gains on preferences from Robert Mallett (Liberal), Ogilvie won the seat by 331 votes, 7465 to 7134.

Early in the count it appeared possible that the margin between Amos and Ogilvie would have been smaller and might be so close that the damage to the ballot papers could have affected the outcome. It turned out that the margin was much too wide for damage to that number of ballot papers to have altered it.

4.2 How the outcome in Denison could, in theory, have been affected

Based on primary vote counting in Denison it was apparent on the night of polling day that there would be a contest for the final seat between two or more Labor candidates, and that this had the potential to be very close. The worst possible case would have been that the margin between two of these candidates at the end of the count, or at some other critical point, was so close that had the damaged papers been intact and included, a different outcome would have been possible or even likely.

In such a case the validity of the election result could have been disputed by a candidate, by an elector entitled to vote at the election, or by the Commission, under S. 205 of the *Tasmanian Electoral Act 2004*. The situation would then have been broadly similar to the loss of ballot papers in the 2013 Western Australian Senate election, with a possible outcome being the voiding of the Denison contest and a by-election for all five seats in Denison.

An article published in *The Mercury* on March 18¹ stated that 72 of the 155 ballot papers at that time considered informal "had no figure in the column of the ALP, reducing the number that could affect the Labor outcome for the second Denison seat to 83 votes." However, even votes that had no figure in the Labor column had some potential to affect the margin. For instance, the addition of extra votes to the count would have increased the quota at the rate of a one-vote increase in the quota for

¹ Crawley, J "Destroyed ballot papers could affect outcome of second Labor seat in Denison"

every six formal votes added. If one of the candidates who reached a quota received very few of the added votes, then their surplus would have been reduced. Since Amos made large gains compared to Ogilvie on the surplus of Scott Bacon, even the addition to the count of votes that were entirely in the Liberal column could have weakened his position.

Another possible impact involved the time of election of Elise Archer. Archer was 61 votes short of her quota after the exclusion of Mulumba, and reached her quota on a parcel of 72 votes transferred from Sharon Carnes. Had Archer been elected on Mulumba's preferences (as a result of having more primary votes to begin with and receiving more preferences within the Liberal ticket) then these votes from Carnes could have flowed to either Ogilvie or Amos at full value, instead of at a value greatly reduced in the calculation of Archer's surplus.

The Hare-Clark system is unlike the Group Ticket Voting system used in the Australian Senate in that "tipping points" involving the order of exclusion of obscure candidates or the point at which a candidate is elected or excluded, seldom affect the outcome of a seat. Candidates who poll very low primary votes are always (in practice) eliminated early unless they have a ticketmate with a large surplus, and the order of these exclusions generally does not affect the outcome of any seats. Furthermore, whether a candidate just reaches quota at a particular exclusion, or is a few votes short and reaches quota on the next exclusion, generally does not make more than a few votes of difference to the outcome.

Thus, while the first four exclusions from the Denison count were by small margins of 18, 7, 11 and 6 votes (in that order), the order of these exclusions had no bearing on the outcome. So even if the order of these exclusions would have been different but for the damage to ballot papers, it would not have affected the result.

A more significant exclusion occurred at Count 69 of the preference distribution. At this point, Alphonse Mulumba (ALP) was excluded as he trailed Sharon Carnes (ALP) by 194 votes. In theory, if Mulumba was ahead of Carnes at that point, and there was a very strong flow of preferences from Carnes to Mulumba ahead of Amos and Ogilvie, it might have been possible for Mulumba to pass one of the other Labor candidates. If the margin between Mulumba and Carnes had been very close, then it would have been necessary to check this possibility.

4.3 Estimate of actual impacts on the Denison result and margins: process and comments

A simulated reconstruction of the Denison election was conducted using the Excel program *HC-Auto v 3.7* and the scans of the damaged ballot papers. A copy of the simulation has been provided to the TEC with the title "Denison Reconstruction 4" and is also available from the author on request.

When it was clear or overwhelmingly likely that a damaged ballot paper had contained a vote for a given candidate, that vote was allocated to that candidate. However, many votes assumed to have been in the Liberal column could not be

clearly allocated to a given candidate. In these cases each vote was allocated on a random basis weighted by the primary vote shares of the Liberal candidates. Therefore if nothing was known beyond that a vote was a Liberal vote, it had a 56.5% chance of being allocated to Matthew Groom, 27.4% for Elise Archer, 8.5% for Robert Mallett, 4.3% for Deborah DeWilliams, 3.4% for Rene Kling.

For some votes it was possible to eliminate one or more of the possible Liberal candidates as the holder of the number 1 vote and make the weighted random selection between the remaining candidates only.

A similar method was applied in distributing preferences if it was not clear which Liberal candidate received a given vote at a specific stage.

