

# **Elections BC**

## **Voter List Quality Audit 2004/05 Final Results**

**October 2005**



Service BC  
Ministry of Labour and Citizens' Services



## EXECUTIVE SUMMARY

This report presents the overall findings of the Voters List Quality Audit (VLQA) project for Elections BC. The purpose of the audit was to assess the coverage and currency of the BC Voters List at four periods before the 2005 BC Election and on Election Day (May 17, 2005).

The voter list currency was estimated through two different processes:

- Through a mail and phone survey of voters in September 2004, November 2004, and April 2005.
- By mapping the additions, deletions and changes to the active voter database between April 14, April 26 and May 17, 2005.

The table below summarizes the coverage and currency results of the VLQA.

Round	Date	Eligible voter population	Total registered voters	Coverage	Currency
1	Sep 15/04	3,004,363	2,115,424	70.4%	72.6%
2	Nov 12/04	3,034,789	2,698,295	88.9%	68.4%
3	Apr 14/05	3,064,687	2,741,680	89.5%	72.6%
4	Apr 26/05	3,048,627	2,754,160	90.3%	75.2%
5	May 17/05	3,049,153	2,836,301	93.0%	75.4%

Overall, coverage increased 22.6 percentage points (ppts) and currency increased 6 ppts, representing a percent change of 32.1% and 8.6% respectively.

