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7. Abstract The K Basins Materials Balance (MBA) programs had some minor improvements made to it to feedback the chute processing status to the operator better. This ATP describes how the code was to be tested to verify its correctness.		
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K BASINS
DATABASE SYSTEMS

M B A

Mass BAlance Program

Acceptance Test Procedures

Software Version 1.4

James E. Mullaney

Vern K. Russell

WESTINGHOUSE HANFORD COMPANY
INFORMATION RESOURCE MANAGEMENT

April 4, 1994

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MASTER

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for

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1.0 INTRODUCTION

1.1 Purpose

- Present the steps needed to perform an Acceptance Test on the Mass Balance Program, version 1.4.
- Provide an introduction and tutorial / User Guide for the new program.

1.2 Scope

This document addresses primarily the use of the new mass balance program.

1.3 Background

The Mass Balance Program (MBA) is an adjunct to the Material Accounting (MAC) database system, Version 3.4 (References 1 thru 5).

MBA was written to equip the personnel performing K-Basin encapsulation tasks with a conservative estimate of accumulated sludge during the processing of canisters into and out of the chute, primarily in the K-East basin.

MBA accesses the MAC data in a "read-only" mode, in order to compute the factor weight of a canister.

2.0 ACCEPTANCE TEST PLAN

This document constitutes the acceptance test plan for the MBA Version 1.4 software.

Test location: Bldg. M0102, room 1, 100K Area

Computer: The PC located in the K-East basin near the chute where mass balance operations (encapsulation) will be conducted. The K Basin personnel may elect to use an alternate computer if the "chute" computer is not available.

Disk space: the c:\mba directory of the selected computer.

Participants will consist of the following:

Test Performer

Test Witness

IRM Analyst

The Test Performer will execute the test procedures as defined in this document.

The Test Witness will witness each test and sign the appropriate test execution and exception logs together with the Test Performer.

The IRM analyst will serve as advisor on the new functions and assist with verbiage on the execution / exception logs as required. He will also write a test summary report and schedule and assist in scheduling a follow-on ATP if needed.

3.0 ACCEPTANCE CRITERIA

Software Version 1.4 functions must perform as defined in this document.

4.0 ACCEPTANCE TEST PROCEDURES

4.1 General

The test will be run on the c:\mba subdirectory.

Upon satisfactory completion of the test, including software revisions if any, the software will be reloaded to the production directory and software version 1.1 will be installed.

Test sequence will be as follows:

- (1) MassBal. This function is the primary working module which will be used during encapsulation.
- (2) Help functions. These will be exercised to acquaint the tester with the MAC data, the MBA data, and to verify the response of the Help screens.
- (3) Verify and Clear. These functions involve the exercise of precautionary steps to control the accumulation of sludge in the chute area.
- (4) Download and Upload. These functions provide communications links to files associated with MAC on the HLAN network.
- (5) Administrative Functions. These functions (Backup, Report, Cleanup, Passwords, ValidUsers, and GoParadox) are to be performed by an authorized Database Administrator.

4.2 Procedure Format

The MBA system is menu-driven. Upon entry, the user is presented with a "popup" menu, with instructions at the top of the screen. Most of the time, the instructions are simply:

To select, Press first character or <Enter>. To see explanation, highlight the appropriate selection, using the cursor movement keys.

For example, refer to the main menu, Figure 1. If one chooses MassBal, then the next menu seen will be Figure 2, which presents all of the MassBal options.

In some of the options, the user is led to view and/or modify a table, in which case the instructions at the top of the screen will be specifically tailored to the option at hand.

In this document, the symbol:

↵

will signify pressing the <Enter> key.

4.3 Startup

The following steps describe a startup procedure which is needed for the initial loading of the basin PC with the software and (empty) data files necessary to "Boot" the MBA system, i.e. to install it on the hard drive of the computer. Once the system has been loaded, the normal startup procedure will be to login and select "MBA" from a menu.

OBTAIN an MBA installation diskette from the MAC Database Administrator.

Place the diskette in the "A" or "B" drive of the computer.

Go to the DOS prompt. Execute 1 of the following two choices:

- (1) If the diskette is in the "A" drive:

TYPE A:\setbasin ↵

OR

- (2) If the diskette is in the "B" drive:

TYPE B:\setbasin ↵

OBSERVE messages indicating that scripts and data are being downloaded to the computer.

OBSERVE a normal MBA startup, proceeding with a download of MAC master files, ending with the directory message
c:\pdx40\mba blinking in the upper portion of the main menu (Figure 1).

NOTE This one-time "Boot" startup will be replaced (later) by a menu where the user will simply select MBA. The MBA system may also be started from Paradox via a "Scripts / Play / MBA" command.

RECORD results in the test execution log.

