



# AXIBATCH

## AXION CONTROL SYSTEMS Pty Ltd BATCHING SOFTWARE OPERATING MANUAL

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## CHAPTER 1 INTRODUCTION

The computerised batching system is an integrated, flexible and powerful industrial control system designed for all aspects of concrete production including; sophisticated plant control, extensive printed records, docket printing, remote control features, communications with local or remote accounting packages and mix design systems for real time production monitoring and quality control analysis.

The system runs under a Windows XP based operating environment and this new system supersedes any previous Windows or DOS based products. The system can be supplied in a free-standing industrial metal painted control desk with all its digital weight indicators, digital flow meters, manual control push buttons & switches, computer system keyboard, screen and printers laid out in an ergonomically designed fashion.

As an Australian designed, manufactured and supplied product, the system can be readily tailored to suit any user requirements quickly and inexpensively. It can be serviced, upgraded or modified if the user's requirements change as their business changes.

We will supply a system to be attached to the customers existing plant wiring and load cells, or we can supply and fit any necessary required limit/proximity switches, load cells and wiring that may be required.

This document describes the plant control system and the functions of the software package supplied.

### 1.1 LIMITED WARRANTY

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## 1.4 WINDOWS ENVIRONMENT

As with any Windows product insertion of data is predominantly carried out via the mouse by clicking and to a lesser extent by using the keyboard. Once the main data is entered such as customers, mix design, materials etc..., minor entry of information is carried out via the keyboard.

Accessing the relevant areas of the program is undertaken by clicking on the relative folder (menu) or icons. All this can be achieved whilst the system is batching. A different application such as MSWORD or MSEXCEL can also be utilised whilst the system is batching, however the batching software's program will prioritise its functionality over other applications being used.

*For example, whilst using MSWORD if an alarm manifests itself in the batching system, the batching system software will appear over the top of the MSWORD program to alert the operator.*

Learning to use this program is simple and friendly, the operator will soon learn that far less typing is required and most of the daily batching will be initiated between two folders (screens). The Data View table will always be present.

Large files such as the customer database can be imported from a text file with various format and field options and any remaining fields will entered by the relevant operator(s).

The flexibility of WINDOWS allows the operator to enter a particular field by either right clicking the mouse (depending on the location), clicking on a folder or one of the menus commands. These locations will be discussed throughout the manual.

In any PC based industrial control system it is strongly recommended that periodic backing up of the data base is carried. This avoids losing significant amounts of information in the event of power surge, hardware damage etc...

## 1.5 KEYBOARD & MOUSE ENVIRONMENT

As previously mentioned accessibility is achieved by using either the mouse or the keyboard. Once in the program the menus can be accessed by either clicking the mouse whilst the pointer is over the particular title or by holding the Alt key and typing the underlined first letter (Eg. Alt + F) of the menu group. This opens up the relevant menu and enables the user to further select the relevant area by either using the mouse, the arrow keys on the keyboard or the Alt + letter.

The operator will gain experience using a combination of both functions to skilfully move around the screen, enter information and select functions.

## 1.6 BATCHING SOFTWARE ENVIRONMENT

To optimise the potential of the program it is important to understand the basic layouts of a 'Windows' screen. The main screen (*Figure 1*) clearly identifies the areas of the program and the relative methods of accessing them. If you are already experienced with Windows you can skip this section.

- ◆ The **Menus** area enables the *user* to access any apart of the batching system as well as exiting the program. The **Menus** are a series of grouped functions with further sub-menus.

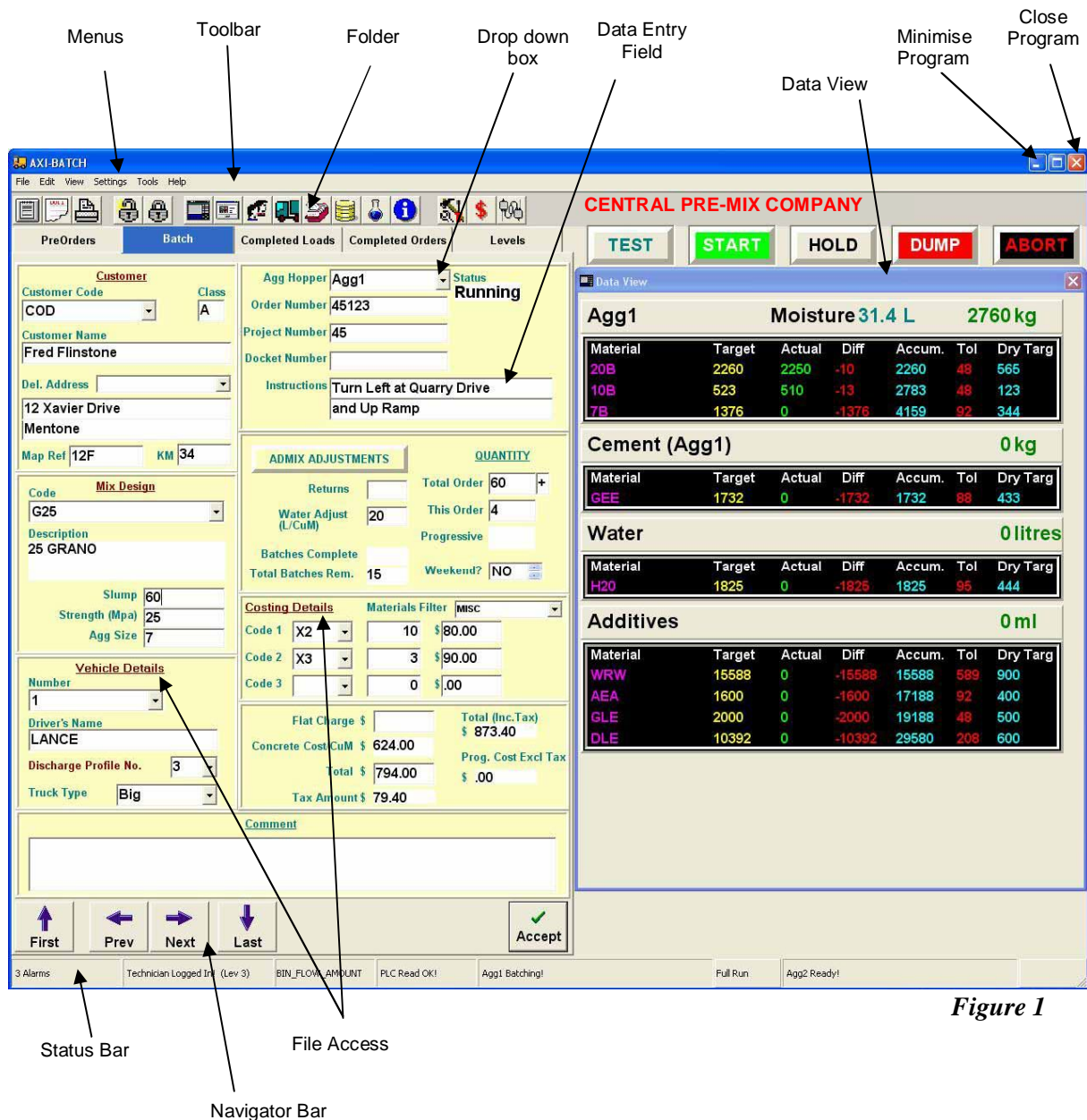
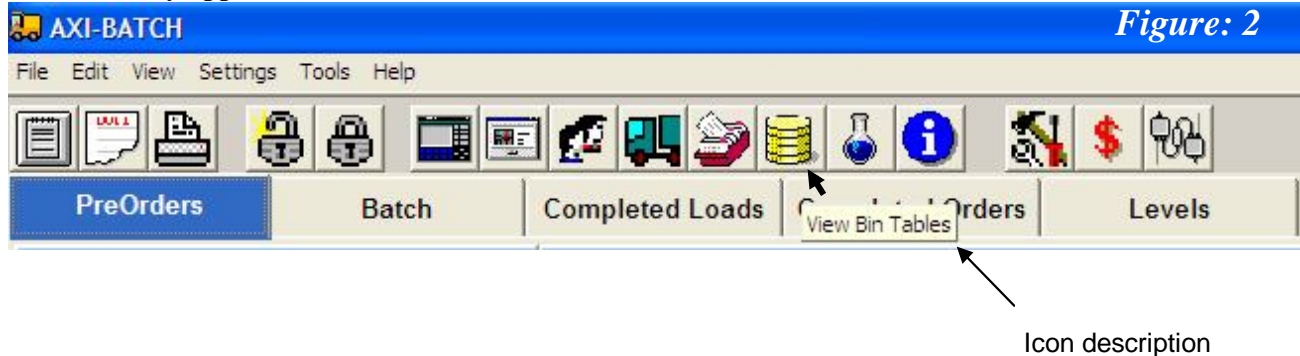


Figure 1

## 1.6 BATCHING SOFTWARE ENVIRONMENT (Cont..)

- ◆ The **Toolbar** is where the major *Icons* are placed; this also offers another option for the user to quickly access the relevant area without the need to enter via the *Menus Bar*. As shown in *Figure 2*, when the mouse is passed over any *Icon* a description or title of the icon automatically appears.