The following are some comments about the simulation:

- 1.** The simulation had a quota of 10687 votes compared to the 10660-vote quota in the original election.
- 2.** Only fourteen candidates received ballot papers during the simulation that they did not receive in the original election. These were the twelve candidates listed in Table 1, all of whom gained primary votes, plus Madeleine Ogilvie (ALP) and Barbara Etter (PUP).
- 3.** Of the sixteen candidates who did not receive any new ballot papers in the simulation, thirteen were excluded with identical totals to the totals they were excluded with in the original election. The three exceptions were excluded with very slightly different totals. Leo Foley was excluded with one vote more because a slight increase in the transfer value of Matthew Groom's surplus votes meant that the 13 ballot papers he received from Groom's surplus were now worth three votes instead of two. Alphonse Mulumba was excluded with two votes fewer because of a reduction in the transfer value of Scott Bacon's surplus, and Penelope Ann (Green) was excluded with five votes fewer because of a reduction in the transfer value of Cassy O'Connor's surplus. One candidate who did receive one new ballot paper (Etter) was also excluded with an identical total to that in the original election, because the value of that ballot paper was lost from her total through rounding.
- 4.** The order of exclusions in the distribution of preferences was identical to that in the original election, and would have been identical under any realistic assumption about the content of the damaged ballot papers, with one possible exception.
- 5.** The one event that could have occurred differently had all the damaged ballot papers not been damaged is that Elise Archer may have reached her quota at the end of the exclusion of Alphonse Mulumba and prior to the exclusion of Sharon Carnes. In the actual election, Archer was 61 votes short of reaching her quota at this stage. In the simulation, Archer was just five votes short of doing this.
- 6.** Given that, among other things, 41 Liberal primary votes were randomly allocated in the simulation, it is possible that Archer would have actually just reached quota (with very few votes to spare) at the end of the Mulumba exclusion had no papers been damaged. However, such an outcome would have had at most a very minimal

impact on the simulation results. The 72 papers distributed from Carnes to Archer in the simulation (and then passed on to the next available candidate at over 93% of full value) would instead have been distributed at full value, and 24 papers distributed from Mulumba to Archer would have been distributed as a surplus instead of remaining with Archer, but at a very small value each.

4.4 Estimate of actual impacts on Ogilvie-Amos contest

In the actual election, Madeleine Ogilvie's margin of victory over Julian Amos was 331 votes, 7465 to 7134. In the simulation, Ogilvie defeated Amos by 340 votes, 7478 to 7139, a difference in margin of eight votes. Thus it is estimated that the impact of the accident was to very slightly reduce the margin of Madeleine Ogilvie's victory. However, because the simulated reduction was so small, and because of the numerous minor uncertainties in the process, it is only very likely and not certain that Ogilvie's margin over Amos was reduced.

4.5 Excluded votes that could have reached Ogilvie and Amos

Of those ballots that had figures in the Labor column, some would not have reached either Ogilvie or Amos anyway, or would have done so only at reduced value. Votes that would not have reached the competing Labor candidates included:

- * Votes that had figures in the Labor column, but no figures for either Amos or Ogilvie.
- * Votes that were primary votes for Elise Archer (Liberal) or Cassy O'Connor (Green) since neither of their preferences were ever distributed.
- * Votes that reached either Archer or O'Connor as preferences before either was elected, for the same reason.
- * Votes that exhausted before they could reach either Ogilvie or Amos because of numbering errors by the voter.

Table 2 shows the highest possible value at which damaged ballot papers that were ruled informal or that prematurely exhausted could have reached either candidate:

	Amos	Ogilvie	Total
Could reach at full value	20	16	36
Could reach from Bacon surplus (c. .26)	7	2	9
Could reach from Groom transfer (c. .23)	6	3	9
Numbered ahead but could not reach	15	13	28
Total	48	34	82

Table 2 Numbers of votes that could have reached each candidate at various competing values, had ballot papers not been damaged². Based on mathematically possible but unrealistic assumptions about distributions of unknown votes

In Table 2, the line "numbered ahead but could not reach" refers to votes that had either Amos numbered ahead of Ogilvie or the other way around, but for which there would have been no possibility of the vote actually reaching the stated candidate. The most common reason for this was that the vote would clearly have reached Archer first.

A further eight votes that were either ruled informal or that prematurely exhausted had at least one number in the Labor column, but no number for each of the competing candidates.

While there were, for instance, twenty damaged ballot papers that could have reached Amos at full value, the probability that all twenty would actually have done so is extremely low. For example, if a vote was either 1 Mallet 2 Groom or 1 Groom 2 Mallett (but it is unclear which) then it would have to be 1 Mallett 2 Groom to reach Amos at full value. However, 1 Groom 2 Mallett (meaning that it could only reach Amos at partial value, if at all) would be much more likely.