4.4 Mass Balance Operations

NOTES:

- (1) It would be helpful to have a copy of a recent Compact Map report in hand before beginning this part of the Acceptance Test.
- (2) Most of the Mass Balance operations are set up so that, upon completion, an <F2> entry will cause the same type of operation to continue. Thus you can bring "In" several canisters, or "Weigh" several, or move "Out" several with a minimum of keystrokes.

4.4.1 MassBal / In

Starting from the Main menu (Figure 1), PRESS M.

At the Mass Balance Operation menu (Figure 2), PRESS I or ↵.

OBSERVE the beginning of the Canister Entering Chute input screen (example: Figure 5).

FILL By canister or location (C/L) ____ Note: Do NOT press ↵

FILL Enter canister location (or can #) _____ ↵

FILL Sure? (Y/N) Y

NOTE A N reply will erase your entry and prompt you to re-enter the above information.

OBSERVE "OK!" signal or "Error Empty" message.

NOTE: If you enter a canister which has already been brought "In" during the current chute session, the system will refuse the input. Otherwise, OBSERVE a "VALID Entry" message.

OBSERVE display of the "In Chute" table and cumulative mass balance, (Figure 6).

OBSERVE that the mass balance has been updated to reflect the addition of the factor weight of the canister just brought "In" to the chute.

PRESS <Print Screen>.

PRESS <F2>.

OBSERVE that the system is ready to bring in another canister.

PRESS L.

OPTIONAL step: TYPE another canister location OR . PRESS ↵.

OBSERVE return to the main menu.

RECORD results in the test execution log.

4.4.2 MassBal / Weigh

Starting from the Main menu (Figure 1), PRESS M.

At the Mass Balance Operation menu (Figure 2), PRESS W.

OBSERVE the "In Chute" table and Cumulative Mass Balance with weighing instructions (Figure 7).

MOVE cursor to a line where the net weight is zero; PRESS <F2>.

NOTE: If no such line exists, you will have to do 4.4.1 (the "In" function) to bring in a canister which has not yet been weighed.

FILL net weight _____ ↵.

OBSERVE revised "In Chute" and Cumulative Mass Balance (Figure 7).

VERIFY that the revisions are correct, i.e. the target canister received the net weight and that amount was NOT YET subtracted from previous mass balance total.

NOTE: Weight will be subtracted when the canister is moved "Out".

PRESS <Print Screen>.

PRESS <Esc>

RECORD results in the test execution log.

4.4.3 MassBal / Out

Starting from the Main menu (Figure 1), PRESS M.

At the Mass Balance Operation menu (Figure 2), PRESS 0.

OBSERVE the "In Chute" with Cumulative Mass Balance table with moving Out instructions (Figure 8).

PRESS <Print Screen>.

Following the screen instructions, SELECT a canister which has been weighed.

OBSERVE revised "In Chute" and Cumulative Mass Balance (Figure 8).

OBSERVE The change in Cumulative Mass Balance, and notice that the selected canister is no longer in the "In Chute" table.

PRESS <Esc> to return to main menu.

RECORD results in the test execution log.

4.4.4 Chip Canisters

Chip can processing is basically the same as any other canister in the sense that the same logical moves ("In", "Weigh", and "Out") are invoked. The difference is that the computer assigns a temporary canister number to a "Chip" canister.

Starting from the Main menu (Figure 1), PRESS M.

At the Mass Balance Operation menu (Figure 2), PRESS I.

OBSERVE the beginning of the Canister Entering Chute screen (example: Figure 5).

FILL By canister or location (C/L) C

FILL Enter canister location (or can #) 0000C ↵

FILL Sure? (Y/N) Y

NOTE A N reply will erase your entry and prompt you to re-enter the above information.

OBSERVE message "Sequential number for chips can is 00..nC". This is a temporary chip canister number issued by the computer. It will be tracked by MAC database personnel and assigned a permanent number by them.

PERFORM the "Weigh" and "Out" operations for the chip can as outlined for regular canisters in sections 4.4.2 and 4.4.3.

Starting from the main menu, Press H, then select S from the help menu.

OBSERVE that the "Session" table records the chip can entries in the same manner as a regular canister, except that the canister serial number is computer-issued. Note that the net weight entry is subtracted from the Cumulative Mass Balance at the "Out" operation.

RECORD results in the test execution log.

4.5 Help Functions

These functions do not modify the data. They simply display various views of the data. The format and contents of the screen displays are somewhat different than in previous versions of the MAC system, due to changes in the data structure and addition of the encapsulation functions.

4.5.1 Help / InChute

Starting from the Main menu (Figure 1), PRESS H.

At the Help menu (Figure 4), PRESS I.

This function displays (see example, Figure 9) a table which shows the canisters currently in the chute, with their respective factor weights and net weights, if weighing has taken place.