- ◆ There are five main **Folders** on the main screen; each folder is accessed by clicking the mouse while the pointer is over the folder tab. Each folder is colour coded enabling the user to clearly distinguish what function they are performing.
- ◆ **Drop down boxes** are fields that have information requiring selection and has been entered via another file. To access the information click on the mouse when the pointer is over the down arrow on the box. This will open a look-up list that enables the operator to either scroll through the information or commence typing the first characters. As the first few characters are typed the cursor will move to the start of the alphanumeric sequence. Once the information has been located the user can either click using the mouse or typing the *Enter* key.
- ◆ **Data entry fields** are used to enter information that is to be either recorded or used as a comment.
- ◆ The **Batch Data View** table displays the relevant information pertaining to the current batch. The table can be moved, minimised or closed.
- ◆ The **Status Bar** displays information such as; communication between the PLC and the PC, the quantity of current alarms that are registered, who is the user, what side of the plant is batching and or dumping.
- ◆ Direct **File Access** can also be achieved by clicking the mouse when the pointer is over particular text or buttons (these will be addressed in the relevant sections).
- ◆ **Bin Levels** for the cement silos and the additives tank are permanently displayed under the **Batch Data View Table**. If the **Batch Data View Table** expands owing to the amount of materials present in the mix design, the bin levels will be partially or completely hidden, but can be viewed by moving the **Batch Data View Table**.

**Note:** that entry of information in some fields will be either specifically in numeric or alpha characters. If the incorrect character is entered an error message “Error invalid integer” or “floating point value” will be displayed prompting the user to correct the information.

## 1.6 BATCHING SOFTWARE ENVIRONMENT (Cont..)

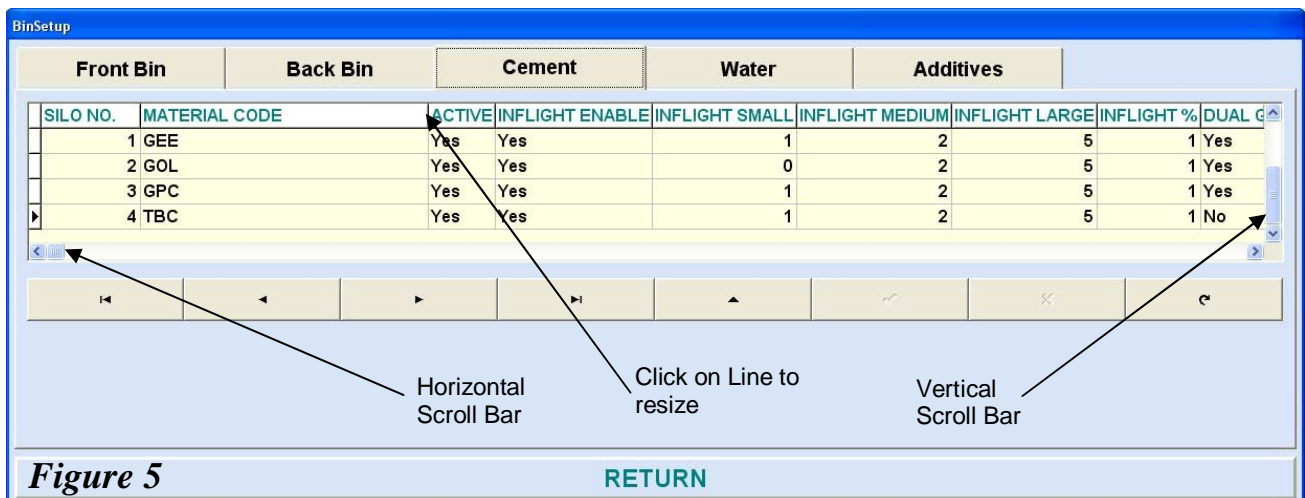
- The adjacent *Navigator Bar* is present on most of the folders and files: note the functionality of each symbol. In edit mode, that is, when a field has been altered, note the buttons that emerge. Once the fields have been ‘Posted’ (saved) the appearance of the buttons will alter.



- Figure 4 shows a typical drop down box. To select an item, click on the arrow and a drop down list will appear. The user can either scroll down the list or commence typing in the first few characters, until the selected item appears.



- Some files are too large to be completely visible on the screen (as shown on Figure 5). Scroll bars are used to move around the file. Click on the vertical or horizontal arrows and view the fields as they scroll. You can also resize the field by clicking on the vertical line of the field header, and whilst holding the left mouse key down and dragging it out to where you want it to be.





## 1.6 BATCHING SOFTWARE ENVIRONMENT (Cont..)

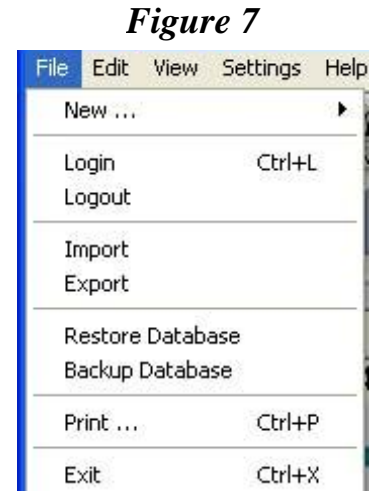
- Under the Axibatch environment entering date parameters is simplified by the use of a pop-up 'calendar' that appears when clicking on a date field. When the date field pops up the default is the current month and day.

Note the top left hand corner of *Figure 6* shows an arrow button that enables the user to go back a month, likewise the top right hand corner allows the user to move forward a month. The blue highlighted ellipse indicates the date selected, whereas the red circled ellipse indicates the current date. Click on the required date to select the entry.



**Figure 6**

- Accessing the *Menu* list of commands can be achieved by clicking on one of the *Titles* in the *Menu Bar* (as shown in *Figure 7*). A drop down menu selection box will appear showing a further selection of *Menu Options*.



**Figure 7**

- Whilst accessing some of the files in the *menus* bar further options are available as shown by the arrow adjacent to the subject group. By highlighting the sub-group further file options are highlighted.



**Figure 8**



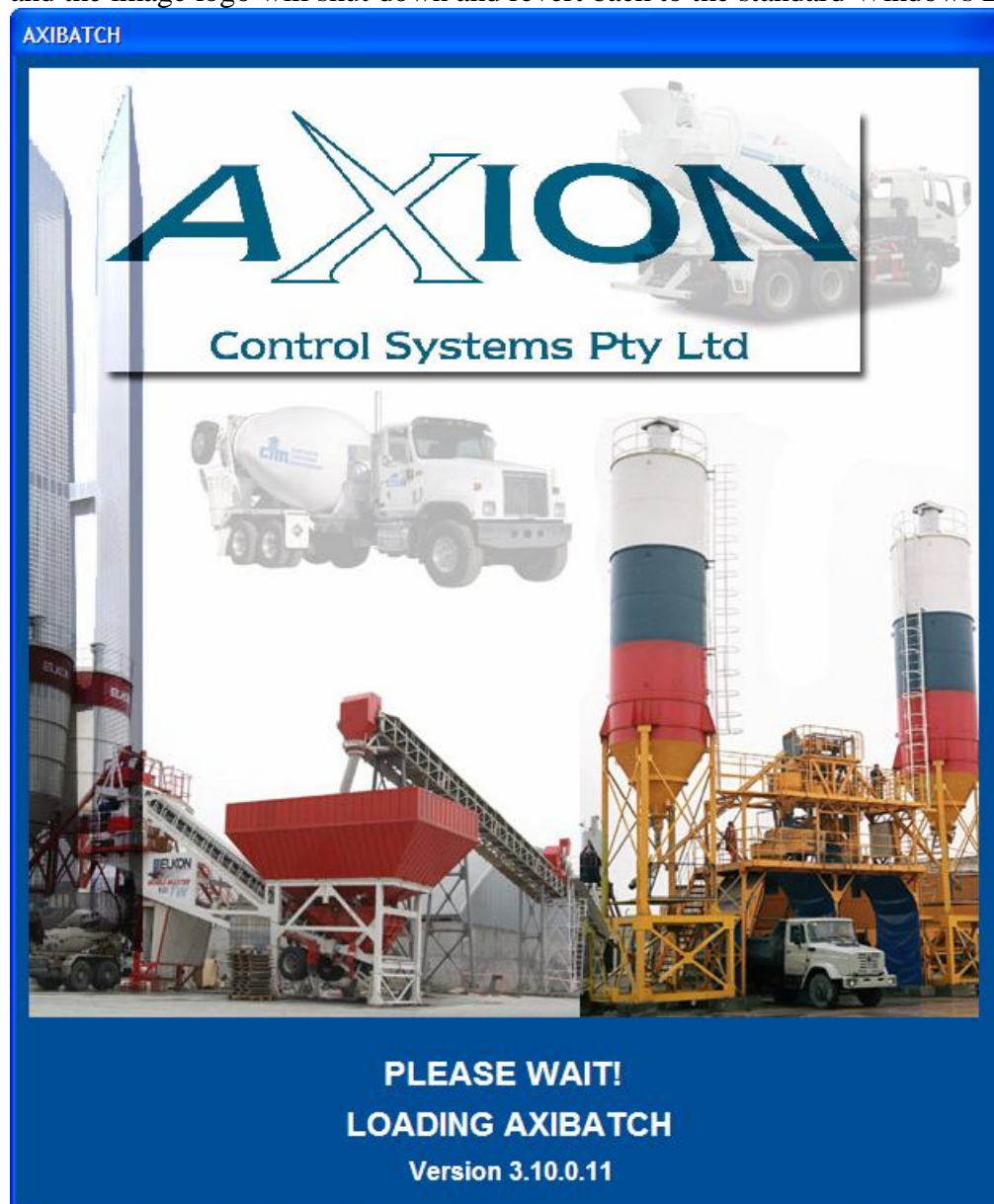
## 1.7 STARTING THE PROGRAM & LOGIN



Launching the batching software system is carried out by using the mouse to double click on the Icon.

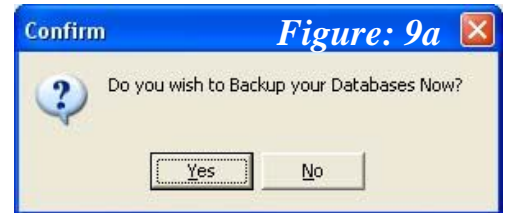
Once the program starts to load on to the screen the splash screen will be displayed. If the Password Before Start option is selected, the Login screen will appear. Ensuring the cursor is present in the **USER** field, type in your user name. Your *USER* name was entered in the *Plant Settings* at the time of installation. Using the mouse, place the cursor in the *PASSWORD* field and type in your password as was entered in the *Plant Setting* at the time of installation. The password is case sensitive and must be entered in the same manner as originally installed.