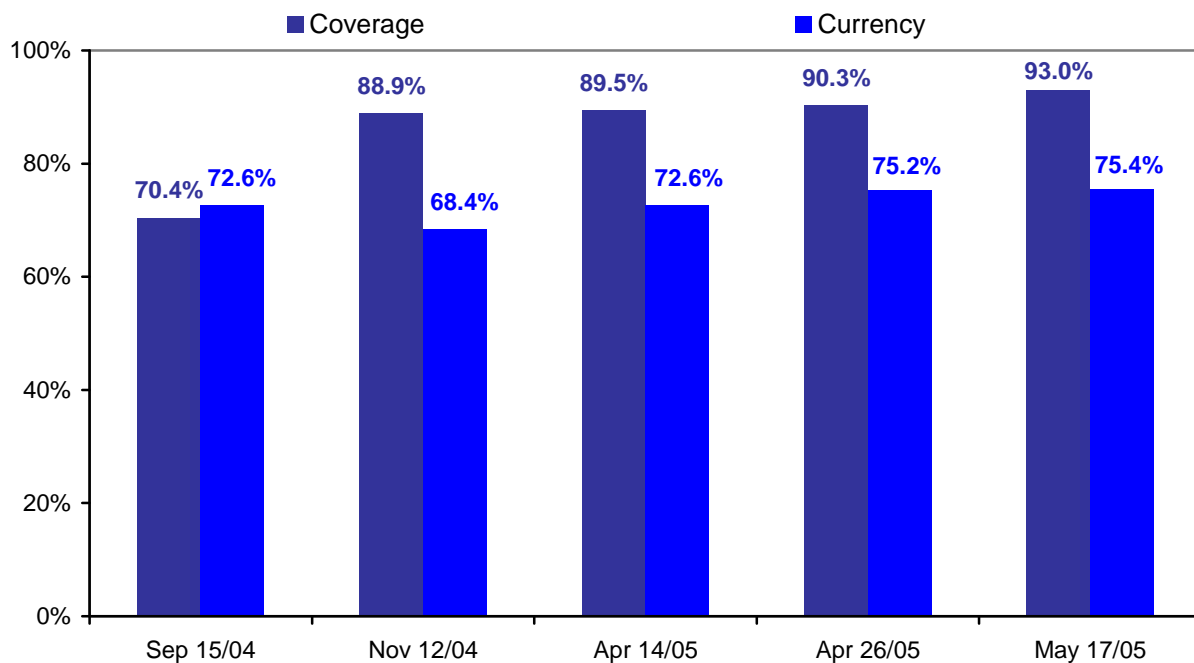




TABLE OF CONTENTS

**1.0 INTRODUCTION..... 1**

**2.0 RESULTS ..... 1**

    2.1 Coverage Estimate ..... 1

    2.2 Currency Estimates ..... 2

        2.2.1 *Estimation methods* ..... 2

        2.2.2 *Adjustments to currency estimates* ..... 3

**APPENDIX A ..... 9**

TABLES AND FIGURES

Table 1. Summary of voter list coverage estimates. .... 1

Table 2. Final currency estimates for Round 1 to 5. .... 6

Figure 1. Methods used to estimate currency of registered voter list. .... 2

Figure 2. Moving from audit currency to overall currency in Round 3. .... 5

## 1.0 INTRODUCTION

This report presents the overall findings of the Voters List Quality Audit (VLQA) project for Elections BC. The purpose of this project was to assess the coverage and currency of the BC Voters List at four periods before the 2005 BC Election and on Election Day (May 17, 2005).

## 2.0 RESULTS

### 2.1 Coverage Estimate

Voter list coverage was calculated at five dates by comparing the population of registered voters in the Elections BC database and the estimated population of eligible BC voters as determined by BC STATS Population Statistics section.

For each round, voter list coverage was estimated as follows:

$$\frac{\text{Registered voters}}{\text{Estimated eligible voters}} = \text{Coverage (\%)}$$

Table 1 summarizes the coverage estimates for each round of the VLQA. For a discussion of the methodology used to create the estimate, please refer to the VLQA interim reports and the *Estimation of Eligible Voters by Provincial Electoral District* report (16 September 2005) .

**Table 1. Summary of voter list coverage estimates.**

Round	Date	Eligible voter population	Total registered voters	Coverage
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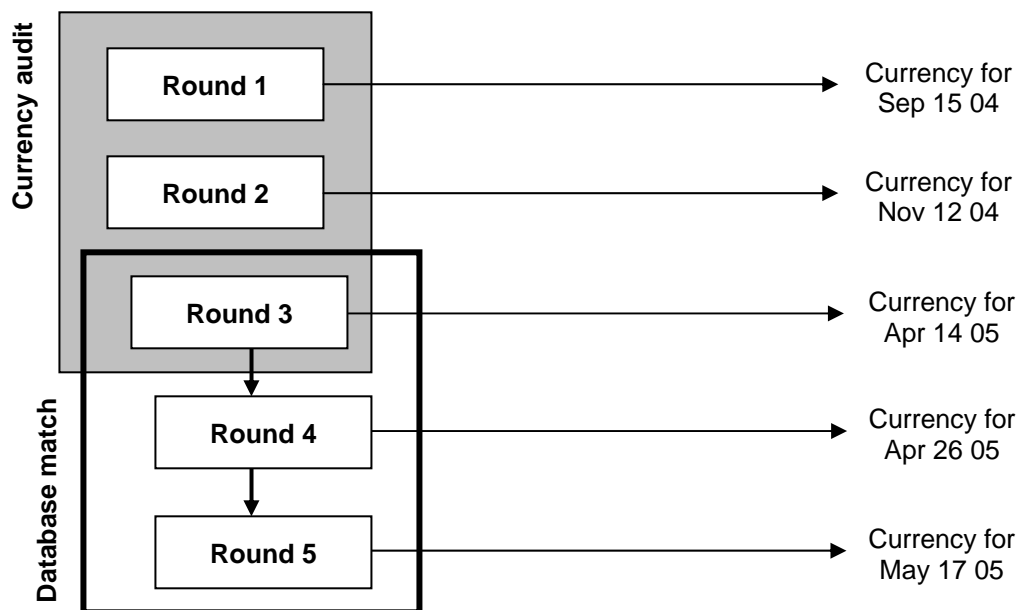
## 2.2 Currency Estimates

### 2.2.1 Estimation methods

Voter list currency was determined using two methods (Figure 1):

1. **Currency audit:** Surveying three samples of voters by mail and phone to determine whether the information stored in the Election BC database was correct at specific reference dates (September 15, 2004, November 12, 2004 and April 14, 2005). For more information on the audit process, please refer to the VLQA interim reports.
2. **Database match:** Mapping additions, deletions and changes to records in the voter database after voter registration finished (between April 14 and April 26, 2005) and after new registrants were added to the database on election day (between April 26 and May 17, 2005). For more information on the database matching process, please refer to Appendix A.