The purpose of this Help display is to permit the user to appraise the chute contents without having to perform an actual process such as "In", "Out", or "Weigh".

PRESS the <End> and <Home> keys and OBSERVE the beginning and end of the "InChute" table.

PRESS <Esc> key to return

RECORD results in test execution log.

4.5.2 Help / Session

Starting from the Main menu (Figure 1), PRESS H.

At the Help menu (Figure 4), PRESS S.

This function displays (see example, Figure 10) the table which records near-real-time encapsulation operations. Daily encapsulation reports may be generated from this table.

OBSERVE that the most recent moves ("In", "Out", "Weigh", "Clear") and the resultant weights are displayed.

PRESS the up arrow key enough times to OBSERVE that the screen scrolls to earlier events.

PRESS the <End> and <Home> keys and OBSERVE the beginning and end of the "MassBal" table.

PRESS <Esc> key to return

RECORD results in test execution log.

4.5.3 Help / History

Starting from the Main menu (Figure 1), PRESS H.

At the Help menu (Figure 4), PRESS H.

This function displays (see example, Figure 11) the table which records not only the current encapsulation session, but also previous sessions which terminated in a sludge removal or "Clear" operations.

OBSERVE that the present session (if any) is not yet recorded as "History". The full session will be added to "History" after a "Verify" or "Clear" operation.

OBSERVE that the most recent moves ("In", "Out", "Weigh", "Clear") and the resultant weights are displayed.

PRESS the up arrow key enough times to OBSERVE that the screen scrolls to earlier events.

PRESS the <End> and <Home> keys and OBSERVE the beginning and end of the "MassBal" table.

PRESS <Esc> key to return

RECORD results in test execution log.

4.5.4 Help / All

Starting from the Main menu (Figure 1) PRESS H.

At the Help menu (Figure 4) PRESS A.

OBSERVE that the three (3) tables: Location, Canister, and Material are displayed (Figure 12). OBSERVE that the cursor is positioned in the Location table.

NOTE: The three tables are linked by canister number. The canister number which is shown for the Location table also pertains to the other two tables, even though the number is not shown beside the canister or material tables.

PRESS the F4 key twice. OBSERVE that the cursor moves to the Material table.

PRESS the F3 key twice. OBSERVE that the cursor returns to the Location table.

PRESS the <PgDn> key about 20 times. OBSERVE that the Canister and Material tables scroll with the Location table. OBSERVE that some

canisters have only one line in the Material table but that many have several lines of contents (different fuel model types).

PRESS the <Home> and <End> keys and OBSERVE that the beginning and the end of the three tables (linked by canister number) are displayed.

SEARCH for a canister number or location by following the instructions at the top of the screen. Remember to position the cursor in the desired target field before pressing the F1 key for a search.

PRESS <Esc> key when finished.

RECORD results in test execution log.

4.5.5 Help / Location

Starting from the Main menu (Figure 1), PRESS H.

At the Help menu (Figure 4), PRESS L.

OBSERVE the Location table (example: Figure 13).

PRESS <Esc> key to return.

RECORD results in test execution log.

4.5.6 Help / Canister

Starting from the Main menu (Figure 1), PRESS H.

At the Help menu (Figure 4), PRESS C.

OBSERVE the Canister table (example: Figure 14).

PRESS <Esc> key to return.

RECORD results in test execution log.

4.5.7 Help / Material

Starting from the Main menu (Figure 1), PRESS H.

At the Help menu (Figure 4), PRESS M.

OBSERVE the Material table (example: Figure 15).

PRESS <Esc> key to return.

RECORD results in test execution log.

4.6 Mass Balance Control

A conservative estimate of sludge buildup during encapsulation operations is obtained by adding the factor weight of each canister to the mass balance (MB) each time a canister is brought "In" to the chute. When a "Weigh" event occurs, the canister net weight is noted in the "In Chute" table. This weight is not subtracted from the MB until the canister is moved "Out" of the chute. Whenever a "Chip" can entry is made, the chip can net weight is subtracted from the mass balance accumulator.

The MBA program invokes an ALARM module whenever the MB equals or exceeds 3750 lbs.

Once this event occurs, the system will not proceed with mass balance operations until two (2) authorized persons verify that sludge has been removed from the chute and that all the canisters involved in that session have been removed from the chute. They accomplish the needed verification by invoking the "Verify" option from the main menu.

In the event that the encapsulation supervisor deems it advisable to clear out the chute even before the 3750 lb. limit has been reached, this can be accomplished by invoking the "Clear" option from the main menu. Once the "Clear" option has been set, the system will not proceed with mass balance operations until two (2) authorized persons perform "Verify" or "Clear" options.

4.6.1 Password Administration

The system will permit only authorized Database Administrators to assign passwords. They do this by accessing a table which contains Alias, Verifier Name, and Password.