Table 3 shows estimates, based on the simulated re-run, of the number of papers that would have actually reached the two competing Labor candidates at various values had those papers not been damaged³:

	Amos	Ogilvie	Total
At full value	11	10	21
From Bacon surplus (value c. .26)	6	1	7
From Groom surplus (value c. .23)	4	6	10
Total papers	21	17	38

Table 3 Estimated number of ballots that would have reached competing Labor candidates Amos and Ogilvie, had those ballot papers not been damaged. Based on simulation.

The exact numbers would probably have varied slightly from the above because of the impacts of randomising unclear ballots in the simulation. The important outcomes

² Tables 2 and 3 includes both votes that were ruled informal, and votes that prematurely exhausted.

³ It may be noticed here that the number of votes for Ogilvie from the Groom surplus exceeds the number shown in table 2. This is because in the simulation some votes that in theory could have reached Ogilvie at full value, were randomly assigned to Groom as primary votes, meaning they could only reach Ogilvie at reduced value.

here are that the ballot papers potentially available to each candidate were probably fairly closely split between the two, that about half of the ballots that had figures in the Labor column would never have reached either candidate, and that some of those votes that would have reached Ogilvie or Amos would have done so at reduced value.

This said, the fate of two specific ballots is worth highlighting as a sign of the capacity of some votes to flow but for the accident. Ballot **000435** was a formal vote for Scott Bacon that then flowed at reduced value to Sharon Carnes and then to Bill Harvey. At Harvey's exclusion the vote exhausted because the next available preference would have been preference 16, but votes 16-20 were in the Liberal column and damaged. I interpret this vote as having a clear 16 for Robert Mallett *on the assumption that the voter did not repeat or omit numbers*. That being the case, on Mallett's exclusion it would have flowed to Amos at preference 28 out of 30.

Ballot **001116** was a formal vote for Barbara Etter (PUP). On her exclusion it flowed to Harvey at preference 6. Preferences 7 to 11 were within the Liberal ticket and damaged so the vote exhausted on Harvey's exclusion. The vote had a 7 for the already elected Matthew Groom, and then appears to have continued 8 Mallett 9 Kling, or possibly but much less likely the other way around, and in either case would have flowed on the exclusion of Mallett to Ogilvie, again at preference 28 out of 30. This vote would have been active at full value.

4.6 Reasons for the difference in results between simulated and actual election

Although Julian Amos received more additional ballot papers in the simulated re-run than Madeleine Ogilvie, the gap between the two actually widened by eight votes in Ogilvie's favour. The main reason for this is that there were changes in the value of votes obtained from other candidates. At the election of Scott Bacon in the actual count, Amos received 4616 papers at a transfer value of 0.263252 and thus gained 1215 votes; Ogilvie received 2999 papers and gained 789.

In my simulated count, the transfer value of papers from Bacon was reduced to 0.261794, because the increase in primary votes went largely to the Liberal candidates. Amos received four more papers directly from the Bacon surplus (1 Bacon 2 Amos) to Ogilvie's none, but his 4620 papers were now worth 1209 votes (down six on the actual election) while Ogilvie's 2999 papers were now worth 785 (down four). Thus, although Amos gained four more papers at this stage than Ogilvie did, he actually lost two more votes. Indeed, despite gaining eleven full-value votes and ten partial value votes, Amos's final tally in the simulation was only five votes more than in the actual election.

Overall in the simulation the margin widened by six votes in Ogilvie's favour because of changes in votes (including both the numbers of votes and their values when added to the total of each candidate) that came from the Bacon surplus, two votes because of changes in votes that came from the O'Connor surplus, and one vote because of changes in votes that came from the Groom surplus. It narrowed by one vote because Amos gained one more primary-value vote.

4.7 How accurate is the simulation?

The following issues introduce some potential for error in my simulation of how the election would have transpired had the ballot paper damage not occurred:

1. The possibility that a very small number of the damaged ballot papers were actually either informal or else prematurely exhausting, because of errors by the voter that were contained in damaged ballot squares. For example, vote **002389** (a Bacon surplus vote flowing directly to Amos) would need to have a 4 in the Liberal column to be formal, but none of the partial numbers in the column look like how the voter wrote their other 4s, and it is possible the voter actually put two number 9s.
2. The weighted random allocation of 41 primary-value Liberal votes. Although most of those votes would not have reached either Amos or Ogilvie under any circumstances, different outcomes when votes were randomly allocated could have influenced either candidate's final vote total by a small number of votes (most likely fewer than four) either way.
3. The impact of slight changes in totals on the outcome can vary by a very small number of votes because of rounding issues.
4. The possibility of misinterpretation of a vote that seemed extremely likely to be for a given candidate, if for instance the voter had a very unusual way of writing a number that was in a damaged box.
5. Although the simulation has been checked and rechecked, it has not been subject to the same level of cross-checking by multiple counters as the original election, and so it is possible that clerical error could affect the allocation of a very small number of ballots.

