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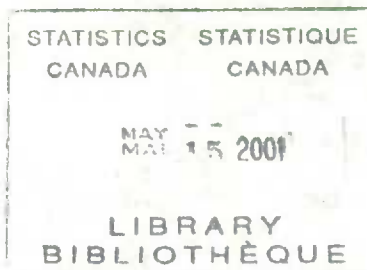
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Generalized Data Collection and Capture System (DC2)
(Release 2.5.1)
Sample Verification (SV)

Quality Control Procedures Manual
for
Supervisors and Verifiers

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1.   INTRODUCTION

1.1   Background

The Generalized Data Collection and Capture System (DC2) software is designed to support data collection and capture processes at Statistics Canada. Various functions have been incorporated into the DC2 software to enable:

. specifying the collection and capture vehicles
. assigning and maintaining user work site roles and access
. management of the Applications and their data
. management and operation of the collection and capture process

In addition to these functions, a means to ensure the quality of the processed data has been incorporated. This requirement is available through an extension added to the DC2 functionality known as Sample Verification (SV).   SV allows for verification of the processed work based on the principles of Statistical Quality Control (QC). The QC design provides guarantees of specific levels of outgoing quality in the process based on selected sampling inspection methods that incur reasonably low verification costs. These methods and design parameters are described in detail in the 'DC2 - Sample Verification (SV) Quality Control Methodology Manual' for Release 2.5.1.

Various QC methods have been incorporated, and decisions on which method or combination of methods to use are made after considering the nature of the process, the desired level of quality, and the available resources for verification. Throughout the process, analysis and evaluation of the QC data are on-going and the QC methods and levels of verification used continually change in order to provide the desired level of quality, with minimum verification resources.

This Quality Control Procedures Manual has been prepared to outline the procedures that must be employed by the Application Supervisor and Verifiers in order to interface with the SV module and the DC2 system.

1.2   System Design

1.2.1   General

DC2 - SV allows the user to interact with the system via DC2 interface panels to establish the QC environment and perform the various SV

functions. During the process, a history of the verification is maintained and this information is exported in QC Records at the end of the QC process.

1.2.2 Components and Functionality

The DC2 SV functionality described in this manual has been designed to utilize four Task Function Panels during production, namely:

. SV Operator Profile Maintenance
. Data Capture Quality Control
. Data Capture Verify
. Export

The procedures for interfacing with the panels to enable the various functions are briefly outlined below, and described in detail in Sections 2 through 5 of this manual.

■ SV Operator Profile Maintenance

The purpose of the operator profile maintenance task is to identify the operators assigned to a given Application(s) and specify their verification parameters. The information maintained in the operator profile is tailored to each operator and enable the optimization of verification requirements. The operator parameters determine the amount of verification required by specifying the methods of verification, Batch skipping criteria, and sampling plan(s) to be used for the operator(s).

Operator profiles are initiated (added) at implementation, and are updated on an on-going basis, usually at the start of each processing period. Profiles may also be changed, deleted or displayed utilizing this task.

■ Data Capture Quality Control

This task enables the selection of Cases from a Batch(es) for verification using the Select Sample function of SV. The Application Name and Master Blueprint Name are input, and the system automatically accesses the information in the appropriate operator profiles. The Batch(es) are sampled and required Cases are selected for verification.

Between-batch sampling is also available. When this sampling is enabled, the sampler automatically performs 'between batch sampling' on the current Application, MasterBlueprint and Operator of the current batch being verified, without exiting the Verify Task. It is executed as soon as the batch has passed its verification requirements.

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For Applications utilizing the Process Control Method, this task is also used to re-initialize the operators each processing period.

Once the Select Sample has been executed for a Batch, the Report options may be utilized at any time during the processing period. These options allow the user to print or view the Lot Status Report for the Batches that have been subjected to the Select Sample function.

■ **Data Capture Verify**

The data capture verify task will automatically present the selected Cases for verification. During verification, various administrative, sampling and error statistics are automatically maintained by the system. These statistics include such items as the Batch number, operator name, number of cases verified, error counts, Lot Status codes, etc.. During verification the system will either, automatically close batches which have completed their verification requirements, or advance incomplete Batches to the next stage in the verification process.

For Applications utilizing Skip-Lot, Process Control or Quality Check Methods, the system will automatically determine which Batches and Cases are subject to verification, and present the appropriate units to the verifier.

■ **Export**

The purpose of the Export Task is to generate a Batch Statistics File containing all of the QC statistics maintained during the Verify Task function.

This File is then ready to be uploaded to the mainframe system for subsequent data tabulation through the Quality Control Processing System (QCPS) in the Business Survey Methods Division (BSMD).

NOTE: A diagram of the SV QC processing flow appears in APPENDIX A.

1.2.3 System Functionality Task Panel

To access any of the SV tasks outlined above, the main DC2 Task Panel is used.

The user must specify the appropriate task number that corresponds to the required SV task.

FIGURE N° 1 - TASK MENU

| Operator : | *DC2 R25* |
| Role : | |

Task Menu

Help [F1]

Done [F10]   Acknowledge Alt(A)

1. Operator Profile Maintenance
2. Application Management
3. Import
4. Export
5. Import (IOE)
6. Case Occasion Management
7. Batch Management
8. Data Capture Quality Control
9. Caseload Management
10. Capture Management Options
11. Performance Management
12. Data Management
13. List Generator
14. Data Capture Entry
15. Data Capture Verify
16. Data Capture Modify
17. Data Capture Browse

Enter a Task Number from above

Long Msg Alt(F1)   ↑ ↓

NOTE: For many of the DC2 SV functions, the user has the option of using a
mouse to display pull-down menus (right-hand button) or select entries
(left-hand button).
Therefore, when this manual states: "Enter the appropriate entry and
press ENTER", this may be substituted with: " Using the mouse, Highlight
and Select the appropriate entry".

2. OPERATOR PROFILE MAINTENANCE TASK

2.1 General

The Operator Profile Maintenance Task must be used by the Supervisor to initiate (add) an operator profile(s). It is then normally used at the beginning of each processing period to change the operator(s) sampling plan qualification and/or re-set the skip-lot counters or process control flags, as appropriate.