Figure 1. Methods used to estimate currency of registered voter list.



### 2.2.2 Adjustments to currency estimates

The estimates from the currency audit and database matching process were adjusted in two stages:

- **Stage 1:** Remove the 'accuracy' component of currency
- **Stage 2:** Re-base the currency estimate against the total population of registered voters

These adjustment processes are described below.

#### Stage 1: Removing the accuracy component

Each record in the voter list database contains two types of information:

- **Contact:** Full name and mailing address
- **Identification:** Driver's licence, birthdate, and social insurance number

There are two components included in the concept of record currency: accuracy and currency. A record may contain sufficient contact information to allow Election BC to contact a voter by mail, so the record is current. However, minor spelling errors in the name or address or incorrect identification information means the record is not completely accurate.

However, in the VLQA, currency was defined as follows:

- **Current:** All parts of the record are correct.
- **Not current:** Any part of the record is incorrect (name, mailing address, or identification information).

This definition provides a conservative estimate of currency. According to this definition, some records that would be considered 'current but inaccurate' (i.e. sufficiently current for Election BC to communicate with the voter, but with minor accuracy errors) were considered 'not current'.

Inaccuracies are likely due to data entry errors and therefore will tend to be distributed randomly in the database. By comparison, currency problems are likely to be clustered within electoral districts or geographic regions. For example, electoral districts with highly mobile populations (seasonal workers or students) are more likely to have lower currency, compared to other electoral districts.

For Election BC, the primary goal is to be able to communicate with and register voters, which requires currency. Therefore, the overall currency calculated in Stage 1 was adjusted to estimate net currency (removing the impact of current but inaccurate records).

A study of the voter list undertaken by BC STATS in 2003 and the results were used to estimate what proportion of records in the voter database are current, but inaccurate (3.309%).



The initial currency estimates from the audit were multiplied by a factor of 96.691% (100% – 3.309%) to estimate the net currency by electoral district.

For round 3:

$$\frac{\text{Audit currency } 72.2\%}{\text{Accuracy factor } 96.7\%} = 74.7\% \text{ net currency}$$

## Stage 2: Re-basing against total registered voters

In the database of registered voters, there were two types of records:

- **Type 1:** Records where there was a known error (i.e. records where the electoral district was incorrect, where the address was known to be incorrect, etc.)
- **Type 2:** Records where the proportion of error was unknown.

The purpose of the audit was to determine the proportion of error within records with unknown error ('how current is the voter list?'). Therefore, the population for the mail/phone surveys was drawn from the type 2 records.

In the interim reports, the list currency was calculated using the survey population. However, coverage was calculated based on the total number of registered voters, not the survey population. Currency was re-based against the total number of registered voters to accurately represent overall list currency.

The following example uses the VLQA Round 3 (April 14, 2005) results:

In Round 3, there were 2,741,680 registered voters.<sup>1</sup> The target survey population for the audit was 2,667,593 (the proportion of records with unknown error within the population of registered voters).

In Round 3, net currency – survey currency adjusted for accuracy, adjusted in Stage 1 – was 74.7%. Therefore, 1,991,935 records were current.

$$\begin{array}{rcccl} \text{Net currency} & & \text{X} & \text{Survey population} & = \text{Current records} \\ 74.7\% & & & 2,667,593 & 1,991,935 \end{array}$$

To calculate overall currency for Round 3, the currency estimate from the audit survey was re-based against all registered voters. The number of current records

<sup>1</sup> In the database matching process, Elections BC indicated that records coded “moved – no new address” should have been removed from the active voter list. Therefore, 10,382 records were removed from the number of registered voters for April 14, 2005 (the interim report for round 3 showed 2,752,062 registered voters). This population of registered voters was divided by the eligible voter population to calculate list coverage.