Even considering all these possibilities combined, it is still very likely that the ballot paper damage did reduce the margin between Ogilvie and Amos by a small number of votes.

4.8 How close a margin might have led to the election for Denison being declared void?

Given that the incident did affect the final margin and that there were a number of ballots rendered informal that would otherwise have reached Amos or Ogilvie, the question arises of what sort of margin would have survived a legal challenge.

In considering this question, I assume the worst-case scenario in the absence of any relevant Tasmanian case law. I assume firstly that a court would have accepted all the original rulings of informality caused by damage that were made by the Returning Officers, and would not attempt to reduce the number of disputed votes by ruling any of these votes formal. I assume secondly that the defeated candidate would argue that

it is possible that every damaged ballot paper that could have assisted them was originally formal and that every damaged ballot paper that could have assisted their opponent was originally informal (despite the extreme improbability of this actually being true) and that the court would have accepted this was the case.

On that basis, the following issues could have been taken into account in deciding what margin was uncertain enough to declare the election void.

- 1.** The maximum possible vote gain for each candidate based on votes that could have been formal and could have flowed to them. While it is probable the gain for the candidates arising from this would have been about 11-15 votes each, Table 2 shows that under the most generous assumptions it might be argued up to around 25 votes' worth for Amos or 18 votes' worth for Ogilvie.
- 2.** The impact of changes in the value of other votes received based on whether or not the damaged Liberal primary votes were originally formal. Since this issue mainly involves reductions in the value of the Bacon and O'Connor surpluses if many prospective Liberal votes are admitted, it would only assist Ogilvie in improving her position compared to the actual count. This issue is very sensitive to rounding (see 3. below) because of the number of transfers involving votes at reduced value. However, excluding rounding, the maximum value to Ogilvie of this factor is estimated at about seven votes, while Amos could not have gained significantly from it.
- 3.** Rounding impacts. When a parcel of votes with a reduced transfer value are passed to a candidate, their value to that candidate's total is rounded down to the nearest whole number. At some counts, allocating an extra ballot paper to a candidate could cause their total votes gained at that stage to increase by a vote, even if the ballot paper was only being transferred at a value of around a quarter of a vote. Also, slight increases in the transfer value of a candidate's surplus could mean that a given parcel of votes transferred at a given count increased in net value by a vote. In the simulation, rounding tended to advantage Ogilvie, to the extent of about four of the nine votes by which her margin increased, but I have not analysed whether this would be likely to be the case under all possible scenarios.

Determining the maximum mathematically possible impact of rounding on the outcome is a very difficult modelling exercise that would probably require a specialised computer simulation. My estimate is that the impact of rounding would not have exceeded ten votes under any scenario (however far-fetched).

Based on these estimates, any margin exceeding 35 votes would have survived challenge, while a margin of 35 votes or closer may have resulted in the election for the seat being declared void.

If the margin was smaller than 35 votes, then the outcome of a challenge would have depended upon legal rulings by the court, and in particular whether it chose to revisit any of the original decisions about the formality of specific ballot papers. The issue of formality is discussed further in Section 5. However there are enough uncertainties that even if the court took a very generous approach to deeming ballots formal, a margin of below 15 votes would probably still not have stood.

Margins close enough to be affected by accidents of this type have happened in Tasmanian state elections; for instance the final seat in Braddon in 1989 was decided by seven votes between two competing Labor candidates, and this margin stood.

5. Formality Decisions

5.1 Assessment of formality decisions

The most subjective and probably difficult part of the TEC response to the ballot paper damage incident involved the assessment of damaged ballot papers as formal or informal.

Formality is governed by Section 103 of the Tasmanian Electoral Act 2004. Apart from ballots being ruled informal for technical reasons (such as the lack of an authentication mark or the voter having identified themselves on the paper), ballots are normally ruled informal if they do not contain each of the numbers 1 through 5 exactly once each.

Sometimes the handwriting of voters is difficult to read, or voters may choose an unorthodox way of expressing their preferences. To deal with such situations, S. 103 (4) requires that "A ballot paper is not to be treated as informal or rejected at the counting of votes if, in the opinion of the returning officer, the elector's intention is clearly indicated on the ballot paper."