2.2 Operator Profile Maintenance Function Panel

The Operator File Maintenance Panel provides the user with four options when accessing the Operator File for a given Application, namely:
. **Add**
. **Change**
. Delete
. Display

Each function is specific in action and requires certain input parameters; however, depending on the option selected, the system will automatically prompt the user for the required input.

To access the Operator Profile Maintenance Function Panel:

(i) Log-on to the DC-2 system and access the Task Menu.
The cursor will be positioned at the field entitled: *'Enter a Task Number from above _____'*.

(ii) Select the task number for 'Operator Profile Maintenance' from the Task Menu and press 'ENTER'.

The system will then automatically display the DC2 Operator Profile Maintenance Function Panel and the cursor will be positioned at the field entitled: *'Application Name _____'*.

(iii) Enter the appropriate Application Name and press ENTER.
The cursor will move to the field entitled: *'Master Blueprint Name _____'*.

(iv) Enter the appropriate Master Blueprint Name and press ENTER.
The cursor will move to the field entitled: *'Operator Name _____'*.

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(v) Enter the appropriate Operator Number and press ENTER.
     The cursor will move to the field entitled: *'Enter a Function Number from above _____'.*

(vi) Enter one of the four Function Numbers depending on the type of action required:

        1 - Add Operator Profile
        2 - Change Operator Profile
        3 - Delete Operator Profile
        4 - Display Operator Profile

Depending on the function selection, the system will automatically direct the user to the required actions. Each function is specific and requires different input parameters or actions. The procedures for each function are described below.

FIGURE N° 2 - OPERATOR PROFILE MAINTENANCE FUNCTION PANEL

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2.3 Operator Profile Maintenance Procedures

2.3.1 Add Operator Profile

(i) Enter function **1** and press ENTER to add an operator and create parameters within an Operator Profile.

The system will then display the DC2 Operator Profile Maintenance Parameter Panel.

The fields entitled 'Application Name, Master Blueprint Name, Operator Name will contain the entries that were previously entered via the Operator Profile Maintenance Function Panel. As well, the field entitled Statistical QC Method will contain the entry residing in the SV Specs file for this Master Blueprint Name.

The cursor will be positioned at the field entitled: *'Plan Number _____'*.

FIGURE N° 3 - OPERATOR PROFILE MAINTENANCE PARAMETER PANEL

(ii)   Enter the appropriate Plan Number to be used for this operator and press ENTER.

The Plan Number entered will differ, depending on the specified entry already residing in the field entitled: Statistical QC Method. If the specified Statistical QC Method is:

(0) Acceptance
Enter the 4 character Plan Number for this operator. This Plan Number is provided for each processing period by the Quality Assurance Methods Section, BSMD. The plan will be in the format of an Alpha character followed by a 3 digit numeric (e.g. G570).

Note: **if the plan number is 9999, this is a valid plan number. In such cases the operator has been placed on a 100% verification plan.**

(1) Quality Check
Enter 4 zeros for the plan number (i.e. 0000).

(2) 100% Verification
Enter 4 zeros for the plan number (i.e. 0000).

Once the Plan Number is entered, the cursor will move to the Skip-Lot Specifications area, and the cursor will be positioned at the field entitled: *'Function Status _____'.*

Skip-Lot Specifications

(iv)   Select the appropriate Function Status to be used for this operator and press ENTER.

The Function Status will differ, depending on whether or not the operator is qualified for skip lot sampling, or if the Statistical QC Method field indicates 'Quality check'.

Select one of the following status indicators (this field is mandatory):

0 (Not Active)

In this Case, the operator will <u>not</u> be qualified for Skip-lot sampling. If the operator was already qualified (i.e. value previously = 1), then the qualification is discontinued.

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1 (Active)

In this Case, the operator becomes qualified for skip-lot sampling, and the Skip-lot specification entries will dictate the verification requirements.

Notes: If the Statistical QC Method is Quality Check, the Function Status must = 1.

In certain situations, the status indicator may show '2 (Suspended)' indicating that the system has previously suspended skip-lot sampling for this operator (normally due to a Rejected Batch being encountered).

Once the Function Status is entered, the cursor will move to the Skip-Lot Specifications area, and the cursor will be positioned at the field entitled: *'Frequency _____'*.

(v)   Erase the current field default entry (i.e. 1), if required.

Then, enter the appropriate Frequency and press ENTER.

If the operator is qualified on a Skip Lot Sampling Plan, the Frequency is provided each processing period and will appear in brackets after the Plan Number.   (e.g. S304 (5)).

Note: Initially the default value is set to = 1. However, once Skip-lot sampling is implemented for an Application, a value(s) to be used for the operator for the specified Application / Master Blueprint will be issued as required.

The cursor will move to the to the field entitled: *'Restart Interval____'*.

(vi)   Erase the current field default entry (i.e. 1), if required.

Then, enter the appropriate Restart Interval to be used for this operator and press ENTER.

When the skip lot Function Status is 'Active' this field is mandatory.

Note: Initially the default value is set to = 1. However, once Skip-lot sampling is implemented for an Application, a value(s) to be used for the specified Application / Master Blueprint will be issued as required.

Once the Restart Interval is entered, the cursor will move to the Process Control area, and the cursor will be positioned at the field entitled: *'Flag _____'*.

Process Control

(vii) Select the appropriate Flag code for this operator and press ENTER.

The flag enables or disables Process Control for the operator.

The Flag code will depend on whether or not the operator is qualified for Process Control.

Select one of the 2 values:

0 (Disabled)

In this case, the operator is not qualified for Process Control sampling. If the operator was previously qualified (i.e. value previously = 1), then the qualification is discontinued.

1 (Enabled)

In this case, the operator now becomes qualified for process control, and the Process Control entries will dictate the verification requirements.

Once the Function Status is entered, the cursor will move to the Skip-Lot Specifications area, and the cursor will be positioned at the field entitled: *'Error Threshold _____'*.

(viii) Erase the current field default entry (i.e. 0), if required.
Then, enter the appropriate Error Threshold and press ENTER.

Note: The value must be between 0 and 99, with no decimals specified. The system will automatically add two decimals (.00) to the value once the addition of this operator is committed. (i.e., the entry 7 becomes 7.00)

Once the Error Threshold is entered, the cursor will move to the Process Control area, and the cursor will be positioned at the field entitled: *'Sample Size _____'*.