(calculated above) was divided by the total number of registered voters to determine overall currency (72.6%).

$$\frac{\text{Current records } 1,991,935}{\text{Registered voters } 2,741,680} = \text{Overall currency } 72.6\%$$

Figure 2 provides an overview of the adjustment process using the Round 3 calculations as an example.

Figure 2. Moving from audit currency to overall currency in Round 3.

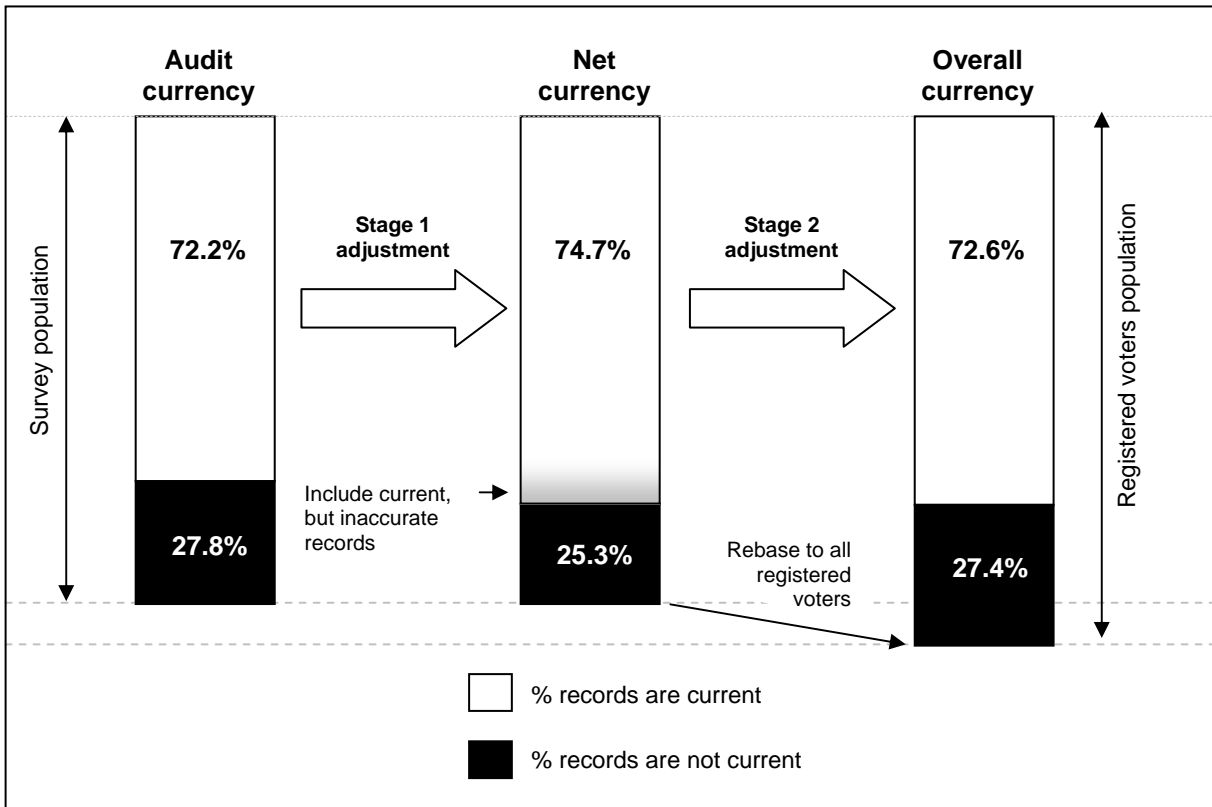


Table 2 presents the final currency estimates for the five rounds by electoral district. Note that the currency estimates by electoral district from Round 3 cascade through the calculations for Round 4 and Round 5. The number of correct records in Round 3 was used as the base during the database matching process to calculate the currency for Round 4. Then the number of correct records for Round 4 was used as a base to calculate the currency for Round 5.

In the database matching process, the accuracy adjustment was applied only to Round 3. All records added to the database or updated between April 15 and May 17 were assumed to be free from accuracy errors.