It is not made literally clear how S 103 (4) is to be interpreted if, in the opinion of the returning officer, the elector's intention *was* clearly indicated on the ballot paper, prior to an accident that entirely removed the number 1 from their vote. The approach that maximises the number of formal votes is to treat the vote as formal if there is a way in which it could have been formal and that way is clearly unique.

For instance, if a vote clearly contains the numbers 2, 3, 4 and 5 in the Liberal column, and no numbers in any other column, and one square in the Liberal column that has no number at all and is damaged, then it is very unlikely the voter only voted 2, 3, 4, 5 without voting 1. Thus, this vote might be ruled formal under the most generous approach, even though there is no 1 present.

Formality rulings in these "missing 1" cases varied. Ballot paper **001539** was admitted as formal although it has no portion of a 1 and only very small portions of the 4 and 5. However, several similar cases (a good example being **002268**) were rejected when the 1 was missing but could only have been in one place if present, and the numbers 2, 3, 4 and 5 were all very clear (albeit slightly damaged.)

Another form of inconsistency involved votes that had the numbers 1 to 5 clearly visible for candidates outside the Liberal column, and extensive damage inside the Liberal column. In this case the only possible basis for ruling the vote informal is the possibility that the damaged numbers in the Liberal column might be additional 1s, 2s or 3s, although there was no basis for assuming them to be such. Two contrasting examples are **002393** and **00069**.

In the former case, the voter voted 1-5 for the Labor candidates in their order of choice, 6 to 10 down the Green column in linear order, 11-15 down the Palmer United column, and 21 to 30 in order for the candidates to the right of the Liberal column. The Liberal column is heavily damaged and the top four squares include numbers starting with 1 (and in the top two cases with clearly at least one other digit). The bottom square includes a number starting with 2. In all likelihood, the voter actually voted 16-20 down the Liberal column. The only possible pretext for declaring the vote informal is that one or both of the damaged spaces where the 18 and 19 look to have been might have actually contained only a 1. This vote was ruled informal.

Vote 00069 also contains numbers in all squares but with the numbers from 1 to 25 outside the Liberal columns. The bottom square in the Liberal column contains a damaged number 30 while the top four contain only the number 2 plus damage. In this case the top four Liberal candidates were presumably given numbers 26 to 29 in some order. The vote was ruled formal though much the same principle applied to exclude 002393 could have been applied to it as well.

Variation in formality decisions does not necessarily result from inconsistent decisions by the same or different returning officers, and can also result from decisions by counting staff - one staff member might think a ballot is clearly formal and not refer it for checking, whereas another might refer it.

Furthermore, while I formed a view that many of the votes declared informal would have been declared formal under an ideal procedural and/or (if necessary) legislative framework, others may disagree with my interpretation of some or even many of these votes.

Among the damaged ballot papers that were declared informal, there were many that could not have been ruled as clearly having belonged to a specific candidate, no matter what approach was applied to formality. For instance, if a vote is completely missing the numbers 1 and 2, and there are two damaged squares in the Liberal Party column in which those numbers could have been, there is no way to work out which way around the vote went and hence award it to a specific candidate.

However, Appendix 2 shows that there were ten ballot papers rejected as informal despite each clearly showing the numbers 1-5 once each in undamaged boxes. (In only two of these cases the portion of the ballot containing authentication and the Ungrouped column squares had been lost.)

5.2 Assumption of formality

As noted above, the most generous approach to formality in a case of ballot paper damage is to assume a vote was originally formal unless there is strong reason to suspect that it was not. If a unique way in which the vote could have been formal can be determined, then that could be declared the vote order for that ballot. Some votes appear to have been ruled formal following such a principle (eg **001539**, and also many Liberal column votes that contain only a small portion of a 1 that could in

theory be part of a different number) but many votes capable of being ruled formal in this way were not.

Whether it is correct under current law to rule such votes formal or not, I think it is useful to assess how widespread such votes were. In the column "CF?" in Appendix 2 I show whether, in my view, each of the votes rendered informal by the accident could have been considered formal if the assumption of formality were applied. 84 votes are classified as salvageable (at least for the purposes of admitting them formal from 1 to 5) by such an approach, 60 are classified as non-salvageable, and a tentative view only is expressed on the remaining 20.

A similar conclusion applies to votes that could have exhausted prematurely. For these votes, the standard that could ideally be applied is that the voter is assumed to have numbered squares sequentially without error except to the extent that evidence shows or suggests otherwise. Applying this approach, in my view about 50 of the potentially-prematurely-exhausting votes could be clearly followed all the way through (or to the point where the voter stopped numbering or made an error). About 18 others could be followed beyond the point they were indicated as "good to", but still would have exhausted later as a result of the damage.