If the *USER* name and *PASSWORD* are correct, the program will continue to load directly into the main screen. If the *USER* name and or *PASSWORD* are incorrect an error message will be displayed and the image logo will shut down and revert back to the standard Windows Desktop screen.



## 1.8 EXIT THE PROGRAM

To exit the program, click on the *File, Exit* menus command. A confirmation message will appear asking the *User* whether or not the database requires backing up?



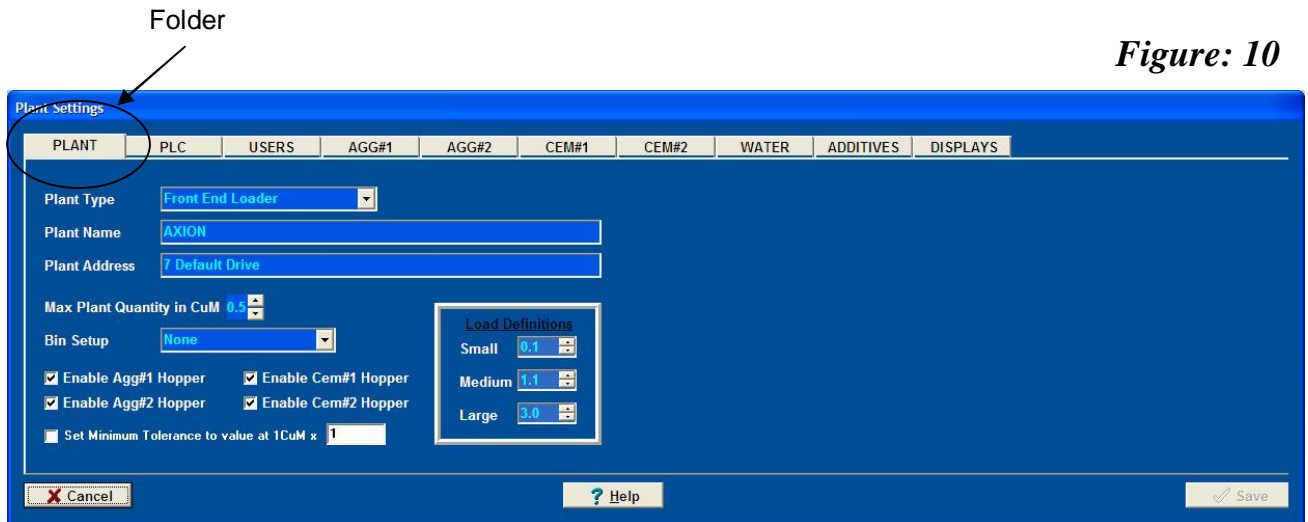
If the *User* clicks 'No' button, the program will continue to shut down. If the *User* clicks the 'Yes' button, the 'Backup Database' screen will appear enabling the *User* to proceed with the backup procedure (Section 18.3).

## CHAPTER 2 PLANT SETTINGS



The *Plant Settings* screen should only be accessed by and Administrator level or higher. Once the initial installation has been completed, the only folder that should be accessed is the *USERS* group, where *Passwords* and *Users* are entered. A description of each facet within the folders will be addressed.

The *Plant Settings* screen can be accessed either through the *Menus*, *Settings*, *Plant* selection or by clicking on the *Plant Setup* icon. Once an entry is made or altered the *Save* button will appear, enabling the user to click on it to keep the alterations made.



**Figure: 10**

### 2.1 PLANT

This folder enables the basic setup features of the plant to be configured.

#### 2.1.1 Plant Type

There are two selections that will determine the physical functionality of the concrete plant;  
*Front End Loader* and  
*Overhead Bins*.

The type of feeding system of the ingredients (materials) for the batches will govern the plant type.

#### 2.1.2 Plant Name

This is an Alpha/Numeric field that will appear on the main screen and reports etc... identifying the company using this system.

### 2.1.3 Plant Address

An Alpha/Numeric field that will appear on printed reports and files stored in the database identifying the location of the plant for the company using the system.

### 2.1.4 Max. Plant Quantity in CuM

The value selected defines the critical limitations of the plant, any batch or order size that is entered and exceeds this value will not be accepted and an error message will be displayed prior to batching. The value is adjusted by clicking on the 'Up & Down' arrows incrementing in 0.1 CuM units.

### 2.1.5 Bin Setup

The Bin Setup mode offers four options for the control of the bin sequence. Typically these are attributable to Overhead Bin plants or in the case of a dual hopper for a front end loader plant. The available Options are as follows;

- Dual Bin Control is selected if two bins with the same material are being used as one bin for a course feed and the other is for dribble feed.
- Auto Cycle is selected to swap bins automatically on an alternate basis (this can be used on a Front End Loader plant if two aggregate hoppers are present,
- Auto Bin Swap is selected to automatically swap to the second bin when the first bin is being used, hence giving the 1<sup>st</sup> aggregate hopper priority. Typically used in an overhead plant.
- None – The operator will usually select the Hopper for each batch.

### 2.1.6 Enable Agg#1 & Agg#2 Hopper

This selection enables the use of one or two aggregate weigh hoppers to be used in the system. The system will utilise two hoppers (if selected) during the sequencing of the batches. To deselect either of the hoppers click in the box and the ✓ symbol will disappear.

### 2.1.7 Enable Cem#1 & Cem#2 Hopper

This selection enables the use of one or two cement weigh hoppers to be used in the system. The system will utilise two hoppers (if selected) during the sequencing of the batches. To deselect either of the hoppers click in the box and the ✓ symbol will disappear. Note that these Hoppers can be used as bins, details later.

### 2.1.8 Set Minimum Tolerance Factor

This is the minimum factor for each material's tolerance in the mix design. Hence this factor is multiplied by the per cubic meter tolerance of the material in question to give you a new minimum tolerance in your recipe mix.

### 2.1.9 Load Definitions

The *Load Definitions* will set the range attributable to bowl size of the vehicle. It will impact on the accounting structure regarding cartage and penalty fees and the In-flights.

They are divided into three (3) different ranges, Small, Medium and Large (hence 3 different field entries). Depending on the load the Inflight and Accounting data will have an impact dependant on the range the load falls into.

The “*Small*” range is governed by the Load value falling between the 1<sup>st</sup> and 2<sup>nd</sup> field’s value.

The “*Medium*” range is governed by the Load value falling between the 2<sup>nd</sup> and 3<sup>rd</sup> fields.

The “*Large*” range is governed by the Load value being greater than the 3<sup>rd</sup> field.

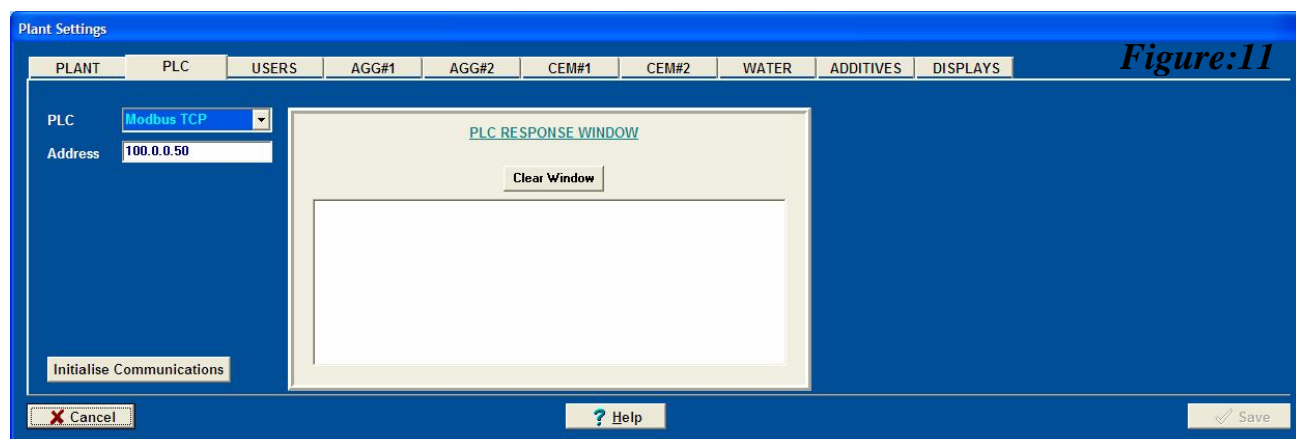
For example;

Using the values shown in *Figure 10*, if the batch size is registered as 2.3 CuM it will be deemed as a medium ( $1.3 = 2.3 < 3.0$ ). If the batch is recorded as 1.2 CuM then the load will deemed as small ( $0.1 = 1.2 < 1.3$ ). Similarly if the load is recorded as 4.0 CuM then the load will deemed as large ( $3.0 < 4.0$ ).

Consequently the mathematical relationship is as follows: Small < Medium < Large.

## 2.2 PLC

This folder represents the control system parameters that are established during the installation process. It must be re-emphasised that under no circumstances must any unqualified personal alter the recorded settings; only experienced AXION CONTROL SYSTEMS staff may alter any of these settings. The relative configuration will determine the performance of the plant relative to the model or series of PLC that is present.



Currently there are three PLC selections available; No PLC connected, Hitachi & Schneider M340. The remaining sections such as; Com Port (1 to 4), Baud Rate (300 to 56,200), Data Bits (7 or 8), Parity (Even, Odd or None) and Stop Bits (1 or 2) are set according to the PLC present.