The alias table can be expanded beyond the current 10 fictional names by the IRM analyst if such expansion is needed. Meanwhile, the 10 aliases remain constant and serve as a key for the Database Administrators to use in re-assigning / modifying passwords for "Verify" and "Clear" functions.

Details of this and other administrative functions are given in section 4.8 of this report.

4.6.2 Verify

Perform the "MassBal" / "In" function enough times so that the ALARM screen appears, and the system refuses to do further Mass Balance Operations.

Starting from the Main menu (Figure 1), PRESS V.

OBSERVE the Mass Balance Alias Password Selection menu (Figure 3).

At this point, two authorized persons should be available to perform the verification of sludge removal.

First verifier: SELECT your alias by following directions on screen. FILL your password. OBSERVE that password typed in does not appear on the screen. OBSERVE that upon successful password entry, you are given a message to the effect that you have verified sludge removal.

NOTE: The system will not permit the mass balance operations to proceed until a second verifier has performed the "Verify" operation.

Second verifier: Follow the same steps given above for the first verifier, except of course using a different alias and password.

OBSERVE a message to the effect that mass balance operations may proceed.

Use the Help / Session, Help / InChute, and Help / History features to VERIFY that the "Verify" function has (logically) cleared the chute.

Repeat the MassBal / In operation (Section 4.5.1) to VERIFY that ongoing mass balance operations will begin with a clean slate. Enter a canister into the chute, using the procedures described in section 4.5.1.

VERIFY that a new session has begun, by using the Help / Session option.

RECORD results in the test execution log.

4.6.3 Clear

Perform the "MassBal" / "In" function enough times so that several lines are present in the "In Chute" table appearing on the screen, or use the "Help" / "Session" function to establish that there is material in the chute to be cleared. Be sure that at least one canister has a zero (0) for the new weight.

Starting from the Main menu (Figure 1), PRESS C.

OBSERVE the Mass Balance Alias Password Selection menu.

From this point on in the Clear operation, the steps are basically the same as those given above for the Verify function.

NOTE: If there are one or more canisters in the chute which have not been weighed, the system will issue a warning to that effect. In answer to the question "still want to clear?", Fill N. Then use the procedures of section 4.5.2 to provide net weights for all canisters.

COMPLETE the clear function.

Use the Help / Session, Help / InChute, and Help / History features to VERIFY that the "Clear" function has (logically) cleared the chute.

RECORD results in the test execution log.

4.7 Download and Upload

The **Download** function (Figure 1) downloads master files from the **MAC** database. This function is automatically invoked whenever the **Mass Balance** program is started. The user will normally not need to use the **Download** option unless there is a need to update the **Location**, **Canister**, and **Material** tables due to activity on the **MAC** database system.

The **Upload** function copies the mass balance production tables to the same directory where **MAC** data reside. This permits the **MAC Database Administrator** to monitor basin mass balance and encapsulation operations remotely. **Upload** copies the following tables:

<u>Table</u>	<u>Description</u>
Inchute	Current chute contents
MassBal	Current session details
MbalHist	Mass balance history
Sludge	Current accumulated sludge tally
Summary	Summary of the above mass balance tables

4.7.1 Download

Starting from the Main menu (Figure 1), PRESS **D**.

OBSERVE messages indicating the progression of the downloading process.

RECORD results in the test execution log.

4.7.2 Upload

Starting from the Main menu (Figure 1), PRESS **U**.

OBSERVE messages indicating the progression of the uploading process.

CHECK the results by asking the Database Administrator to access and confirm the above listed tables using the **Help** commands (section 4.4) and / or standard Paradox table viewing methods.

NOTE: After completion of the Upload, the IRM analyst will empty the mass balance tables on the "g" drive.

RECORD results in the test execution log.

4.8 Administrative Functions

The administrative functions are accessible to the authorized Database Administrator(s). Therefore this section of the Acceptance Test should be performed by an authorized person.

Starting from the Main menu (Figure 1), PRESS A.

TYPE the administrative password; OBSERVE the "OK" sign or refusal.

OBSERVE the administrative menu (Figure 16).

RECORD results in the test execution log.

4.8.1 Backup

Starting from the administrative menu, press B.

OBSERVE A screen message which permits you to specify a path for the backup. The default path is recommended. It will be of the format: b:\mba\ymmdd, where yymmdd will be the current date (example: 921015). The system will set up the path on the drive specified.

SELECT the default path (b:\mba\ymmdd) by pressing ↵.

OR

SELECT your preferred directory path (Use <Backspace> key to erase the default path, then TYPE the path _____ ↵

OBSERVE messages indicating the completion of backup steps for scripts and data files. The backup will be completed in 5 minutes or less.

RECORD results in the test execution log.