(ix) Erase the current field default entry (i.e., 0), if required.

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Then, enter the appropriate Sample Size.

Once entered, the system will respond with the message:
"<GUI - 051> You cannot move to any field after this one".

(x) Press **[F2] (Commit)**.

The system will return to the Operator Profile Maintenance Function Panel and the system will respond with the message:

"<GUI - 122> **This data was added successfully**".

2.3.2 Change Operator Profile

(i) Enter function **2** and press ENTER to change an operator's profile parameters within an Operator Profile.

The system will then automatically display the DC2 Operator Profile Maintenance Parameter Panel for the appropriate operator.

The fields entitled Application Name, Statistical QC Method, Master Blueprint Name, Operator Name, as well as, the other parameter fields under the Skip-Lot Specifications and Process Control sections (if applicable) will contain the entries that were previously present in this operator's profile.

The cursor will be positioned at the field entitled: *'Plan Number_____'*.

Note: **The required parameter changes to the Operator's profile will now be made. The procedures are those outlined in Section 2.3.1 ADD OPERATOR PROFILE.**

The appropriate sequence for entry of the changes is as follows:

(ii) *'Plan Number'*
Erase the current field entry.
Then enter the revised plan number and press ENTER.

Skip-lot Specifications

(iii) *'Function Status'*
Press ENTER to maintain the current function status, or select the required function status entry.

(iv) '*Frequency*'
Erase the current field entry.
Then enter the revised frequency and press ENTER.

(v) '*Restart Interval*'
Erase the current field entry.
Then enter the revised restart interval and press ENTER.

Process Control

(vi) '*Flag*'
Press ENTER to maintain the current flag status, or with the mouse, click on and select the required flag status entry.

(vii) '*Error Threshold*'
Erase the current field entry.

Then enter the revised error threshold and press ENTER.

(ix) '*Sample Size*'
Erase the current field entry.

Then enter the revised sample size and press ENTER.

Once entered, the changing of this operator's profile parameters is complete.

(x) Press [F2] (Commit).

The system will return to the Operator Profile Maintenance - Function Panel and the system will respond with the message:

"<GUI - 123> This data was changed successfully".

2.3.3 Delete Operator Profile

(i) Enter function 3 and press ENTER to delete an operator's profile.

The system will then automatically display the DC2 Operator Profile Maintenance Parameter Panel for the appropriate operator.

The fields entitled Application Name, Statistical QC Method, Master Blueprint Name, Operator Name and Plan Number, as well as the other parameter fields under the Skip-Lot Specifications and Process Control sections (if applicable), will contain the entries that were previously residing in this operator's profile.

(ii) Press **[F2] (Commit)**.

The system will return to the Operator Profile Maintenance Function Panel and will respond with the message:

"<GUI - 124> The data was deleted successfully".

(iii) If the operator profile maintenance activities are complete, press **[F10] (Done)**.

The system will return to the Task menu.

2.3.4 Display Operator Profile

(i) Enter function **4** and press ENTER to display an operator's profile.

The system will then display the DC2 Operator Profile Maintenance Parameter Panel.

The fields entitled Application Name, Statistical QC Method, Master Blueprint Name, Operator Name and Plan Number, as well as the other parameter fields under the Skip-Lot Specifications and Process Control sections (if applicable), will contain the entries that were previously entered in this operator's profile.

(ii) Press **[F10] (Done)**.

The system will return to the Operator Profile Maintenance Function Panel.

(iii) If the operator profile maintenance activities are complete, press **[F10] (Done)**.

The system will return to the Task menu.

3. DATA CAPTURE QUALITY CONTROL TASK

3.1 General

The Data Capture Quality Control Task is used by the Supervisor to initiate Select Sample for an Application.

For operators qualified on the Process Control Method this task is then used at the beginning of each processing occasion to re-set the process control counters, in order to begin a new processing period.

An automatic sampling option may also be selected with this task.

Once Select Sample has been initiated for an Application the Report options of this task may then be utilized to print or view the Lot Status Report for the Batches subjected to the verification process.

3.2 Data Capture Quality Control Parameter Panel

The Data Capture Quality Control Parameter Panel provides the user with five different function options, namely:

. **Select Sample**
. **Enable Sampling Status for Process Control Operators**
. **Set Automatic Sampling Option**
. **Print Report**
. **View Report**

Each function is specific in action and requires certain input parameters; however, depending on the option selected, the system will automatically prompt the user for the required input.

To access the Data Capture Quality Control Parameter Panel:

(i)   Access the DC2 Task Menu.

The cursor will be positioned at the field entitled: *'Enter a Task Number from above _____'*.

(ii)   Select the appropriate task number for 'Data Capture Quality Control' from the Task Menu and press **[F2] (Commit)**.

The system will then display the DC2 Data Capture Quality Control Parameter Panel and the cursor will be positioned at the field entitled: *'Application Name _____'*.

(iii)   Enter the appropriate Application Name and press ENTER.

The cursor will move to the field entitled: *'Master Blueprint Name _____'*.

(iv)   Enter the appropriate Master Blueprint Name and press ENTER.

The cursor will move to the field entitled: *'Operator Name _____'*.

Depending on which Function option <u>is to be selected</u>:
         1 - Select Sample
         2 - Enable Sampling Status for Process Control Operators
         3 - Set Automatic Sampling Option
         4 - Print Report
         5 - View Report
the user will now enter the required parameters. Each function is specific in action and requires different input parameters and not all parameters are required to be specified for each function.

The procedures and parameters for each function option are described below.

FIGURE N° 4 - DATA CAPTURE QUALITY CONTROL FUNCTION PANEL

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3.3 Data Capture Quality Control Procedures

3.3.1 Select Sample

The Supervisor will use the Select Sample Function to select the sample(s) of Cases from a Batch(es) for verification. The system will automatically select and mark the appropriate Cases to be verified.

The steps involved are as follows:

(i) Enter the appropriate Operator Name, and press ENTER.

. If the function is to be executed for only a specific operator, then the appropriate 'Operator Name' is to be entered.
. If the function is to be executed for the entire Application/Master Blueprint, then the Operator Name is left blank.