The PLC RESPONSE WINDOW displays the information transferring to and from the PLC to the PC.

## 2.3 USERS

The *USERS* folder allows the relevant plant personnel to enter their perspective name and associated passwords. When the operators *Login*, depending on the *User* level, the operator will gain access to the various sections of the batching system as specified.

There are three User levels: Operator, Administrator & Technician.

- |                          |  |
|--------------------------|--|
| Operator Level (1):      | The Operator will gain access to the fundamentals of the batching system such as inserting and editing orders, batching and Materials added. |
| Administrator Level (2): | The respective user will gain access to most the levels of the batching system with the exception of some of the Plant Setup features.       |
| Technician Level (3):    | This level is reserved to <b>AXION CONTROL SYSTEMS personnel</b> only and gains access to all areas within the system.                       |

When entering either the User's name and or Password the information entered will be case sensitive, hence if capital letters are used they must be repeated in the same manner as they were initially entered.

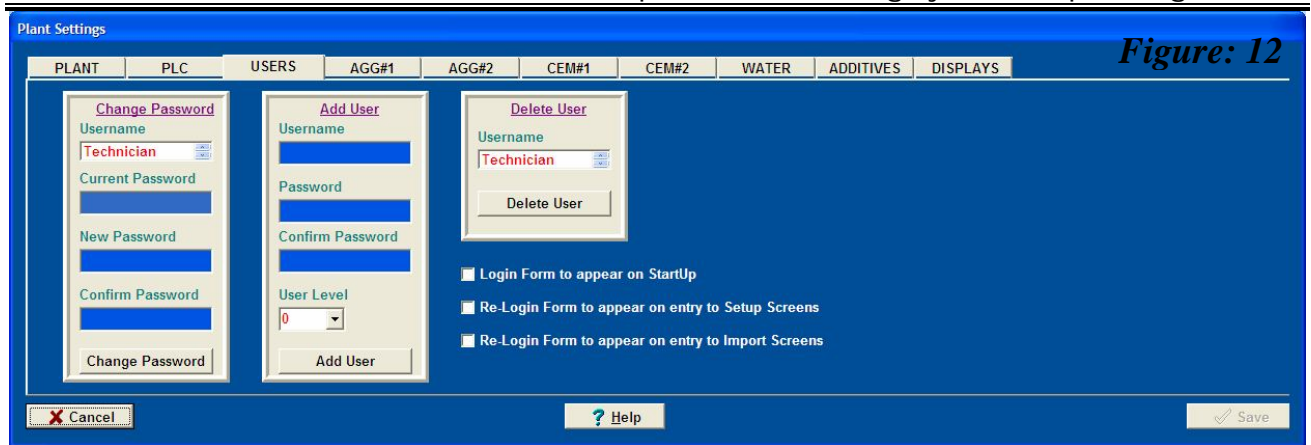


Figure: 12

### 2.3.1 Add User

To enter a *User*; type in the name of the individual in the field box exactly as required. Below this field box the *User* must type in the *Password* field, and repeated in the *Confirm Password* field. If the Confirm Password is not the same as when first entered, an error message will appear stating inconsistency and requesting the *User* to re-confirm the password entered. The *User Level* 1 for Operator or 2 for Administrator is selected. Once completed the *Add User* button is clicked.

### 2.3.2 Change Password

To avoid the risk of a particular Operator's or Administrator's password becoming accessible or familiarised with other staff it is recommended to periodically change the user's password. To change a user's password select the name by clicking on the *Username* drop down box. In the *Current Password* field enter the *User's* existing password. In the *New Password* field the *User* must enter their new password keeping in mind that the characters are case sensitive. The new password must be confirmed in the field box below (*Confirm Password*) and click on the *Change Password* button and if the two entries match, the new password will be accepted. If the two entries do not match the error message "*New Password does not match Confirm Password*" will be displayed and the new passwords must be re-typed.

### 2.3.3 Delete User

To delete a user select the name by clicking on the *Username* drop down box. Once the selected *User* is displayed click the "*Delete User*" button and the displayed *User* will be removed from the system.

### 2.3.4 Login Form Boxes

The three selection boxes are criteria that determine when a user must login to access specific areas of the system. To activate each box place a ✓ (tick) in the box to initiate the setting. Once the relevant boxes are selected click on the *Save* button to maintain the settings.

(a) *Login Form to appear on StartUp:*

If selected, the 'Login' field will be displayed when the batching software is launched. Unless the correct Username and Password are entered the program will not proceed to the main screen and





consequently shutdown. If not selected the program will proceed to the main screen and the Login must be initiated via the Login icon.

(b) *Re-Login Form to appear on entry to Setup Screens*

This criterion will determine whether the (Plant) *Setup Screens* are automatically accessible after a login has taken place or whether entry into the *Setup Screens* is accessible by a *Login* field.

If no tick is placed in the box then the *Setup Screen* is accessible without re-logging in. However, if a tick is placed in the box then the *Login* screen will appear requiring the *User* to enter their name and Password. Note that an Administrator (Level 2) or higher is given access to the critical setup features in the folder.

(c) *Re-Login Form to appear on entry to Import Screens*

As per section (c) if the box is ticked then a *Login* field will appear providing the user the ability to enter their User name and Password; once accepted the User (Administrator, Level 2 or higher) is given access to the *Import* functions. If the box is left unchecked (un-ticked), access is automatically granted after initial *Login* takes place at start up.

## 2.4 AGG#1 & AGG#2

These folders provide the fields to set the physical parameters for the aggregate weigh hoppers. Although the individual features for each of Agg#1 and Agg#2 folders are identical, any unique differences for each of the hoppers can be addressed accordingly in the separate folders. However the proceeding discussions will group the descriptions as one. As with any insertion or change in any of the fields the “*Save*” button must be clicked.

Figure: 13

### 2.4.1 Aggregate #1 (or Aggregate#2) Name

This field enables the *User* to place description of the particular hopper that will appear in the batch system screens. The *Aggregate #1* field is a description that the *User* commonly refers to for that weigh hopper, particularly when two hoppers are in place.

For example: *Aggregate#1 Name* may be referred to as “Front Bin” and *Aggregate#2* as “Back (or Rear) Bin”.



### 2.4.2 Hopper Gates

The setup features offer the *User* a choice of two settings depending on the configuration of the aggregate discharge gate(s) assembly. Often this is governed by the type of gate(s) installed on the weigh hopper(s). The options are either “*1 Gate*” or “*Dual Gate*”. To select the appropriate type, click on the up or down arrow buttons.

### 2.4.3 Gate Control

Each gate assembly will vary from hopper to hopper, likewise the positions that each gate will open to. Some hoppers will not have intermediate positions whereas some will. This field provides a choice of three positions; “*1 Position*”, “*2 Positions*”, “*3 Positions*” and “*Time Based Control*”. Select the appropriate position that is applicable to the aggregate weigh hopper(s).

When selected time based control then all items in the flow parameter panel must be entered.

### 2.4.4 Scale Factor

The scale factor refers to the multiplier effect attributable to the indicator. Two settings are available; “*1*” & “*10*”, that are selectable by clicking on the up or down arrow buttons. Typically if the hopper weight is greater than 32000 kg, a scale factor of 10 should be used.

### 2.4.5 Hopper Capacity (kg)

The value entered into this field ascertains the absolute limit that the hopper is capable of carrying, if a batch order size is entered whereby the aggregate amount exceeds the value entered, a warning message will be displayed disallowing the user to proceed with the batch. The value is always stored in kilograms; it is set or adjusted by clicking on the up and down arrow buttons.

### 2.4.6 Settling Time (sec)

The “*Settling Time*” is the time allowed for the weigh hopper to stabilise during a batch or discharge, before the PLC decides on what action to take next if Underweight, Overweight or Weight being valid and as such will capture the data. The time is always stored in seconds and is adjusted by clicking on the up and down arrow buttons.

### 2.4.7 Zero Band

The Zero Band (in kg) is the maximum deviation from zero that allows the batch to start. (I.e. if the starting weight is out of the Zero Band Range +/- then batch will not be allowed to start displaying an alarm). In practical terms the scale will infrequently show or reach true zero (0) as there will always be a residual amount of material remaining. Hence an acceptable value is to be selected into the field.

### 2.4.8 Empty Band

This value is used to shut the Aggregate Hopper Gate when almost at the end of discharge cycle. Hence if the Empty Band is set to 5kg, then the Aggregate Hopper gate(s) will close when the weight falls below the Empty Band.

## **Alarm Flow Checks**

### **2.4.9 Initial (sec)**

The PLC output signal is sent to the aggregate weigh hopper solenoid to commence discharging, and as such there is always a delay before any material actually starts to discharge as seen on the weight indicator. The value (in seconds) entered in this field denotes a waiting time to the control system, once this time has elapsed and no weight movement occurs then an alarm message is displayed – “Agg1 (or Agg2) Hopper Empty Alarm”.

### **2.4.10 Flow (sec)**

The following three fields allows the system to monitor material flow once it has commenced. If the flow rate is below the setpoint (Amount/Flow for long than Feedback Time) the alarm message will be displayed to the operator – “Agg1 (or Agg2) Flow Alarm”.

Flow is time period.

### **2.4.10 Amount (kg)**

With this field and the Flow field this will provide the minimum flow rate.

### **2.4.10 Feedback Time (sec)**

This field is time elapsed before the alarm is displayed.

## **Discharge Conveyor**

### **2.4.13 Enable Disch. Conveyor**

The function is selected checked by clicking in the box to initiate the use of a discharge conveyor where fitted to the plant. Once the box is checked then subsequent fields are available. Obviously if no discharge conveyor is present owing to the configuration of the plant the box must remain blank.

### **2.4.14 Delay Off Time (sec)**

The value entered (in seconds) is the amount of time that the conveyor continues to run after once the off signal has been received.