**Table 2. Final currency estimates for Round 1 to 5.**

Electoral districts	Round 1 (15 Sep 04)	Round 2 (12 Nov 04)	Round 3 (14 Apr 05)	Round 4 (26 Apr 05)	Round 5 (17 May 05)
ABC	70.6%	72.3%	64.7%	65.8%	66.5%
ABM	72.3%	81.0%	72.5%	73.3%	73.9%
ALQ	79.0%	67.7%	78.9%	79.9%	80.7%
BLS	84.6%	43.7%	55.1%	58.8%	62.3%
BNE	79.8%	64.7%	67.1%	68.5%	69.8%
BNN	74.1%	71.4%	65.6%	67.0%	67.9%
BNW	78.1%	66.3%	63.3%	64.3%	65.3%
BUR	85.0%	59.6%	68.6%	69.5%	70.3%
CBN	79.2%	64.9%	66.1%	67.6%	68.9%
CBS	58.1%	74.3%	56.5%	59.3%	61.8%
CHK	80.1%	73.3%	67.7%	68.6%	69.5%
CHS	72.5%	69.8%	79.8%	81.0%	81.5%
CLR	85.0%	69.2%	81.7%	84.0%	84.7%
CMX	75.2%	67.5%	74.9%	76.3%	76.9%
CQM	65.3%	77.1%	68.1%	69.1%	69.9%
CWL	57.5%	66.3%	80.8%	81.9%	82.8%
DLN	81.5%	79.8%	82.8%	83.5%	84.0%
DLS	78.0%	77.8%	72.2%	73.1%	73.8%
EKT	83.1%	83.1%	85.0%	87.2%	87.7%
ESM	71.5%	76.1%	67.9%	69.8%	70.9%
FLA	79.3%	76.4%	78.0%	79.1%	79.7%
KAM	78.0%	72.1%	74.7%	76.2%	76.8%
KAT	53.3%	60.7%	74.6%	75.9%	77.0%
KLL	59.4%	74.2%	82.2%	83.4%	83.7%
KLM	79.5%	66.9%	59.0%	60.2%	60.9%
LLY	73.7%	73.6%	78.3%	79.4%	80.0%
MJF	80.6%	59.3%	80.2%	81.4%	82.2%
MRM	70.6%	78.0%	75.6%	76.5%	77.3%
MRP	73.4%	68.5%	75.1%	75.9%	76.5%
NAN	75.3%	58.2%	76.3%	77.5%	78.4%
NAP	77.9%	75.5%	74.6%	75.6%	76.3%