Move the cursor to the field entitled: *'Batch Name'*.

(ii) Enter the appropriate Batch Name, and press ENTER.

. If the function is to be executed for only a specific Batch, then the appropriate 'Batch Name' is to be entered.
. If the function is to be executed for the entire Application/Master Blueprint, and/or all the Batches for a specific Operator, then the Batch Name is left blank.

The cursor will move to the field entitled: *'Occasion Name'*.

(iii) Enter the appropriate Occasion Name, if required, and press ENTER.

(iv) Press **[F2] (Commit)**. The system will respond with the message:

<GUI - 056> The function has been successfully submitted for background execution".

(v) Press **[F10] (Done)** and the system will return to the DC2 Task Menu.

3.3.2 Enable Sampling Status - Process Control Operators

The Supervisor will use the Enable Sampling for Process Control Operators Function to re-initialize the Process Control sample status counters for any (or all) Operator(s).

The steps involved are as follows:

(i)   Enter the appropriate Operator Name, if required, and press ENTER.

. If the function is to be executed for only a specific operator, then the appropriate 'Operator Name' is to be entered.
. If the function is to be executed for the entire Application / Master Blueprint, then the Operator Name is left blank.

Move the cursor to the field entitled: *'Occasion Name'*.

(ii)   Enter the appropriate Occasion Name, if required, and press ENTER.

(iii)   Press **[F2] (Commit)**. The system will respond with the message: "<MSS - 079> Process Control initiated for *n* operator(s)".

(v)   Press **[F10] (Done)** and the system will return to the DC2 Task Menu.

3.3.3 Set Automatic Sampling Option

The Set Automatic Sampling Option function is used to enable automatic 'between batch sampling' for Operators within an Application. When enabled, this means that during a verify task session, as soon as a batch has passed the verification evaluation stage (i.e. 100% Complete, Sample Accepted, Skipped Batch), or once Remainder verification on a Rejected Batch has been completed, Select Sample will automatically be invoked using the parameters: Application, Master Blueprint and Operator of the batch that has just passed evaluation stage. In effect, this will invoke select sample on the next available batch for that operator. All other operators remain unaffected until one of their batches passes the evaluation stage.

The steps involved are as follows:

(i)   Move the cursor to the field entitled *'Automatic Sampling Option'*.

(ii)   Enter one of the three Automatic Sampling Option Functions depending on the automatic sampling option required:

(0) Automatic Sampling Disabled (default)

In this case, the option is disabled and 'between batch sampling' will not be automatically invoked. This is the system default setting.

(1) Automatic Sampling Enabled

In this case, the option is enabled and 'between batch sampling' will be automatically invoked. No report will be generated indicating which batch(es) have sampled (or skipped).

(2) Automatic Sampling / Reporting Enabled

In this case, the option is enabled and 'between batch sampling' will be automatically invoked. No report will be generated indicating which batch(es) have sampled (or skipped).

(iii)   Press **[F2] (Commit)**. The system will respond with the message: "<GUI - 058> The option(s) has/have been successfully updated".

(iv)   Press **[F10] (Done)** and the system will return to the DC2 Task Menu.

3.3.4 Print Report

The Print Report function may be used at any time to obtain a output listing of the 'Lot Status Report' with the most updated QC Batch Statistics. It provides the user with <u>four</u> possible options with which the report may be produced, namely: All Batches, Completed Batches, Outstanding Batches and Skipped Batches.

The system will automatically select and list the appropriate QC batch statistics.

The steps involved are as follows:

(i)   Enter the appropriate Operator Name, if required, and press ENTER.

This entry may or may not be required:
. If the listing is to be produced for only a specific operator, then the appropriate 'Operator Name' is to be entered.
. If the listing is to be produced for the entire Application/Master Blueprint, then the Operator Name is left blank.

The cursor will move to the field entitled: *'Report Name _____'*.

(ii)   Enter one of the four Report Name Functions depending on the report required:

(alsr) - Lot Status Report - All Batches
(clsr) - Lot Status Report - Completed Batches
(olsr) - Lot Status Report - Outstanding Batches
(slsr) - Lot Status Report - Skipped Batches

Press ENTER and the cursor will move to the field entitled: *'Batch Name _____'*.

(iii) Enter the appropriate Batch Name for which the print report is required.
. If the function is to be executed for only a specific Batch, then the appropriate 'Batch Name' is to be entered.
. If the function is to be executed for the entire Application/Master Blueprint Batches , then the Batch Name is left blank.

The cursor will move to the field entitled: *'Occasion Name _____'*.

(iv) Enter the appropriate Occasion Name, if required.
The cursor will move to the field entitled: *'Language preference _____'*.

(v) Select the appropriate Language Preference and press ENTER.
Enter one of the two codes:
  1 - English Language
  2 - French Language

(vi) Press **[F10] (Done)** and the system will print the Lot Status Report as specified by the selected parameters.

(vii) Press [F10] (Done) and the system will return to the DC2 Task Menu.

3.3.5 View Report

The View Report function may be used at any time to obtain a screen display of the 'Lot Status Report' with the most updated QC Batch Statistics. It provides the user with <u>four</u> possible options with which the display may be presented, namely: All Batches, Completed Batches, Outstanding Batches and Skipped Batches.

The system will automatically select and list the appropriate QC Batch statistics.

The steps involved are as follows:

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(i) Enter the appropriate Operator Name, if required, and press ENTER.

This entry may or may not be required:
. If the display is for only a specific operator, then the appropriate 'Operator Name' is to be entered.
. If the display is for the entire Application/Master Blueprint, then the Operator Name is left blank.

The cursor will move to the field entitled: *'Report Name _____'*.

(ii) Enter one of the four Report Name Functions depending on the report required:
    (alsr) - Lot Status Report - All Batches
    (clsr) - Lot Status Report - Completed Batches
    (olsr) - Lot Status Report - Outstanding Batches
    (slsr) - Lot Status Report - Skipped Batches

Press ENTER and the cursor will move to the field entitled: *'Batch Name _____'*.

(iii) Enter the appropriate Batch Name for which the report is required.