### **2.4.15 Gate Delay On Time (sec)**

The ‘Gate Delay On Time’ is the amount of time (in seconds) that the conveyor has to run before the discharge gate(s) are switched on. This allows for water to run off, and for the conveyors to reach their operating speed before being loaded.

### **2.4.16 Enable Conveyor Sensor**

This feature is optional and it’s enabled to check if the conveyer belt is moving. If the conveyer belt is not moving then the “Agg#1 Conveyor Fault” Alarm 46 will be generated.

---

**Flow Control Parameters (kg/Sec)**

---

**2.4.17 Small Flow Rate Setpoint**

It's the setpoint for the small load (truck). Whenever the flow rate is below the difference between this setpoint and the deadband, the gate will open for a period of time based on Pulse Time setting below. Whenever the flow rate is above this setpoint and the deadband, the gate will close for a period of time based on Pulse Time setting below.

**2.4.18 Med Flow Rate Setpoint**

It's the setpoint for the medium load. Whenever the flow rate is below the difference between this setpoint and deadband, the gate will open for a period of time based on Pulse Time setting below.

**2.4.19 Large Flow Rate Setpoint**

It's the setpoint for the large load. Whenever the flow rate is below the difference between this setpoint and deadband, the gate will open for a period of time based on Pulse Time setting below.

**2.4.20 Check Time (Sec)**

The flow rate is compared to the setpoint every Check Time period.

**2.4.21 Pulse Time (mSec)**

The length of time the gate is open or closed.

**2.4.22 Initial Pulse Time (mSec)**

The length of time the gate is open initially.

***Vibrator Settings*****2.4.23 when Scale is less than X turn on Vibrator**

When the Aggregate hopper is discharging and the weight is below what is indicated in this field the Vibrator will turn on until discharging of the aggregate is finished.

**2.4.23 when Flow is less than X % of setpoint for Y seconds turn on vibrator**

When the Aggregate hopper is discharging and the flow rate is less than X% of the setpoint for Y time the vibrator will turn on until discharging of the aggregate is finished.

***Remote Display Settings*****2.4.24 Remote Display**

The Stop/Start function for the remote display(s) (where fitted) enables the user to insert a time (in sec) that displays the messages "Stop" & "Start" on the remote displays. The messages will be

remain on the display based on the time value inserted. During the message display the weight will not be seen. These are used on the mechanical displays that operate of the old Hitachi PLC's.

## 2.5 CEMENT

This folder provides the fields to set the physical features required for the control of the Cement weigh hopper. The same method is used to insert and edit the entries that are common with the previous folders.

### 2.5.1 Gate Control

Each gate assembly will vary from hopper to hopper, likewise the positions that each gate will open to. Some hoppers will not have intermediate positions whereas some will. This field provides a choice of two positions; “1 Position”, “2 Positions” and “Time Based Control” as well as “Direct Output Control”. Select the appropriate position that is applicable to the cement weigh hopper(s).

### 2.5.2 Use Hopper as Bin

This box is checked if the Cement Hopper (scales) is also a Silo (Storage Bin). You can have up to 2 Cement Hoppers as Bins. You will still need to enable and provide the material name in the Silo #1 and/or Silo #2 setup in Bin Setup, however the jog and flow control is set in the plant settings. The levels will be taken directly from the scales.

The screenshot shows the 'Plant Settings' window with the 'CEM#1' tab selected. The window is divided into several sections:

- General Settings:**
  - Cement Hopper Name:
  - Hopper Gates:
  - Gate Control:
  - Scale Factor:
  - Hopper Capacity (kg):
  - Settling Time (sec):
  - Zero Band (kg):
  - Empty Band (kg):
- Use Hopper as Bin:**
  - ☒ Use Hopper as Bin
  - Start Cement Batching when Aggregate Hopper is  % Full.
  - ☒ Hold Batching Cement until 1st Agg Batched
  - Gate Delay On Time (Sec)
- Vibrator Settings:**
  - ☐ When Scale is <  turn on Vibrator
  - ☐ When Flow is < than  % of Setpoint for  secs turn on Vibrator.
- Alarm Flow Checks:**
  - Initial (sec)
  - Flow (sec)
  - Amount (kg)
  - FeedBack Time (Sec)
- Discharge Conveyor:**
  - ☒ Enable Disch. Conveyor
  - Delay Off Time (Sec)
- Flow Control Parameters (Kg/Sec):**
  - Small Flow Rate SP
  - Medium Flow Rate SP
  - Large Flow Rate SP
  - Flow Rate Deadband
  - Check Time (Sec)
  - Pulse Time (mSec)
  - Initial Pulse Time (mSec)

At the bottom, there are buttons for 'Cancel', 'Help', and 'Save'.

Figure: 14

### 2.5.3 Start Cement Batching when Aggregate Hopper is X % Full

Often some plants prefer to commence the weighing (batching) of *Cement* when the *Aggregates* are simultaneously being weighed. The fluid characteristics of the *Cement* will sometimes cause the material to ‘hang’ when discharging, hence the amount of time for the *Cement* to sit in the vessel should be minimised but not to the point of delaying the batching cycle. This feature allows for the *Cement* to commence weighing based on the percentage of the *Aggregate* weighed, enabling the process to be optimised.

For example if the value of 40 (%) entered in the field then the *Cement* will automatically commence weighing when the *Aggregate* has 40% (by weight) of its material in the hopper. If the *Cement* is to commence its batching when all the *Aggregates* are in the hopper then a value of 100 is entered into

the field. Similarly if the *Cement* is to commence weighing when the *Aggregate* hopper starts to batch then a value of zero (0) is entered into the field. Note that this has no relevance if the Hopper is used also as a Bin.

#### 2.5.4 Hold Batching Cement

If more than one aggregate hopper is used in the plant there is often a requirement depending on the procedures and practices of the installation to hold the batching of *Cement* until the first aggregate in the first hopper has been weighed. To enable this feature, click on the box and a tick ✓ will be inserted denoting that the feature is enabled. Note that this has no relevance if the Hopper is used also as a Bin.

## 2.6 WATER

The main variable that requires consideration in this folder is the device that controls the *Water* addition.

### 2.6.1 Water Type

Generally there are two type *Water* addition systems; *Flow Meters* that measure litres, or *Hoppers* that weigh the amount of water added (in kilograms). In terms of material added both litres and kg are taken as unity, however the device will reflect the correct communication protocol to the PLC.

In the field box *Water Type* click on the drop down arrow and select the appropriate device for the plant.

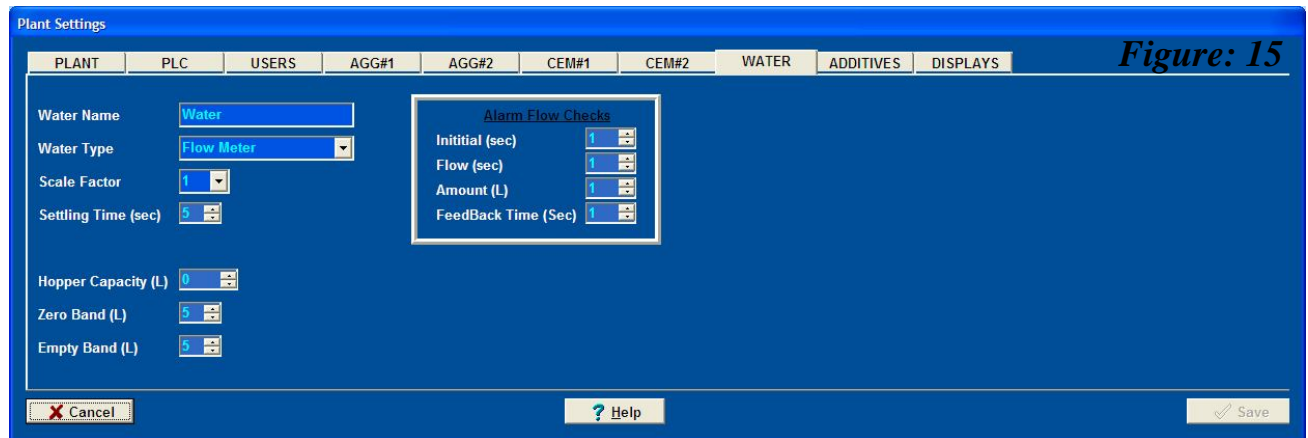


Figure: 15

Note Zero Band and Empty Band are only used if “Hopper” is selected as the water type.

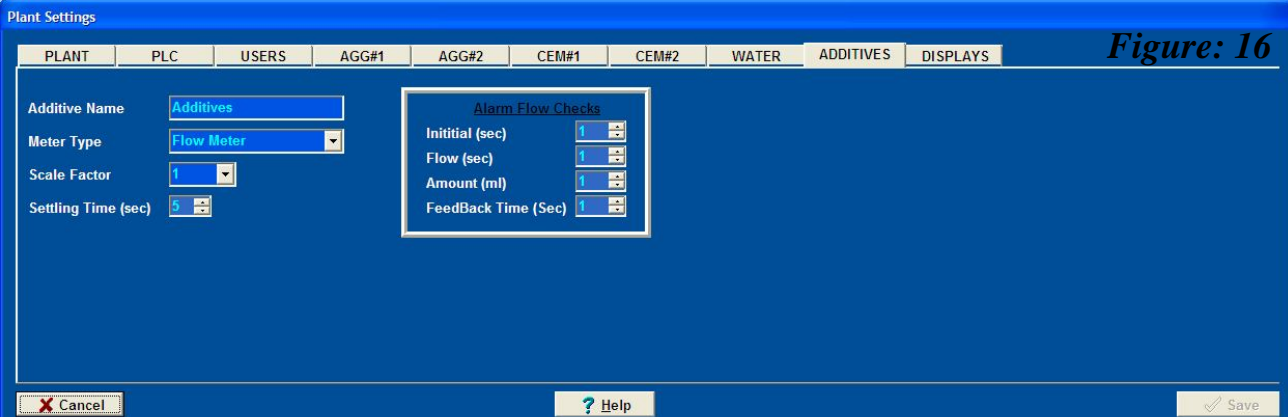
## 2.7 ADDITIVES

### 2.7.1 Meter Type

Virtually all the devices that are used in concrete plants for the additives are *Flow Meters*; hence this program does not offer a choice. However, if an alternative device is used for the fluids we would consider including the unit into the program.