It is normal practice to rule votes informal if there is any real doubt about what the voter's intention was. This generally makes sense because it is up to the voter to make their vote clear enough to be unambiguously understood. However, when the voter's intention is rendered unclear through no fault of their own, an approach that gives the voter the benefit of the doubt where possible is desirable. A damaged ballot paper should only be declared informal if there is no unambiguous way to interpret it as a formal vote, or if there are serious doubts that it was originally formal.

Another possible approach to increase formality in the case of accidents of this kind would be to allow votes to be formal if the voter's first preference is clear and the ballot paper has been damaged in a way that is beyond the voter's control. Thus if the vote had a clear 1 and 2 but it was not possible to assign 3 or 4 because of damage, the vote could be deemed "good to 2".

Damage to ballot papers during counting is a rare event and I am not aware of any previous Tasmanian instance. All the same, it is possible to imagine ways in which it might occur other than the current case, including ways beyond the easy control of the Commission.

Especially in the absence of relevant case law dealing with a situation of this kind (or any case law dealing with the interpretation of formality in Tasmania) I make no finding concerning whether any legislative savings provisions would be required to improve the number of votes that could be classified as formal as a result of such incidents, or whether the matter could be addressed entirely through instructions to assume votes to be formal.

Acknowledgement

I thank the Tasmanian Electoral Commission for providing me with office facilities to work on this report and access to ballot papers, and staff (especially Julian Type) for information about the incident and assistance with the review.

Appendix 1: Damaged formal votes

Candidate	Party	votes	PPE	EX
Allocca	Nationals	1	0	0
Amos	Labor	75	5	0
Ann	Tasmanian Greens	20	4	2
Archer	Liberal	216	1	0
Bacon	Labor	587	64	2
Carnes	Labor	54	9	0
Cocker	Tasmanian Greens	16	1	0
De Williams	Liberal	35	0	0
Edwards	Nationals	4	0	0
Etter	Palmer United	47	3	1
Foley	Ind (Own Group)	13	1	0
Forrest	Palmer United	7	0	0
Gala	Nationals	4	0	0
Groom	Liberal	626	0	0
Grube	Palmer United	11	2	1
Harvey	Tasmanian Greens	32	3	0
Hill	Ungrouped Ind	1	0	0
Kling	Liberal	32	0	0
Mallett	Liberal	47	0	0
Mulumba	Labor	25	5	0
Newitt	Palmer United	13	1	0
Noyes	Ungrouped Ind	6	0	0
O'Connor	Tasmanian Greens	221	40	0
Ogilvie	Labor	46	4	0
Stephen	Socialist Alliance	2	0	0
Stringer	Palmer United	10	0	0
Swanton	Ind (Own Group)	3	1	0
Whykes	Tasmanian Greens	11	1	0
Willink	Ungrouped Ind	12	2	0
Zucco	Ind (Own Group)	27	4	0
TOTAL		2204	151	6

The table above shows the number of damaged formal votes for each candidate. The column PPE gives the number of potentially prematurely exhausting votes for that candidate, excluding those votes for that candidate that actually did exhaust prematurely. The column EX gives the number of votes for that candidate that exhausted prematurely.

Appendix 2: Damaged ballot papers ruled informal

The following pages provide the following data for each of the 164 damaged ballot papers that were caused to be treated as informal votes:

- * Stamped ballot paper number.
- * In the column "#1-5?", whether the ballot paper contained the numbers 1 through 5 in undamaged squares.
- * In the column "#1U?", whether the ballot paper contained the number 1 in an undamaged square.
- * In the column "#1D?", whether the ballot paper contained the whole of the number 1 in a damaged square.
- * In the column "CF?", whether in my view the ballot paper could have been classified as a formal vote under an approach that required it to be interpreted on the assumption it was originally formal. If "y", then this means that I am satisfied that the elector intended to vote for their first five candidates in a single uniquely identifiable order. In some cases I have added a question mark to indicate that while I have a view of this ballot paper, I can easily see that someone else might have a different one.
- * In the column "Assigned #1" the candidate to whom the vote was assigned in my simulated rerun. The letters (RA) after the candidate name indicate that the vote was randomly assigned (weighted by frequency of #1 votes) to this candidate rather than at least one other candidate who could have received it.
- * In the column "Assigned Pref Flow" the way in which the vote flowed in the simulation. Again (RA) indicates a weighted random assignment to a candidate. Note that votes that reached Archer or O'Connor did not flow further in the simulation.