. If the function is to be executed for only a specific Batch, then the appropriate 'Batch Name' is to be entered.
. If the function is to be executed for the entire Application/Master Blueprint Batches , then the Batch Name is left blank.

The cursor will move to the field entitled: *'Occasion Name _____'*.

(iv) Enter the appropriate Occasion Name, if required, and press ENTER.

The cursor will move to the field entitled: *'Language Preference _____'*.

(v) Enter the appropriate Language Preference and press ENTER.
Enter one of the two codes:
    1 - English Language
    2 - French Language

(vi) Press **[F10] (Done)** and the system will display the Lot Status Report as specified by the selected parameters.

FIGURE Nº 5 - LOT STATUS REPORT

Application: batman

Master Blueprint Name: batman2

Statistical QC Method: Acceptance

Batch Name	Lot Status	Operator Name	Verifier Name	Process Control	Batch Size	Sample Size	Number Verified	ERRORS 100%	ERRORS Sample	ERRORS Remain.
batch24	3	larry2	larry2	N	1		1	1.0	0.0	0.0
larry1	1	larry	larry	N	12	4	4	0.0	0.0	0.0
larry10	9	larry2		N	1	0	0	0.0	0.0	0.0
larry11	9	larry2		N	1	0	0	0.0	0.0	0.0
larry12	9	larry2		N	1	0	0	0.0	0.0	0.0
larry13	9	larry2		N	1	0	0	0.0	0.0	0.0
larry14	9	larry2		N	1	0	0	0.0	0.0	0.0
larry15	9	larry2		N	1	0	0	0.0	0.0	0.0
larry16	9	larry2		N	1	0	0	0.0	0.0	0.0
larry17	9	larry2		N	1	0	0	0.0	0.0	0.0
larry18	9	larry2		N	1	0	0	0.0	0.0	0.0
larry19	9	larry2		N	10	0	0	0.0	0.0	0.0
larry2	9	larry		N	1	0	0	0.0	0.0	0.0
larry20	9	larry2		N	1	0	0	0.0	0.0	0.0
larry21	9	larry2		N	1		1	1.0	0.0	0.0
larry22	3	larry2	larry2	N	1	0	0	0.0	0.0	0.0
larry23	9	larry2		N	11	4	4	0.0	3.0	0.0
larry3	1	larry	larry	N	4		4	1.0	0.0	0.0
larry4	3	larry	larry	N	9	4	4	0.0	1.0	0.0
larry5	1	larry	larry	N	7	0	0	0.0	0.0	0.0
larry6		larry								

Note: During verification the system keeps track of the verification requirements and the state of verification completion for each Batch using special Lot Status Codes as follows:

0 - Batch Sampled, but initial verification incomplete.

1 - Sample verification complete and Batch Accepted.

2 - Sample verification complete, Batch Rejected & Remainder verification complete.

3 - 100% verification complete.

4 - Sample verification complete, Batch Rejected & Remainder verification incomplete.

5 - 100% verification incomplete.

8 - Skipped Batch - Process Control

9 - Skipped Batch - Skip-Lot Sampling

4. VERIFY TASK

4.1 General

The SV functions provide the user with automated quality control features. These features present the selected Cases from each Batch for verification. During the process, the system will update the appropriate QC Lot Statistics with specific information about the verification process such as sampling counts and error data. Upon completion of verification the system will determine the appropriate Batch status. In the event of remainder verification, QC Verify will continue to update the information until verification for this Batch is completed.

The verifier will perform the type of verification required and correct all identified errors. There will be <u>three</u> possible types of verification:

Sample
Only the selected portion of the Batch will be verified. The system will select the Cases to be verified and present them on the screen.

Remainder
All Cases in a Batch that were not part of the original sample will be verified. The system will select the Cases to be verified and present them on the screen.

The system will skip over the original sample verified Cases.

100%
All Cases in the Batch will be verified.

4.2 Data Capture Verify Task Function

To access the Data Capture Verify Task Function Panel:

(i) Access the DC2 Task Menu.

The cursor will be positioned at the field entitled: *'Enter a Task Number from above _____'*.

(ii) Select the appropriate task number for 'Data Capture Verify' from the Task Menu and press ENTER.

The system will then display the Data Capture Verify Parameter Panel and the Cursor will be positioned at the field entitled: *'Application Name _____'*.

FIGURE N° 6 - DATA CAPTURE VERIFY FUNCTION PANEL

(iii)   Enter the appropriate Application Name and press ENTER.

The cursor will move to the field entitled: *'Capture Vehicle Name _____'*.

(iv)   Enter the appropriate Capture Vehicle Name and press ENTER.

The cursor will move to the field entitled: *'Batch Name _____'*.

(v)   Enter the appropriate Batch Name and press ENTER.

The system will automatically display the number of Cases in the Batch which will appear in the field entitled: *'Batch Count _____'*.

(vi)   Press **F2 (Commit)**.

The system will present an Application Data Capture Verify Panel. The non-verify fields will have their data displayed.

In the upper right-hand corner of the panel, the system will display: the current Batch ID, the current System Mode (Compare), the Sequence and Position of the current Case, the Batch Count and the Actual number of Cases in the Batch.

(Example)

```
Batch      : 2107
Mode       : Compare
Sequence   : 1          Count:      25
Position   : 7          Actual:     25
```

The Cursor will be positioned at the first field requiring verification.

4.3   Verify Task Procedures

(i)   Locate the Case for start of verification by obtaining the source documents and counting through the number of consecutive Cases corresponding to the start Number (i.e., **Position** Number).

Note: In situations where the verifier encounters problems in locating the first Case for verification, access the Mode Functions **CTL [M]**, then **Show/NoShow ALT [X]** to display the contents of the Case on the screen. This will enable you to view the identification information and assist in locating the appropriate document.

(ii)   Begin verifying the corresponding Case and correct all errors encountered.

(iii) If error(s) are encountered in a Case, the system will respond with the message:

"<GUI - 000**> Character does not match character of previous value".

(iv) Access the Mode Functions **CTL [M]**, then Show/NoShow **ALT [X]** to display the original entry of the field. This will enable the verifier to determine the nature of the non-match.