### 2.7.2 Scale Factor

The *Scale Factor* for most applications is 0.01. This denotes the multiplier between the pulse signals from the flow meter to the amount of fluid (additive) batched.



Plant Settings

PLANT PLC USERS AGG#1 AGG#2 CEM#1 CEM#2 WATER ADDITIVES DISPLAYS

Additive Name: Additives

Meter Type: Flow Meter

Scale Factor: 1

Settling Time (sec): 5

Alarm Flow Checks

Initial (sec): 1

Flow (sec): 1

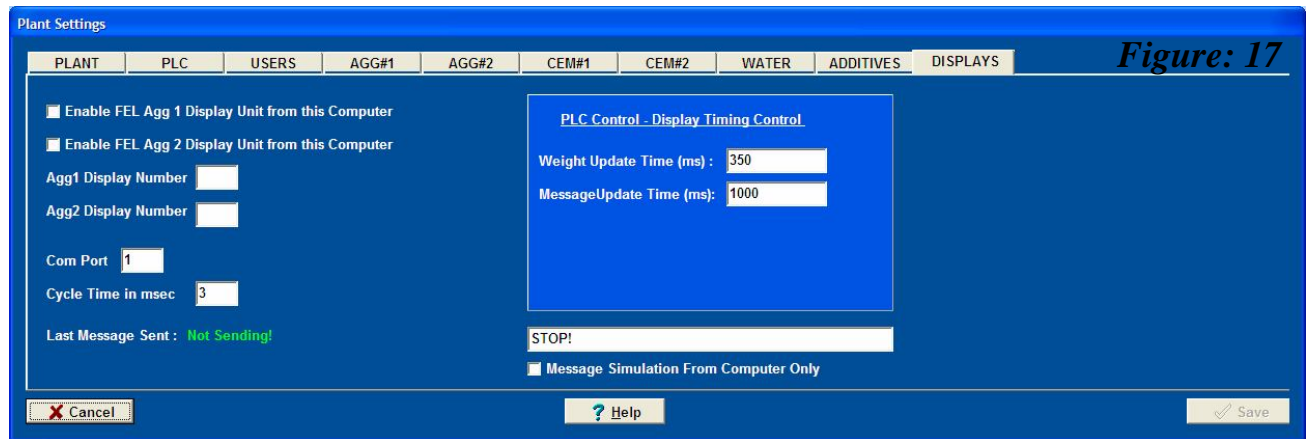
Amount (ml): 1

FeedBack Time (Sec): 1

Cancel Help Save

Figure: 16

## 2.8 DISPLAYS



### 2.8.1 Enable FEL Agg 1/Agg 2 Display Unit from this Computer

Check this box to enable the AxiBatch Computer software to control the Remote LED Displays directly.

### 2.8.2 Agg1/Agg2 Display Number

To set LED display number 1 to show Agg1's message, insert 01 in "Agg1 Display Number". Similarly, to set LED display number 2 to show Agg2's message, insert 02 in "Agg1 Display Number".

### 2.8.3 Com Port

The com port on the computer where the LED display cable is connected to.

### 2.8.4 Cycle Time (mSec)

The time required to update next weight from computer. Typically 200 – 400ms.

### 2.8.5 Weight Update Time (mSec)

The time required to update next weight from PLC.

### 2.8.6 Message Update Time (mSec)

The time required to update next message from PLC.

### 2.8.7 Message Simulation From Computer Only

Check this box to enable the message typed in the input field to be displayed on the LED Display directly.



## CHAPTER 3 ACCOUNTING SETUP



The *Accounting Setup* is accessible by either the *Administrator* or *Technician* level entry. All the docketing, cartage fess, penalty fees and cost codes are formatted in this folder. To select this screen click the *Settings* address on the *Menus* bar followed by the *Accounting* address. Alternatively click the *Accounting* icon on the *Toolbar*.

**Accounting Setup!**

**GENERAL** | CLASSES | AUTO DOCKETING | PENALTY FEI

**Docket Number**

Prefix: AX

Start Number: 1

SET DOCKET NUMBER

Current Docket Number: AX1

☐ Enable Accounting

☒ Enable Auto PreOrder Deleting

☒ Enable Cartage Fees to be Calculated

☒ Enable Extra Cartage Fees to be Calculated

Tax Component (%) 10.0

SAVE

CANCEL

**Figure: 18**

### 3.1 GENERAL

This folder establishes the basic setup modes for the docketing system as well as what will be viewed on the screen.

#### 3.1.1 Docket Number

Each administration section of the plant will require a prefix to be shown on the docketing that is forwarded to the client or driver.

(a) *Prefix*

In the *Prefix* field a maximum of five (5) characters can be inserted that will appear on each docket preceding the numerical format for each sequential docket produced. This is optional and the field can be left blank.

(b) *Start Number*

As each plant will generally have an existing system in place, this system enables the *User* to continue on from the last docket produced by inserting the particular number that will take over for the next docket. For example, if the number '41' is inserted the next delivery docket printed will

show number '42'. Once the number has been inserted the "*Set Docket Number*" button is clicked and the number set is displayed in the field (*Current Docket Number*) below.

(c) *Enable Accounting*

To enable the Accounting feature, click in the box to show that a tick ✓ has been inserted. This will show the relative accounting calculation to be viewed both on the Pre-Order and Batch screens. If the information is deemed to be sensitive and the plant manager does not want the information to be viewed then ensure the box is left blank (unchecked). The calculations will still remain in the background for invoicing purposes.

(d) *Enable Auto Pre-Order Deleting*

As a *Pre-Order* is generated the information will remain on the system, even when the order is complete. This feature allows the system to automatically delete the *Pre-Order* Record from the *Pre-Order* Screen once the Batch record is created for it. To enable the feature click the box and a tick will appear. In some installations specific Pre-Orders are re-used by the *User* with customers whose information is virtually identical and would require the Pre-order to remain on the system, hence the box should remain unchecked.

(e) *Enable Cartage Fees to be calculated*

This field, if enabled, will carry out cartage fee calculations as set out in the "Cartage Fee" folder. To enable the calculation to take place ensure a tick is present in the box.

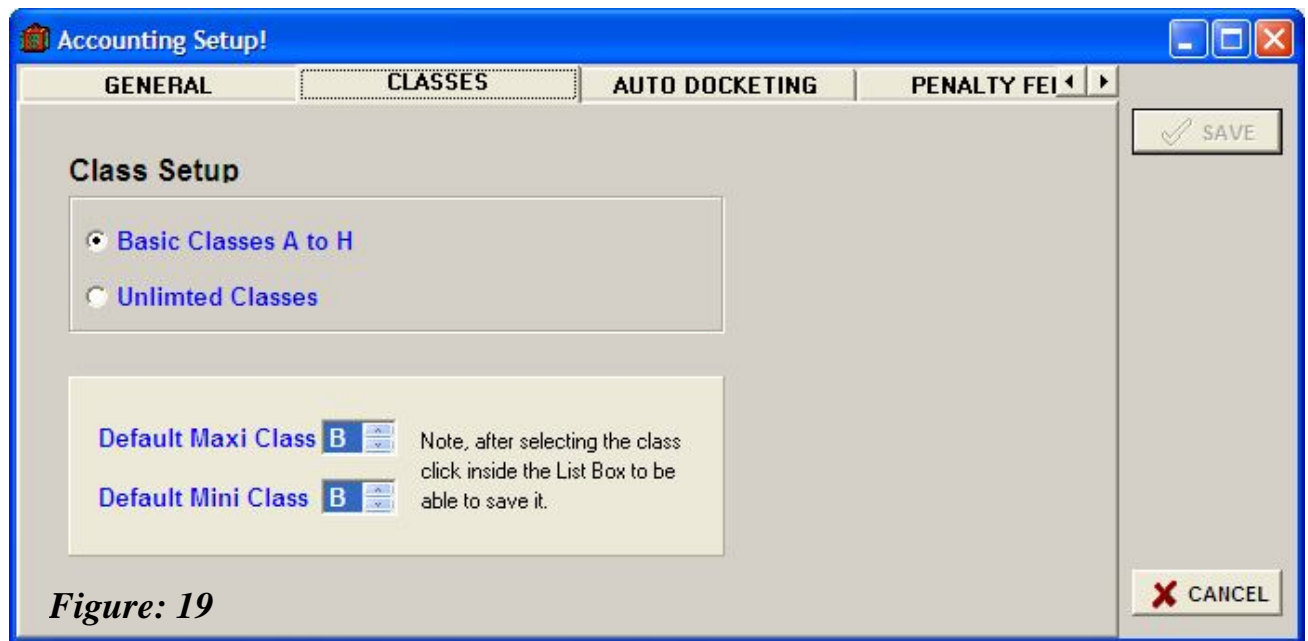
(f) *Enable Penalty Fees to be calculated*

This field, if enabled, will carry out penalty type fee calculations as set out in the "Penalty Fees" folder. To enable the calculation to take place ensure a tick is present in the box.

(g) *Tax Component (%)*

A *Tax Component* figure is available for the user to specify and apply where applicable. If the costing details are entered into their relative fields net of any *Tax Component* then the field should have a value inserted. In Australia, this field is generally referred to as the GST (Goods & Services Tax) with a value of 10%. Hence the value of '10.00' is typed into the box.