4.8.2 Report

The **Report** function can be used to produce Reports such as the examples given in figures 16 and 17.

Starting from the administrative menu, PRESS **D.** (for Do Report)

OBSERVE a message offering a choice of History (**H**) or Session (**S**) reporting.

PRESS **H** and observe the message "Printing report".

REPEAT the above steps, except select the **S** option.

OBSERVE the reports coming from the printer; examine their content.

RECORD results in the test execution log.

4.8.3 Cleanup

The purpose of this function is to permit the Database Administrator to exercise control over the size of the History file. **Cleanup** offers the user a choice of how many cycles (sessions) to purge from the front end (earliest) portion of the History file. A session includes all the transactions which occurred between "Verify" or "Clear" operations.

Starting from the administrative menu, PRESS **C.**

OBSERVE a message prompting for the entry of a number of sessions to be purged.

TYPE a number _____ ↵

OBSERVE display of Action and Date fields of the records to be purged.

In response to the Sure? (Y/N) prompt: TYPE Y

Use the "Report" function (4.8.3) or the Help / History function (4.4.3) to VERIFY that the correct number of sessions have been removed from the history table.

RECORD results in the test execution log.

4.8.4 Passwords

Starting from the administrative menu, PRESS P.

OBSERVE the screen display which permits the assignment of a password to a person, linked via an alias as explained in sections 4.6.2 (Verify) and 4.6.3 (Clear).

ENTER a person name and a password, then PRESS <F2>.

PERFORM a "Clear" operation using the person / password combination just created as one of the verifiers.

RECORD results in the test execution log.

4.8.5 ValidUsers

Starting from the administrative menu, PRESS V.

OBSERVE the screen display which permits the assignment of an access permit level (Regular, Passwrd, or Read) to a person.

CHANGE the access level to Regular if it is Passwrd, or to Passwrd if it currently is Regular, then PRESS <F2>.

RETURN to the main menu.

REPEAT the above steps to enter the administrative menu.

OBSERVE that a user with Regular permission must know the access password to get to the administrative menu; a user with Passwrd permission may change the password.

RECORD results in the test execution log.

4.8.6 GoParadox

This function permits the Database Administrator to access Paradox and return to the MBA system quickly and efficiently.

Starting from the administrative menu, PRESS G.

OBSERVE a standard Paradox main menu.

VERIFY the backup which was completed in section 4.8.1) and use the tools / more / directory command to change to the directory path specified for the backup. Use the Paradox "View" option to view tables "Massbal", "Mbalhist", and "Inchute".

TYPE S then P then MBA .

OBSERVE return to the MBA system.
RECORD results in the test execution log.

4.9 Quit

In the production mode, whenever the user "Quits" running MBA, the results that he/she produced are automatically uploaded to the master directory on HLAN. Thus the results of current sessions and updated history are available at least once daily to the Database Administrator.

Starting from the Main menu (Figure 1), PRESS Q.

OBSERVE screen messages indicating the data transfer.

At this point it will be necessary to exit from Stand-alone Paradox and log in to a PC which has network Paradox.

Use the GoParadox function (4.8.6), then the Tools/More/Directory command to switch to the master directory.

VERIFY (using the Paradox VIEW function) that the following tables contain the correct (transferred) data:

<u>Data Type</u>	<u>Table Name</u>
Session	Massbal
History	MbalHist
Mass Balance	Sludge
Canisters in Chute	Inchute
Summary of above	Summary

RECORD results in the test execution log.

5.0 REFERENCES

- (1) Russell, V.K. and Mullaney, J.E., "MAC Database Acceptance Test Procedures", WHC-SD-NR-CSWD-045, Westinghouse Hanford Company, May 31, 1990.
- (2) Mullaney, J.E., "MICRO-MAC Acceptance Test Summary Report", Westinghouse Hanford Company, July 12, 1990.
- (3) Mullaney, J.E. "MAC Database Mini Acceptance Test Procedures for Software Version 2.3", Westinghouse Hanford Company, June 14, 1991.
- (4) Mullaney, J.E., "MICRO-MAC Acceptance Test Summary Report (Version 2.3)", Westinghouse Hanford Company, August 30, 1991.
- (5) Mullaney, J.E., "MAC Database Mini Acceptance Test Procedures for Software Version 3.0", Westinghouse Hanford Company, Aug. 14, 1992.

6.0 APPENDIX A

This APPENDIX contains all the Figures referenced in the text of this document. It is recommended that these pages be extracted and kept near the Acceptance Test Operator during the test.