(v) The verifier must now perform one of <u>two</u> actions:

■ **Verifier self correct**

Re-enter the original entry to agree with the operator.
(i.e., verifier mis-keyed an entry).

In this situation no error will be attributed.

■ **Override original operator**

Access the Field Functions **CTL [F]**), then use **Verifier Override ALT [V]** to override the original operator entry and replace it with the verifier's entry

In this situation, the system will indicate a verification failure AND count it as an error.

(vi) When a verification failure is encountered and the verifier wishes to **override the original operator** entry, the system may respond in one of two methods in order to assign an error code.

■ <u>If no pull-down error code list has been specified in the Application design</u>:

then a Verify Error Code attribute (1 to 3 numeric characters) will automatically be recorded in the system for this verify failure. The verifier will not be required to perform any special actions.

■ <u>If a pull-down error code list has been specified in the Application design</u>:
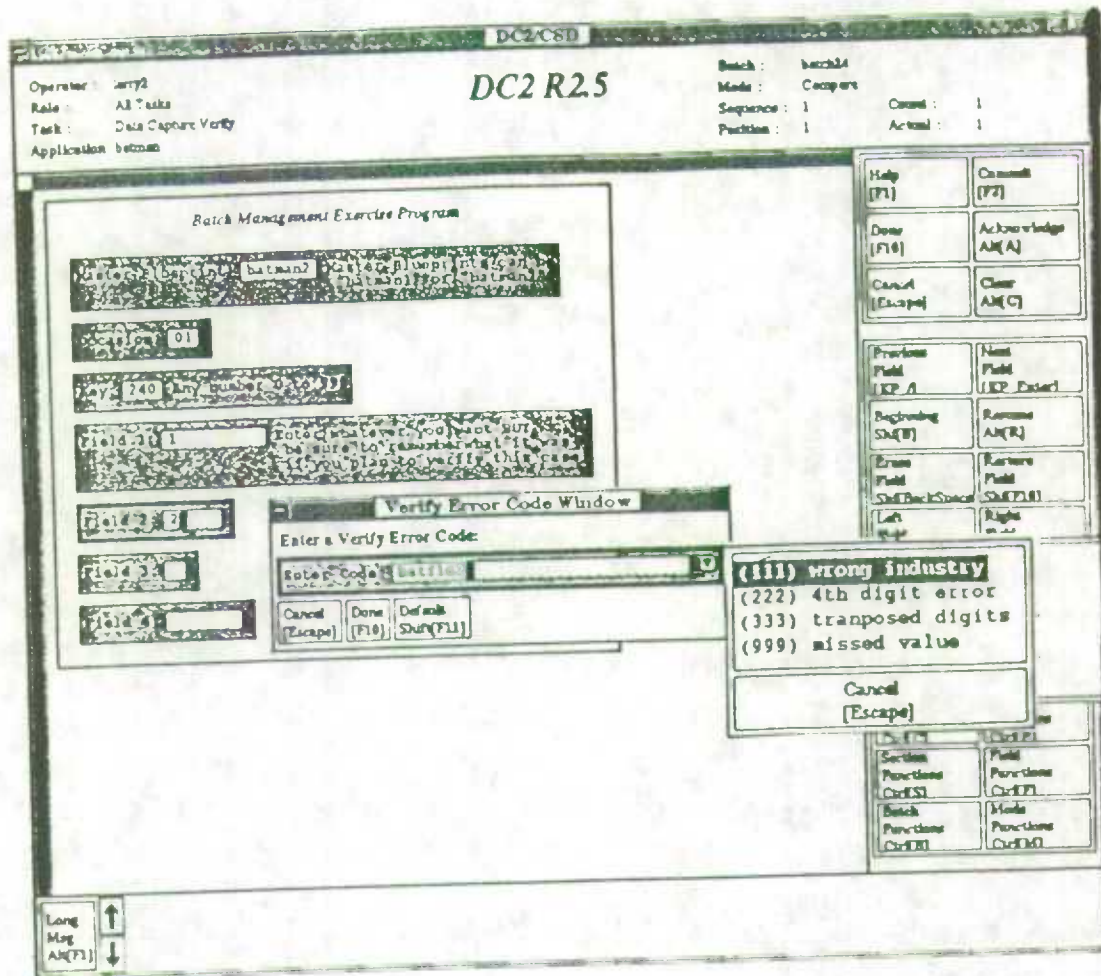
then whenever a verify failure is detected, a Verify Error Code Window will appear on the screen. Initially for any given verify field, this window displays the default error code. The verifier may accept this default value by pressing ENTER.
- or -
The verifier may highlight and pull-down a subsequent selection list of error codes with corresponding labels. The verifier may now select an appropriate error code value from this list.

The cursor will move to the next field for verification.

(vii) Continue verification of the Batch until the final Case presented for verification has been completed.

(viii) Depending on the type of the verification that took place and the results of this verification, one of the following situations will exist for any given Batch:

100% Verification

. At the completion of verification, regardless of the Total Error Count for the Batch, the system will respond with the message:
<GUI - 114> There is no next Case in this Batch that is accessible by the Capture Vehicle"

. The verifier will acknowledge the message and then press **[F10] (Done)**.

. The system will respond with the message: –

<SV - 003> 100% verification complete on Batch XXXX for Master Blueprint XXXX.

Sample Verification - Batch 'ACCEPTED'

. At the completion of verification, if the Total Error Count for the Batch is less than or equal to the acceptable error level (i.e., Acceptance Number) the Batch will be 'Accepted'. The system will respond with the message:
<GUI - 114> There is no next Case in this Batch that is accessible by the Capture Vehicle"

. The verifier will acknowledge the message and then press **[F10] (Done)**.

. The system will respond with the message:
<SV - 006> The sample on Batch XXXX for Master Blueprint XXXX has been Accepted.

Sample Verification - Batch 'REJECTED'

. At the completion of verification, if the Total Error Count for the Batch is greater than the acceptable error level (i.e., Acceptance Number) the Batch will be 'Rejected'. The system will respond with the message:
<GUI - 114> There is no next Case in this Batch that is accessible by the Capture Vehicle"

. The verifier will acknowledge the message and then press **[F10] (Done)**.

. The system will respond with the message:
<SV - 004> The sample on Batch XXXX for Master Blueprint XXXX is Rejected, Remainder verification required.