Vote	#1-5?	#1U?	#1D?	CF?	Assigned #1	Assigned Pref Flow
002205	n	n	n	n	Groom (RA)	Archer (RA)
002206	n	n	n	n	Groom (RA)	Archer
002207	n	n	n	y	Archer	N/A
002208	n	n	n	y	Archer	N/A
002209	n	n	y	y	De Williams	Archer
002210	n	n	n	y	Groom	Archer
002211	n	n	n	y	Groom	Archer
002212	n	n	n	n	Groom (RA)	Archer (RA)
002213	n	n	n	y	Groom	Archer
002214	n	n	n	y	Groom	Archer
002215	n	n	n	y	Groom	De Williams, Mallett, exhaust
002216	n	n	n	y	Groom	Archer
002217	n	n	n	y?	Groom	Archer
002218	n	n	n	y	Groom	Archer
002219	n	n	n	y	Groom	Kling, De Williams, Mallett, exhaust
002220	n	n	n	n	Archer (RA)	N/A
002221	n	n	n	y	Mallett	exhaust
002222	n	n	n	y	Archer	exhaust
002223	y	y	n	y	Harvey	exhaust (no #8 in square)
002224	n	n	n	y	Groom	De Williams, Mallett, exhaust
002225	n	n	n	y?	Groom	Kling, Mallett, exhaust
002226	n	n	n	n	De Williams (RA)	Archer
002227	n	n	y	y	Groom	Archer
002228	n	n	y	y	De Williams	Archer
002229	n	n	y	y	Groom	Zucco, Mallett, exhaust
002230	n	n	n	y	Archer	N/A
002231	n	n	n	n?	Groom (RA)	Mallett (RA), exhaust
002232	n	n	n	n	Groom (RA)	Archer
002233	n	n	n	y	Groom	Kling, De Williams, Mallett, exhaust
002234	n	n	n	y	Groom	Kling, Archer
002235	n	n	y	n	Groom	De Williams, Mallett, exhaust
002236	n	n	y	y	Groom	Archer
002237	n	n	y	y	Archer	N/A
002238	n	n	y	y	Archer	N/A
002239	n	n	y	y	Groom	Archer
002240	n	n	n	n?	Archer	N/A
002241	n	n	n	n	Archer (RA)	N/A
002242	n	n	n	y	Archer	N/A
002243	n	n	n	y	Groom	De Williams, Archer
002244	n	n	n	y	Archer	N/A
002245	n	n	n	y?	De Williams	Archer
002246	n	n	n	y	Groom	Archer
002247	n	n	n	y	Groom	Archer
002248	n	n	n	y?	Groom	Archer
002249	n	n	n	y	Groom	Archer
002250	n	n	n	y	Mallett	exhaust
002251	n	n	n	y?	Groom	De Williams, Archer
002252	n	n	n	y	Groom	Archer
002253	n	n	n	n?	Groom	Archer

Vote	#1-5?	#1U?	#1D?	CF?	Assigned #1	Assigned Pref Flow
002254	n	n	n	n	Groom	Archer
002255	n	n	n	n	Groom (RA)	Archer
002256	n	n	n	n	Archer (RA)	N/A
002257	n	n	n	y	Groom	Archer
002258	n	n	n	y?	Archer	N/A
002259	n	n	n	y	Mallett	exhaust
002260	n	n	y	y	Groom	Archer
002261	n	n	n	n	Archer (RA)	N/A
002262	n	n	n	y	Groom	De Williams, Archer
002263	n	n	n	n	Archer (RA)	N/A
002264	n	n	n	y	De Williams	Archer
002265	n	n	n	n	Groom (RA)	Mallett (RA), exhaust
002266	n	n	n	y	Groom	Archer
002267	n	n	n	n	Mallett (RA)	exhaust
002268	n	n	n	y	Groom	Mallett, exhaust
002269	n	n	n	y	Groom	Archer
002270	n	n	n	n	Groom (RA)	Archer (RA)
002271	n	n	n	y	Groom	Kling, De Williams, Mallett, exhaust
002272	n	n	n	n	De Williams	Archer
002273	n	n	n	y?	Groom	Archer
002274	n	n	n	n	Groom (RA)	Mallett, exhaust
002275	n	n	n	y	Groom	Archer
002276	n	n	n	y	Groom	Archer
002277	n	n	n	y	Kling	De Williams, Archer
002278	n	n	n	n	Groom (RA)	Mallett (RA), exhaust
002279	n	y	n	n	Amos	N/A
002280	n	n	n	y	Groom	Mallett, exhaust
002281	n	n	n	n	Archer (RA)	N/A
002282	n	n	n	n	Archer (RA)	N/A
002283	y	y	n	y	O'Connor	N/A
002284	n	n	n	n	Groom	Archer (RA)
002285	n	n	n	n	Groom (RA)	Archer
002286	n	n	n	n?	Mallett	Amos
002287	n	y	n	n	O'Connor	N/A
002288	n	n	n	n	Groom (RA)	De Williams, Carnes, Ogilvie
002289	n	n	n	n	De Williams (RA)	Mallett (RA), exhaust
002290	n	n	n	y	De Williams	Archer
002291	n	n	n	n	Groom (RA)	Ogilvie
002292	n	n	n	y	Groom	Mallett, Amos
002293	n	n	n	y	Groom	Mallett, Ogilvie
002294	n	n	n	y?	Mallett	Ogilvie
002295	n	n	n	y	Archer	N/A
002296	n	n	n	y?	Kling	Mallett, Amos
002297	n	n	n	n	Mallett (RA)	Amos
002298	n	n	n	n	Archer (RA)	N/A
002299	n	n	n	n	Archer (RA)	N/A
002300	n	n	n	y	Archer	N/A
002301	n	n	n	y	Archer	N/A
002302	n	n	n	y	De Williams	Archer
002303	n	n	n	n	Archer (RA)	N/A