## 3.2 CLASSES

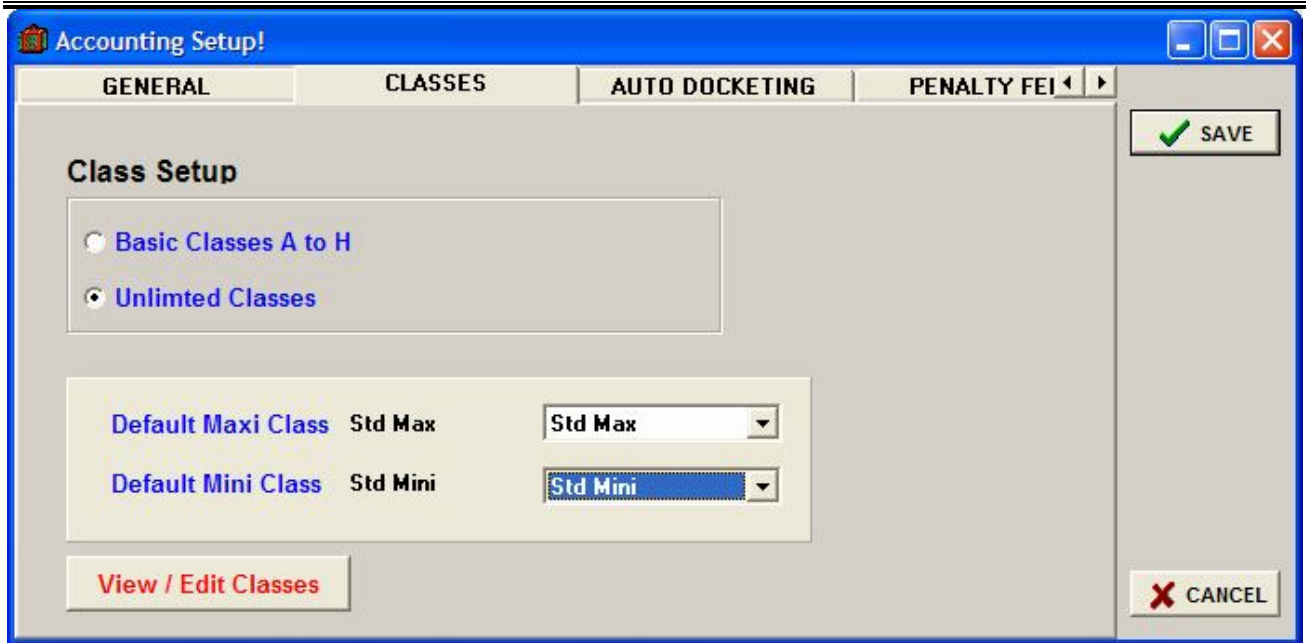


### 3.2.1 Basic Classes A to H

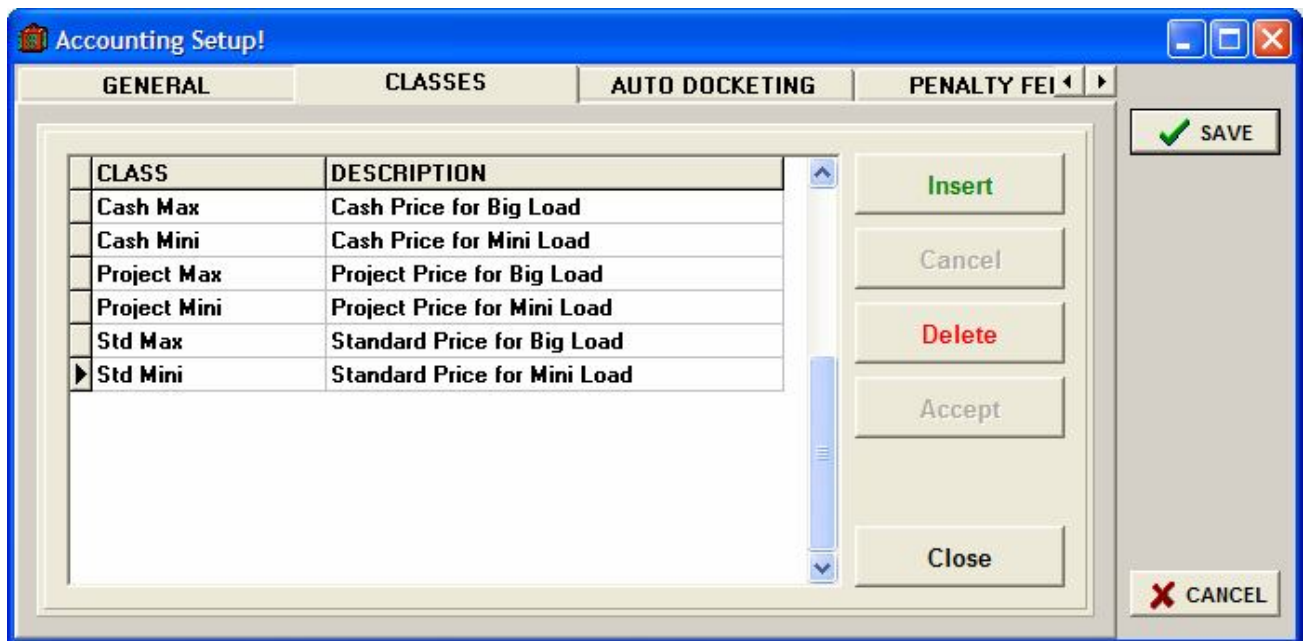
These two features are linked to the *Customer* and *Mix Design* files whereby any pricing strategy attributable to the general table of *Customers* is applied. Therefore the *User (Administrator)* can set the default category (A to H) for each customer in the file in both the Maxi and Mini class unless otherwise overwritten in the *Customer* file. Note that this is an older version technique.

### 3.2.2 Unlimited Classes

Unlimited Classes enable users to define any classes they want. Typically this will be chosen to create an unlimited class structure.



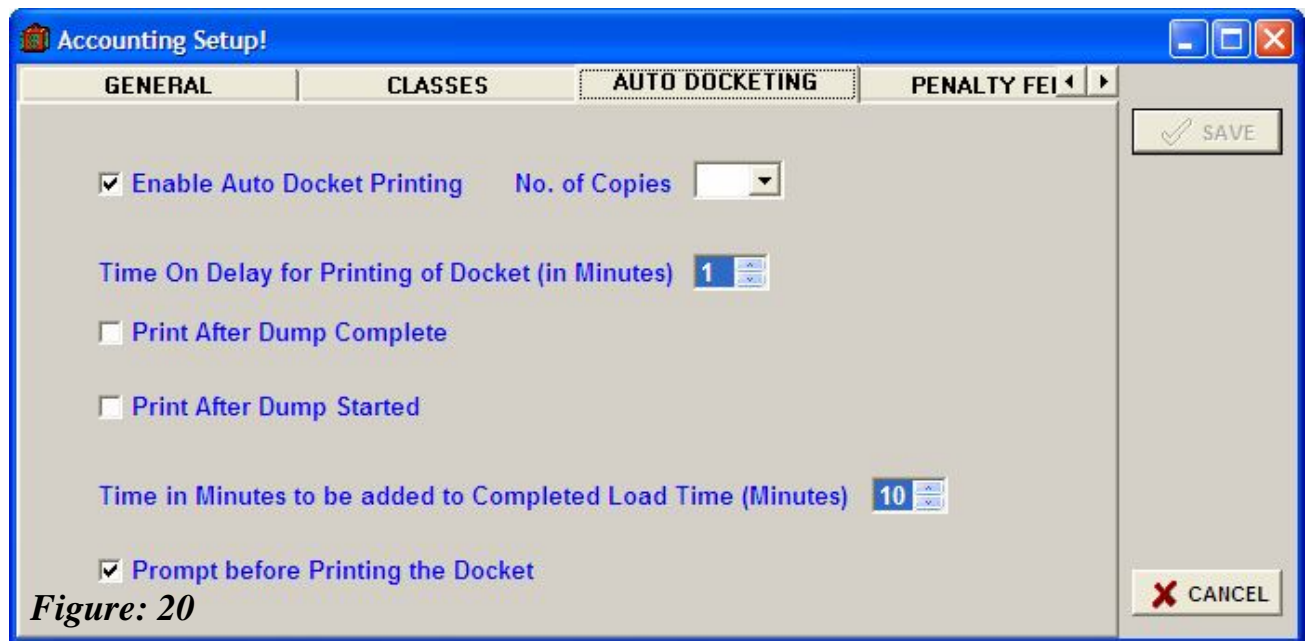
Unlimited batch classes can be set up through View/Edit Classes button under unlimited classes' category. Click "Insert" button to enter new class and accept.



#### (h) Default (Maxi and Mini) Class

This is where the default classes are set. If a customer does not have a class these default classes are used.

### 3.3 AUTO DOCKETING



**Figure: 20**

The AUTO DOCKETING folder sets the parameters for the printing of dockets based on the operating circumstances of the plant. The information required to be inserted onto the delivery docket is logged onto the system after discharging is completed.

(a) *Enable Auto Docket Printing*

Enabling of the *Auto Docket Printing* mode will automatically print the delivery docket after each batch. If the *User* does not require a delivery docket whereby the information is stored then the box should remain unchecked. Maximum number of five copies can be selected from the drop down list.

(b) *Time on Delay for Printing of Dockets*

Some concrete installations require a time delay (in minutes) from when the information is available to when the docket is physically printed. This can be adjusted by inserting the required value by clicking on the up and down arrow buttons.

(c) *Print After Dump Complete/Started*

If the Docket is required to be printed after the Dump is started, then check the box.  
If the Docket is required to be printed after the Dump is completed, then check the box.