Electoral districts	Round 1 (15 Sep 04)	Round 2 (12 Nov 04)	Round 3 (14 Apr 05)	Round 4 (26 Apr 05)	Round 5 (17 May 05)
NEL	71.0%	63.1%	78.1%	80.3%	81.5%
NEW	69.9%	56.6%	72.0%	73.2%	74.2%
NOC	78.8%	44.7%	70.5%	72.5%	74.1%
NOI	61.2%	64.2%	72.2%	73.5%	74.6%
NVL	61.7%	57.9%	59.2%	60.7%	63.0%
NVS	87.1%	81.8%	88.2%	89.1%	89.9%
OBG	77.7%	67.8%	67.7%	69.4%	70.3%
OKV	65.7%	68.6%	79.3%	80.4%	81.0%
OKW	71.3%	66.5%	85.6%	86.8%	87.3%
PCN	70.5%	61.1%	81.2%	85.2%	85.9%
PCS	71.7%	58.7%	86.5%	89.3%	90.2%
PEN	68.9%	68.7%	90.2%	91.5%	91.9%
PKM	69.5%	57.3%	70.9%	71.8%	72.5%
PMW	72.9%	69.4%	76.5%	77.5%	78.1%
POR	78.9%	63.8%	83.9%	85.1%	85.7%
PRM	67.6%	73.2%	56.1%	57.8%	58.8%
PRN	52.3%	74.1%	76.9%	78.0%	78.6%
PRO	55.7%	64.3%	50.1%	52.1%	54.2%
RCC	75.2%	63.5%	70.8%	71.7%	72.4%
RCE	62.7%	77.0%	65.7%	66.6%	67.4%
RCS	79.7%	76.6%	67.8%	68.8%	69.5%
SAN	81.7%	70.4%	94.9%	96.0%	96.3%
SAS	76.5%	70.5%	81.6%	82.7%	83.1%
SHU	65.7%	64.6%	75.5%	77.6%	78.4%
SKN	68.8%	72.9%	79.5%	81.1%	81.8%
SRC	82.9%	82.5%	77.4%	78.3%	79.0%
SRG	59.4%	65.7%	85.8%	87.3%	87.7%
SRN	51.5%	61.9%	64.3%	65.3%	67.0%
SRP	83.9%	76.8%	65.3%	66.5%	67.8%
SRT	68.0%	79.1%	73.4%	74.3%	75.1%
SWH	68.1%	65.1%	76.8%	77.9%	78.6%
SWR	59.7%	82.7%	89.5%	90.6%	90.9%
VBU	60.4%	56.6%	62.0%	63.5%	64.6%
VFA	64.5%	63.1%	66.2%	68.6%	69.6%
VFV	61.2%	71.9%	72.8%	74.3%	75.3%
VHA	66.1%	58.7%	67.5%	68.8%	69.9%
VKE	78.1%	53.4%	61.9%	63.2%	64.7%
VKI	81.8%	57.1%	72.0%	73.1%	73.9%
VLA	87.0%	62.0%	58.7%	60.3%	61.6%
VMP	59.3%	63.1%	62.3%	64.6%	66.2%
VPG	64.5%	62.7%	63.5%	65.6%	66.7%
VQL	76.7%	73.1%	74.7%	76.1%	76.8%
VTB	73.9%	69.5%	66.6%	68.3%	69.1%

Electoral districts	Round 1 (15 Sep 04)	Round 2 (12 Nov 04)	Round 3 (14 Apr 05)	Round 4 (26 Apr 05)	Round 5 (17 May 05)
VTH	58.8%	69.8%	82.2%	83.6%	84.1%
WKB	89.4%	73.2%	75.2%	77.0%	78.0%
WVC	86.8%	91.1%	74.3%	75.3%	76.3%
WVG	85.2%	71.6%	81.8%	83.1%	83.8%
YAL	56.2%	44.1%	56.1%	58.4%	61.4%
<b>Totals</b>	<b>72.2%</b>	<b>68.4%</b>	<b>72.6%</b>	<b>75.2%</b>	<b>75.4%</b>

## APPENDIX A

## DATABASE MATCHING PROCESS

During the lead up to the May 17, 2005 election, voters were asked to register and update their address with Elections BC. On April 26, 2005, voter registration closed to allow Elections BC to prepare the voter lists and materials required at voting stations on election day.

To determine the currency of the voter list on the close of registrations, records in the April 14 (round 3) database and the April 26 (close of registration) database were matched to determine the number of:

- New records added to the active voter list
- Net changes to existing records on the active voter list (where voters updated their addresses between electoral districts<sup>2</sup>)
- Records removed from the active voter list

To calculate currency on April 26, the calculation used the net current for Round 3 to estimate the number of correct records on April 14 for each electoral district. The currency of the April 26 voter list was calculated as follows:

For each electoral district,

$$\frac{\begin{array}{l} \text{Number of correct records on **April 14**} \\ \quad + \text{ new records added to the voter list} \\ \quad + \text{ net changes (add to ED - delete from ED)} \end{array}}{\text{Total registered voters on **April 26**}} = \% \text{ current on **April 26**}$$

This process was repeated to determine the currency of the voter list on May 17, 2005 (election day). Using the proportion of correct records in the April 26 database, the currency for May 17 was calculated as follows:

For each electoral district,

$$\frac{\begin{array}{l} \text{Number of correct records on **April 26**} \\ \quad + \text{ new records added to the voter list} \\ \quad + \text{ net changes (add to ED - delete from ED)} \end{array}}{\text{Total registered voters on **May 17**}} = \% \text{ current on **May 17**}$$

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<sup>2</sup> Address changes or updates within an electoral district were not considered in this analysis.