6.1 List of Figures

<u>Figure</u>	<u>Contents</u>
1	Main Menu
2	Mass Balance Operations Menu
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6	Selection of Canister to be Moved In
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9	In Chute Table
10	MassBal Table
11	MbalHist Table
12	ALL Table
13	Location Table
14	Canister Table
15	Material Table
16	Mass Balance Administrative menu
17	Mass Balance Current Session Report
18	Mass Balance History Report

To select, Press first character or <Enter>. To see explanation, highlight the appropriate selection using the cursor movement keys.

Menu: mbmain Directory: G:\NEW\MBA\	
CHOOSE:	
MassBal	Perform mass balance processing
Verify	Verify material removal (requires two operators)
Clear	Remove all material from chute (two operators)
Download	Move data from HLAN to local directory c:\mba
Upload	Move data from c:\mba to the HLAN production system
Help	View mass balance History, Material, etc. files
Executive	Database Administrative Functions
Applications	Paradox Application Programs Menu
Quit	Terminate mass balance processing, return to DOS

Figure 1. Main Menu

To select, Press first character or <Enter>. To see explanation, highlight the appropriate selection using the cursor movement keys.

Menu: mbmass Directory: G:\NEW\MBA\	
CHOOSE:	
In	Bring a canister or chip can into the chute
Weigh	Enter net weight for a canister or chip can in chute
Out	Move a canister or chip can out of the chute
Return	Return to MBA main menu
Leave	Leave Paradox and return to DOS

Figure 2. Operations Menu

Figure 3. Alias password selection Menu

To select, Press first character or <Enter>. To see explanation, highlight the appropriate selection using the cursor movement keys.

Figure 4. Help Menu

Example E3567

```

Canister Entering Chute
By canister or location (C/L)-->L
Enter canister location ----->E0841  OK!
Canister: 0841E                      Checking Canister
    
```

Figure 5. Canister Entry Screen

[.]
inchute form 2
[+]

BRING CAN

INTO

CHUTE

In Chute

Can Number	Factor Weight	Net Weight
0830E	658.16	0
0831E	646.48	0
0840E	722.4	0
1809E	613	0
5111E	687.32	0

Cumulative

Mass Balance
3327.36

5 of 5
Press <F2> to continue input of data to the MB system or <Esc> to Return

Figure 6. Selection of Canister to be Moved In

[.] inchute form 1 [↑]

SELECT CAN
TO WEIGH

Use arrows to move
to selected can #,
then press F2

In Chute

Can Number	Factor Weight	Net Weight
0830E	658.16	620
0831E	646.48	612
0840E	722.4	690
1809E	613	0
5111E	687.32	0

Cumulative

Mass Balance
3327.36

4 of 5

Move to line with canister to be weighed, Press <F2> or <Esc> to Return

Figure 7. Selection of Canister to be Weighed

[.] inchute form 7 [↑]

TAKE CAN
OUT OF
CHUTE

In Chute

Can Number	Factor Weight	Net Weight
0830E	658.16	620
0831E	646.48	612
0840E	722.4	690
1809E	613	0
5111E	687.32	0

Cumulative

Mass Balance
3327.36

1 of 5

Move to line with canister to be moved out, Press <F2> or <Esc> to Return

Figure 8. Selection of Canister to be Moved Out

F1 (Search), Note: To search, use F1, but move to field, using arrows
Enter (Return), Esc (Abort), PgUp, PgDn, Home(Top), End(Bottom)

In Chute

Can Number	Factor Weight	Net Weight
0011C	0	101
0830E	658.16	500
0831E	646.48	500
0840E	722.4	501
1809E	613	503
1810E	682.1	500
5111E	687.32	0
5112E	694.5	0
0841E	722.4	0

Figure 8, InChute Table

F1 (Search), Note: To search, use F1, but move to field, using arrows
 Enter (Return), Esc (Abort), PgUp, PgDn, Home(Top), End(Bottom)

Mass Balance Accounting

Canister Number	Factor Weight	Net Weight	Action	Date	Cumulative Mass Bal.
0010C	0	0	Chip-In	1/26/93	1404.5
0010C	0	100	Chip-Out	1/26/93	2244.9
0010C	0	100	Chip-Wt	1/26/93	3367.3
0011C	0	0	Chip-In	1/26/93	1998.22
0011C	0	101	Chip-Wt	1/26/93	1998.22
0801E	0	552.32	Out	1/26/93	1692.58
0801E	0	552.32	Weigh	1/26/93	3367.3
0801E	652.32	0	In	1/26/93	2056.82

Figure 9, Massbal Table

F1 (Search), Note: To search, use F1, but move to field, using arrows
 Enter (Return), Esc (Abort), PgUp, PgDn, Home(Top), End(Bottom)