Vote	#1-5?	#1U?	#1D?	CF?	Assigned #1	Assigned Pref Flow
002304	n	n	n	y	Archer	N/A
002305	n	n	n	y?	Groom	Archer
002306	n	n	n	n	Kling	Archer
002307	n	n	n	n	Groom (RA)	Mallett (RA), Amos
002308	n	n	n	y	Groom	Archer
002309	n	n	n	y	Groom	Archer
002310	n	n	n	n	Archer (RA)	N/A
002311	n	n	n	y	Groom	Mallett, Ogilvie
002312	n	n	n	n?	Mallett	Ogilvie
002313	n	n	n	y	Groom	Archer
002314	n	n	n	y	Groom	Archer
002315	n	n	n	n	Mallett	exhaust
002316	n	n	n	n	Groom	Archer
002317	n	n	n	y	Groom	Archer
002318	n	n	n	y?	Mallett	Ogilvie
002319	n	n	n	y	Groom	De Williams, Archer
002320	n	n	n	n	Groom (RA)	Etter, Archer
002321	n	n	n	y	Groom	Archer
002322	n	n	n	n	Groom (RA)	Archer (RA)
002323	n	n	n	n	Groom (RA)	Archer (RA)
002324	n	n	n	n	Archer (RA)	N/A
002325	n	n	n	y	Groom	Archer
002326	n	y	n	n	Zucco	Archer (RA)
002327	n	n	n	y	Groom	De Williams, Mallett, Ogilvie
002328	n	n	n	n	Groom (RA)	Archer
002329	n	n	n	y	Groom	Archer
002330	n	n	n	n	Groom (RA)	Archer (RA)
002331	n	n	n	n	Groom (RA)	Archer
002332	n	n	n	y	Groom	Archer
002333	n	y	n	y	Archer	N/A
002334	n	n	n	n	Groom	Amos
002335	n	n	n	y	Mallett	Amos
002336	n	y	n	n	Bacon	Archer
002337	n	n	n	y	Groom	Archer
002338	n	n	n	n	Groom (RA)	Archer
002339	n	n	n	n	Archer	N/A
002340	n	n	n	y	Groom	Archer
002341	n	n	n	n	Groom (RA)	De Williams, Archer
002342	n	n	n	n?	Archer	N/A
002343	n	n	n	n?	Groom	Archer
002344	n	n	n	y	Groom	Archer
002345	n	n	n	y	Archer	N/A
002346	n	n	n	y	Mallett	Ogilvie
002347	n	y	n	n	Willink	Mallett, Amos
002348	n	n	n	n	Groom (RA)	Mallett (RA), Ogilvie
002349	n	n	n	y	Groom	Mallett, Amos
002350	n	y	n	y	Zucco	Mallett, Amos
002351	n	n	n	n	Mallett (RA)	Ogilvie
002352	n	n	n	n	De Williams	Mallett, Ogilvie
002353	n	n	n	y?	Archer	N/A

Vote	#1-5?	#1U?	#1D?	CF?	Assigned #1	Assigned Pref Flow
002354	n	n	n	n	Archer (informal?)	N/A
002355	n	n	n	y	Groom	Archer
002383	y	y	n	y	Bacon	O'Connor
002384	n	y	n	n	Carnes	Mallett, Ogilvie
002385	y	y	n	y	Carnes	Amos
002386	y	n	n	y?	Carnes	Harvey, Ogilvie
002387	n	y	n	n	Bacon	Kling, Amos
002388	y	y	n	y	Bacon	Amos
002389	n	y	n	n	Bacon (informal?)	Amos
002390	y	y	n	n	Bacon	Amos
002391	y	y	n	y	Bacon	Amos
002392	y	y	n	y	Bacon	Carnes, Ogilvie
002393	y	y	n	y	Amos	N/A
002394	y	y	n	y	Amos	N/A
002421	n	n	n	n	Groom (RA)	Archer (RA)