. The verifier will acknowledge the message, the system will respond with the message:

    <GUI - 127>   Exit Batch
                    Y   N
                    [Yes] [No]

. Select [N] (No), and the system will automatically present the first Case in the Remainder requiring verification.

. At the completion of Remainder verification the system will respond with the message:

<GUI - 114> There is no next Case in this Batch that is accessible by the Capture Vehicle"

. The verifier will acknowledge the message and then press [F10] (Done).

. The system will respond with the message:

<SV - 002> Remainder verification complete on Batch XXXX for Master Blueprint XXXXXXXX.

(ix) Press [F10] (Done), the system will return to the Data Capture Verify Parameter Panel

SECTION 5: EXPORT TASK

5.1 General

The Export Task is used to obtain application-specific Quality Control information from DC2 and generate a Q.C. Lot Statistics file of this information, suitable for transmission outside of DC2. The Q.C. Lot Statistics File contains a record of each Q.C. Lot transaction

5.2 Export Task Parameter Panel

The Export Task allows the user to specify selection criteria that will generate the Q.C. Lot Statistics file. The appropriate file will be automatically generated by the system.

To access the Export Task Parameter Panel:

(i) Access the DC2 Task Menu.

The cursor will be positioned at the field entitled: *'Enter a Task Number from above _____'*.

(ii) Select the appropriate task number for 'Export' from the Task Menu and press **[F2] (Commit)**.

The system will then display the DC2 Export Task Parameter Panel, the cursor will move to the Application Parameters area and will be positioned at the field entitled: *'Application Name _____'*.

The generation of a Q.C. Lot Statistics file requires certain parameters. The procedures for input of each parameter are described below.

5.3 Export Task Procedures

Application Parameters:

(iii) Enter the appropriate Application Name and press ENTER.
The cursor will move to the field entitled: *'Export Specification Name _____'*.

(iv)   Select the appropriate Export Specification Name.

To generate the Q.C. Lot Statistics File, select:
(sv) - Data Capture Quality Control

Once the Name is selected, the cursor will move to the Selection Criteria Parameters area, and will be positioned at the field entitled: *'Occasion Name _____'*.

NOTE: **Following the EXPORT of any file(s) for a given Application, the user should ensure that the file(s) is immediately uploaded to the mainframe. This must be done since the same file names are overwritten each time an Application has EXPORT activities run. The previous records will therefore be lost.**

FIGURE N° 8 - EXPORT TASK PARAMETER PANEL

Selection Criteria Parameters:

(v)   Enter the appropriate Occasion Name and press ENTER.

       The cursor will move to the field entitled: *'Master Blueprint Name _____'*.

(vi)   Enter the appropriate Master Blueprint Name and press ENTER.

       The cursor will move to the field entitled: *'Batch Name (Lower Range)___'*.

(vii)   Enter the appropriate Lower Range Batch Name and press ENTER.

       The cursor will move to the field entitled: *'Batch Name (Upper Range) ___'*.

       Once the parameters are selected, the cursor will move to the Specification Parameters area and will be positioned at the field entitled: *'Parameter 1 _____'*.

Specification Parameters:

Note: To generate a Q.C. Lot Statistics File, no further specification parameters are required.

(viii)   Press **[F2] (Commit)**.

       The system will respond with the message:
       <IOE - 500> IOE Specification " *xxx* " indicating successful execution.

       The system will then present an Export Completion Log report displaying the results of the export as follows:

       <u>Example:</u>

           Export Completion Log

Application	: *Application Name*
Export Specifications	: sv
Operator	: name
Data Base Account	: *Application Name*

<u>Record Object Name</u>	<u>Records Written</u>
SV Records	*x*
Total	*x*

The data are exported into a file in the default directory:
$DC2EXPDEST/application/

(ix)   Press **[F10] (Done)**.

The system will display the DC2 Export Panel.

(xi)   Press **[F10] (Done)**. The system will display the DC2 Task Menu Panel.

5.4   Upload to Mainframe Procedures

At the completion of each processing cycle, the upload procedure will be used to transfer the QC Lot Statistics records from the UNIX system environment to the mainframe.

The steps involved are as follows:

(i)   Access the appropriate Application Name directory and determine the name of the Exported file. The directory location is as follows:
       $DC2EXPDEST/application/

(ii)   One file will exist for each Application Name:

       - the naming convention will be **svoccmbt**
         where:
         sv   - these are always the first <u>two</u> characters
         occ - is the occasion name (up to 10 characters)
         mbt - is the last two characters (digits) of the Master Blueprint Name.

         e.g. $DC2EXPDEST/application/***svoccmbt***

(iii) Use FTP to upload the file to the mainframe. The command line for each of the files will be as follows:

       Put svoccmbt '**BSMD.QC.***Application Name.data*(mmmyy)
       where:
       mmm   -   is the month:
                            Jan / Feb / Mar / Apr / May / Jun /
                            Jul / Aug / Sep / Oct / Nov / Dec

       yy   -   is the appropriate two digit year: 93 / 94 / etc.

       <u>Example:</u>   Put **sv9210** '**BSMD.QC.***Application Name*.Data(Apr94)

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6. GLOSSARY

The following terms are defined in order to assist the user in the understanding of Quality Control methods and to facilitate the interface with the DC2 Sample Verification (SV) system software.

Acceptance Sampling

A quality control (QC) verification option that establishes the sample design and the decision rules for determining which Batches are acceptable.

Application

A specific collection and capture process.

Autoscheduler

A facility of the Management Support Subsystem (MSS) used by the Production Manager to escort each Case / MasterBlueprint through a series of collection and capture processes. It schedules the work unit for each of the three utilities: Entry, Verify and Export.

Capture Vehicle (CV)

An electronic vehicle which is used to capture data from a collection vehicle.

Case

The Unit within an Application which is the focus of the collection and capture process (e.g. business unit, household, municipality or person).

Cluster Sampling

A method of sample selection where the sample is a group or cluster of consecutive Cases in a Batch. The first Case in the cluster is selected randomly.

Collection Vehicle

The physical source from which data are captured (e.g., a questionnaire).