Mass Balance History

Canister Number	Factor Weight	Net Weight	Action	Date	Cumulative Mass Bal.
0007C	0	100	Chip-Out	1/04/93	1412.1
0007C	0	100	Chip-Wt	1/04/93	2812.1
0008C	0	0	Chip-In	1/05/93	417.1
0008C	0	100.1	Chip-Out	1/05/93	317
0008C	0	100.1	Chip-Wt	1/05/93	417.1
0009C	0	0	Chip-In	1/13/93	688.3
0009C	0	100	Chip-Wt	1/13/93	688.3
2301E	0	501	Out	12/14/92	2934.3
2301E	0	501	Weigh	12/14/92	3435.3
2301E	679	0	In	12/14/92	679
2302E	0	502	Out	12/14/92	2432.3
2302E	0	502	Weigh	12/14/92	3435.3
2302E	685.2	0	In	12/14/92	1364.2
2303E	0	503	Out	12/14/92	1929.3
2303E	0	503	Weigh	12/14/92	3435.3
2303E	700.7	0	In	12/14/92	2064.9

Figure 11, Mbalhist Table

F1 (Search), F3(Up Table), F4(Down Table) PgUp, PgDn, Home(Top), End(Bottom)
Esc (Return) Note: To search, use F1, but move to field, using F3, F4, arrows
L O C A T I O N C A N I S T E R
Can # Location Purged Wt Net Wt Pkg
9170 W5839 725 0 P

Key	FMT	MWD's	Assemblies	Outers	Inners	Pieces
3524	BC	25.82	1	0	0	0
3524	BE	797.43	13	0	0	0

Figure 12, All Table

F1 (Search), Note: To search, use F1, but move to field, using arrows
Enter (Return), Esc (Abort), PgUp, PgDn, Home(Top), End(Bottom)

Location Table	
Can #	Location
9153	W0515
9154	W5837
9155	W5832
9156	W5863
9157	W5843
9158	W5825
9159	W5829
9160	W5835
9162	W5834
9163	W5845
9164	W5842
9165	W5831
9166	W5833
9167	W5821
9168	W5830
9169	W5844
9170	W5839

Figure 13, Location Table

F1 (Search), Note: To search, use F1, but move to field, using arrows
Enter (Return), Esc (Abort), PgUp, PgDn, Home(Top), End(Bottom)

Can #	C	A	N	I	S	T	E	R
	Purged	Wt			Net	Wt		Pkg
9154	656				0			P
9155	691				0			P
9156	679				0			P
9157	742				0			P
9158	741				0			P
9159	750				0			P
9160	636				0			P
9162	650				0			P
9163	742				0			P
9164	567				0			P
9165	660				0			P
9166	702				0			P
9167	707				0			P
9168	752				0			P
9169	514				0			P
9170	725				0			P

Figure 14, Canister Table

F1 (Search), Note: To search, use F1, but move to field, using arrows
Enter (Return), Esc (Abort), PgUp, PgDn, Home(Top), End(Bottom)

Can #	M	A	T	E	R	I	A	L	T	A	B	L	E
	Key	FMT			MWD's		Assemblies		Outers		Inners		Pieces
9160	3524	BE			613.41		10		0		0		0
9162	3524	BC			129.09		5		0		0		0
9162	3524	BE			552.07		9		0		0		0
9163	3524	BC			335.63		13		0		0		0
9163	3524	BE			61.34		1		0		0		0
9164	3524	BC			258.18		10		0		0		0
9167	3524	BA			471.37		8		0		0		0
9167	3524	BE			368.04		6		0		0		0
9168	3524	BE			858.77		14		0		0		0
9169	3524	BE			858.77		14		0		0		0
9170	3524	BC			25.82		1		0		0		0
9170	3524	BE			797.43		13		0		0		0

Figure 15, Material Table

To select, Press first character or <Enter>. To see explanation, highlight the appropriate selection using the cursor movement keys.

CHOOSE:	Menu: mbadmin Directory: G:\NEW\MBA\
Passwords	Modify or add passwords for Verify, Clear operators
ValidUsers	Modify, delete, add valid MBA users
Do Report	Print report: current mass balance session or history
Cleanup	Remove specified sessions from the History table
GoParadox	Go to Paradox
Backup	Backup the mass balance system
Return	Return to MBA main menu
Leave	Leave Paradox and return to DOS

Figure 16. Administration Menu

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Mass Balance Current Session