Field

The location within the Capture Vehicle which is used to receive or display data.

Master Blueprint

An entity which signifies the **Data Demand** (e.g., payroll, finance or family expenses) or Collection medium (e.g., paper questionnaire, telephone interview or automated source) for the collection and capture process. The MSS tracks at the Master Blueprint level (i.e., Master Blueprint within Case within Application).

Sample

A subset of Cases selected from a Batch. These selected Cases are assumed to be representative of the Batch.

100% Verification

A method of verification where all of the Cases in a Batch are verified.

Sample Verification

A method of verification where, initially, only the Cases selected for the sample are verified. However, if the sample-verified Cases do not meet a pre-determined quality standard (i.e. are Rejected), the Remainder Cases of the Batch are verified.

Remainder Verification

Verification of all the Cases in the Batch that are not included in the original sample. The number of remainder units to be verified equals the Batch size minus the sample size.

Re-QC

A (Batch) rejection option whereby the Cases of a 'Rejected' Batch are returned to the original operator and re-worked. After re-work, another sample of Cases is selected for verification.

Skip-Lot Sampling

A method of sample selection where only a subset of the Batches are identified for verification. If the selected Batches remain within desired quality levels, the (skipping) process continues. If not, regular sample verification of each Batch is invoked.

Statistical Process Control (SPC)

One of the two main methods of the Acceptance Control strategy, the other being Acceptance Sampling. SPC involves sampling some Cases from a single Batch in a processing cycle, and verifying each Case selected. Based on the sample results, the Batch is either accepted or rejected. If rejected, all remainder Cases in the Batch are verified and corrected (or reworked) as necessary. In addition, regular sample verification is invoked and all other Batches in the processing period are inspected. If accepted, there is no further verification requirements of any other Batches during that processing cycle.

Systematic Sampling

A sample selection method whereby the first sample Case is randomly selected and subsequently every k'th (e.g., every 5'th) Case thereafter is selected until the sample size is reached.

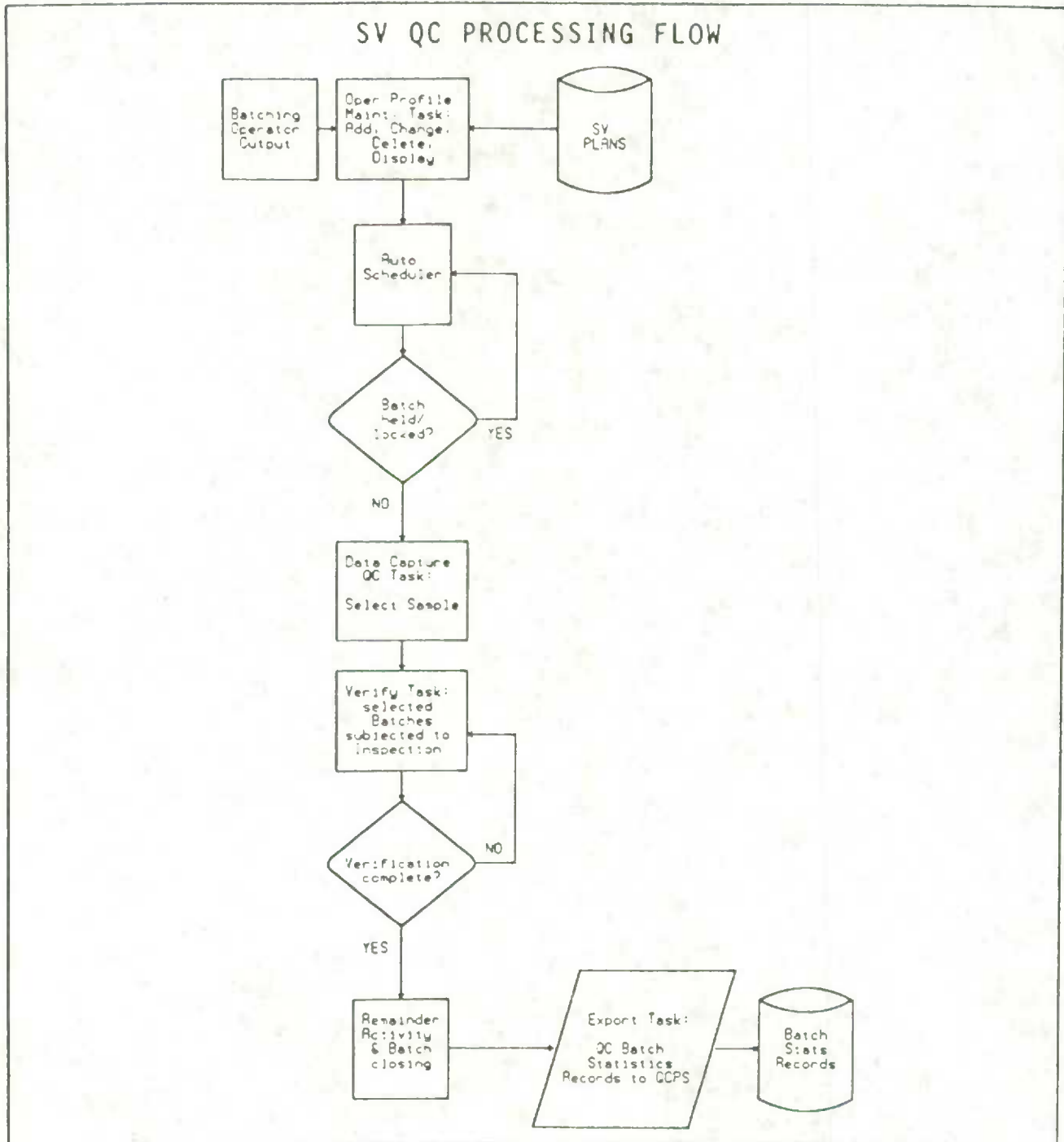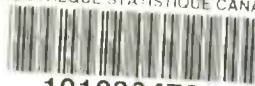# 7. REFERENCES

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[2] Generalized Data Collection and Capture (DC2) Release 1.5 DC2 Sample Verification Facilities Addendum, Generalized Survey Function Development (GSFD) Team, Statistics Canada, October, 1992.

SV QC PROCESSING FLOW

NOTES