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Canister Number	Factor Weight	Net Weight	Cumulative Mass Balance	Action	Date
0010C	0.00	0.00	1404.50	Chip-In	1/26/93
0010C	0.00	100.00	2244.90	Chip-Out	1/26/93
0010C	0.00	100.00	3367.30	Chip-Wt	1/26/93
0011C	0.00	0.00	1998.22	Chip-In	1/26/93
0011C	0.00	101.00	1998.22	Chip-Wt	1/26/93
0801E	0.00	552.32	1692.58	Out	1/26/93
0801E	0.00	552.32	3367.30	Weigh	1/26/93
0801E	652.32	0.00	2056.82	In	1/26/93
0802E	0.00	500.00	1192.58	Out	1/26/93
0802E	0.00	500.00	3367.30	Weigh	1/26/93
0802E	658.16	0.00	2714.98	In	1/26/93
0803E	0.00	499.00	693.58	Out	1/26/93
0803E	0.00	499.00	3367.30	Weigh	1/26/93
0803E	652.32	0.00	3367.30	In	1/26/93
0830E	0.00	500.00	1998.22	Weigh	1/26/93
0830E	658.16	0.00	1351.74	In	1/26/93
0831E	0.00	500.00	1998.22	Weigh	1/26/93
0831E	646.48	0.00	1998.22	In	1/26/93
0840E	0.00	501.00	3443.02	Weigh	1/26/93
0840E	722.40	0.00	2720.62	In	1/26/93
0841E	0.00	502.00	3443.02	Weigh	1/26/93
0841E	722.40	0.00	3443.02	In	1/26/93
3110E	0.00	522.40	2344.90	Out	1/26/93
3110E	0.00	522.40	3367.30	Weigh	1/26/93
3110E	722.40	0.00	1404.50	In	1/26/93
6310E	0.00	500.00	682.10	Weigh	1/20/93
6310E	0.00	500.00	2867.30	Out	1/26/93
6310E	682.10	0.00	682.10	In	1/20/93
1809E	613.00	0.00	1295.10	In	4/02/93
1809E	0.00	503.00	1295.10	Weigh	4/02/93
1810E	682.10	0.00	1977.20	In	4/02/93
1810E	0.00	500.00	1977.20	Weigh	4/06/93
0841E	0.00	502.00	1475.20	Out	4/06/93
0705E	722.40	0.00	2197.60	In	4/19/93
0705E	0.00	700.00	2197.60	Weigh	4/19/93
5111E	687.32	0.00	2884.92	In	4/19/93
5112E	694.50	0.00	3579.42	In	4/19/93
0705E	0.00	700.00	2879.42	Out	4/19/93
0841E	722.40	0.00	3601.82	In	3/28/94

Figure 17. Mass Balance Current Session Report

3/28/94

Page 1

Mass Balance History

Canister Number	Factor Weight	Net Weight	Cumulative Mass Balance	Action	Date
2305E	0.00	505.00	920.30	Out	12/14/92
2305E	0.00	505.00	3435.30	Weigh	12/14/92
2305E	679.00	0.00	3435.30	In	12/14/92
2401E	0.00	401.00	3092.40	Out	12/14/92
2401E	0.00	401.00	3493.40	Weigh	12/14/92
2401E	651.30	0.00	1371.60	In	12/14/92
2402E	0.00	402.00	2690.40	Out	12/14/92
2402E	0.00	402.00	3493.40	Weigh	12/14/92
2402E	686.30	0.00	2057.90	In	12/14/92
2403E	0.00	403.00	2287.40	Out	12/14/92
2403E	0.00	403.00	3493.40	Weigh	12/14/92
2403E	722.40	0.00	2780.30	In	12/14/92
2404E	0.00	404.00	1883.40	Out	12/14/92
2404E	0.00	404.00	3493.40	Weigh	12/14/92
2404E	713.10	0.00	3493.40	In	12/14/92
2434E	679.00	0.00	996.00	In	1/05/93
3040E	710.00	0.00	2549.30	In	1/04/93
3041E	700.70	0.00	3250.00	In	1/04/93
3042E	710.00	0.00	3250.00	Reject	1/04/93
3043E	0.00	600.00	2212.10	Out	1/04/93
3043E	0.00	600.00	2812.10	Weigh	1/04/93
3043E	703.80	0.00	703.80	In	1/04/93
3044E	0.00	550.00	1662.10	Out	1/04/93
3044E	0.00	550.00	2812.10	Weigh	1/04/93
3044E	703.80	0.00	1407.60	In	1/04/93
3045E	0.00	500.00	912.10	Out	1/04/93
3045E	0.00	500.00	2812.10	Weigh	1/04/93
3045E	706.90	0.00	2114.50	In	1/04/93
3046E	0.00	495.00	417.10	Out	1/04/93
3046E	0.00	495.00	2812.10	Weigh	1/04/93
3046E	697.60	0.00	2812.10	In	1/04/93
3560E	698.70	0.00	2379.10	In	12/18/92
3561E	722.40	0.00	3101.50	In	12/18/92
3562E	710.98	0.00	3101.50	Reject	12/18/92
5107E	0.00	500.00	688.30	Weigh	1/13/93
5107E	688.30	0.00	688.30	In	1/13/93
5710E	640.64	0.00	640.64	In	1/13/93
5712E	204.00	0.00	844.64	In	1/13/93

Figure 18. Mass Balance History Report