(d) *Time added to the Completed Load*

Critical timing constraints are often placed on concrete plants and their delivery schedule is often marred by the delay of vehicles leaving the premises. This feature enables the *User* to supplement a time lag to be printed on the docket reflecting a realistic departure time that compensates for the

vehicles leaving the premises. The value is recorded in minutes and selected by clicking on the up and down arrow buttons.

(e) *Prompt before Printing the Docket*

Simply, the feature once checked in the box, will prompt the *User* every time the delivery docket is to be printed. The *User* has the choice whether or not the docket is to be printed.

### 3.4 PENALTY FEES

The Penalty Fees are a charge that is placed on the order of the concrete mix on a CuM basis related to the bowl size of the vehicle.

The definitions as used in the program are as follows;

*Rate* – is multiplied by a figure (CuM) to yield a result that is then added to the load price, and

*Fee* – is used to add to the total price regardless of the magnitude.

For Example if a *Maxi* (large) load default is inserted as “3.0” (CuM) and an order is placed for 2.8 CuM load requiring a large vehicle (short fall is 0.2 CuM), a charge of \$25.00 is added to the load based on a *Fee* selection.

If a *Rate* were selected then the Penalty Fee would be calculated as 0.2 CuM (short fall) x \$25.00 = \$5.00, and this would be added to the load price.

The table allows for separate costing arrangements to be inserted for *Weekend* penalties if they differ to the *Weekday* penalties. Otherwise if the penalty rates are the same for the *Weekend* as for the *Weekday* the same values must be inserted.

	Short Load CuM	Charge \$CuM	Fee/Rate
Week Day - Maxi Truck	1.0	1.0	Fee
Week Day - Mini Truck	1.0	1.0	Fee
Week End - Maxi Truck	1.0	1.0	Fee
Week End - Mini Truck	1.0	1.0	Fee

Figure: 21



### 3.5 CARTAGE FEES

The *Cartage Fees* added to the price are independent of the concrete prices. The Fees & Rates are solely based on the minimum threshold for a vehicle to travel a certain distance with a particular size load onboard.

#### Table of Definitions;

- Min CuM* – This value is the minimum amount that the vehicle will carry before a penalty is applied,  
*Min Km* – This value denotes the maximum travelling distance of the vehicle to its destination before a penalty is applied,  
*\$ per Xs km* - The amount used for every km above the maximum threshold for the vehicle,  
*Rate/Fee* - The selection will determine whether the amount is added or multiplied.

#### Example No.1

Based on the settings shown in the image, if a vehicle is taking a delivery of concrete to a location that is 8 km away, the load is 3.5 CuM then regardless of *Fee* or *Rate* selection no *Cartage Penalty* will apply.

#### Example No.2

If the vehicle is large (*Maxi*) carrying 2.5 CuM to a location 12 km away and the *Cartage* selection is set to *Rate*, then the following applies;

The 2.5 CuM is below the minimum but 2 km (above the threshold) x \$1.00 = \$2.00

If the vehicle is carrying a 4.5 CuM load the Cartage penalty is still \$2.00.

If *Fee* were selected then the \$1.00 is added as a *Cartage* fee.

	Min CuM	Min Km	\$ per excess Km	Cartage Fee/Rate
Week Day - Maxi Truck	1.0	1.0	1.0	Rate
Week Day - Mini Truck	1.0	1.0	1.0	Rate
Week End - Maxi Truck	1.0	1.0	1.0	Rate
Week End - Mini Truck	1.0	1.0	1.0	Rate

☐ Calculation is based on a per CuM Load

Figure: 22



### 3.6 TRUCK REP (REPORT) COSTS

This folder is designed for internal use to monitor the ongoing performance of the vehicle.

The mathematical relationship is as follows;

*Maxi*: Loads  $\geq 3.0$  CuM (as defined)

Charge = (Load Feed + km Rate) x 3.0 CuM

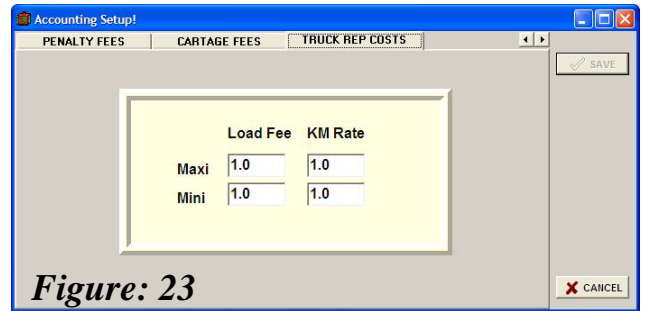
Cost = Charge x km

*Mini*: Loads  $\leq 1.0$  CuM (as Defined)

Charge = (Load Feed + km Rate) x 1.0 CuM

Cost = Charge x km

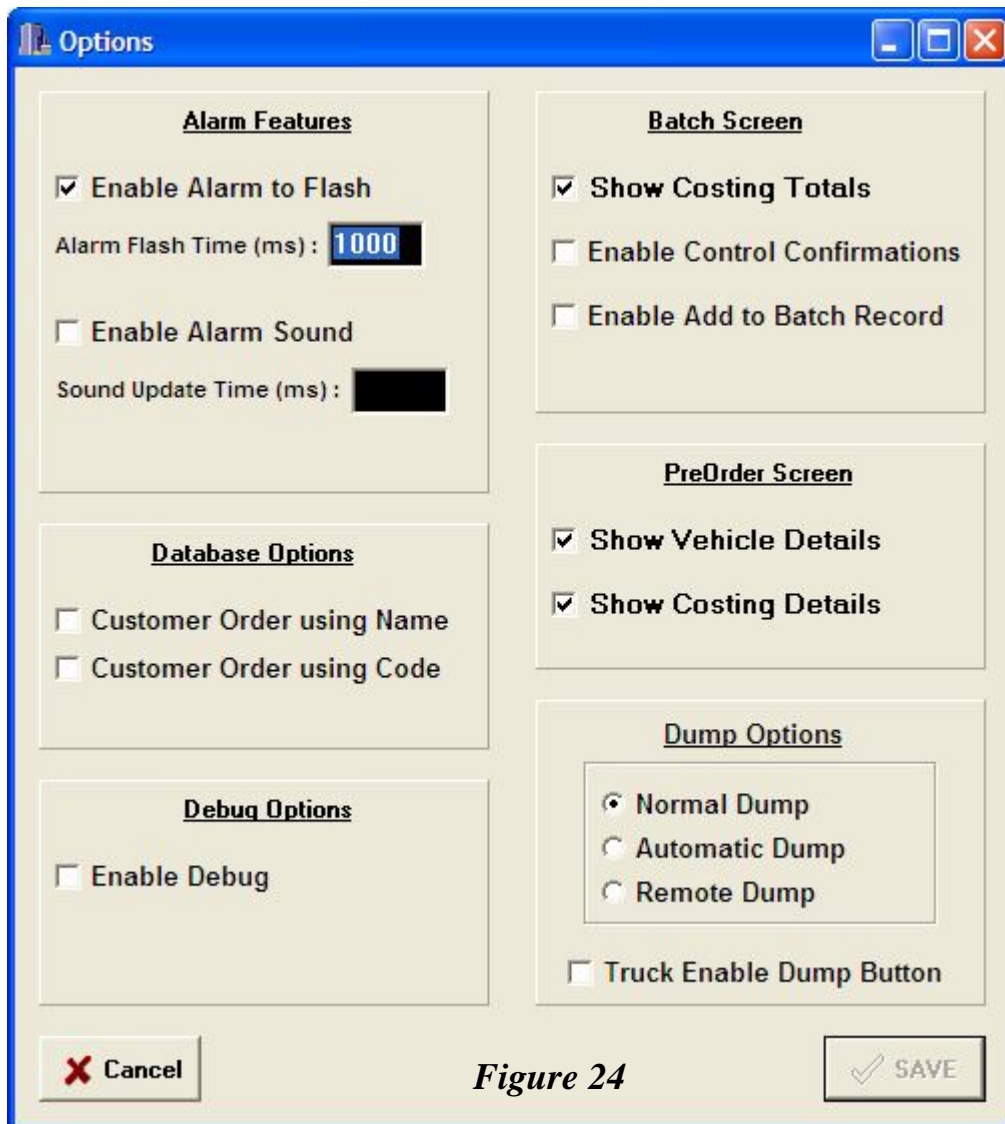
This data is used to calculate the Truck costs in the Truck Report.



**Figure: 23**

### 3.7 OPTIONS

The following setup features are accessed through the *menus settings* bar.



**Figure 24**

#### 3.7.1 Alarm Features

This feature “Enable Alarm to Flash” allows the alarm to flash to a certain frequency (milliseconds). To enable the alarm feature ensure the box is checked (✓).

The feature “Enable Alarm Sound” enables a sound to play with an update time in msec.

#### 3.7.2 Pre-Order Screen

By checking (✓) the boxes on the two options, the system will display the vehicle and costing details in the Pre-Order Screen. If the information is deemed to be sensitive and not to be viewed by the operator, the boxes need to be unchecked.

### 3.7.4 Batch Screen

#### **Show Costing Totals**

By checking (✓) the box this option will display the *Costing Totals* in the *Batch Screen*. If the information is deemed to be sensitive and not to be viewed by the operator, then the box is to be unchecked.

#### **Control Confirmation**

The *Control Confirmation* feature provides the option of confirming a command when *starting* and *dumping* a batch. By checking the box a message (*Figure 47 & 48*) will be displayed prompting the *User* to confirm the action, this is typically useful during the early days of using the program or training new personnel on the system until such time they become comfortable with the system.

#### **Enable Add to Batch Record**

This option will allow a batch to be added to a previous (last) docket. It will add the batch amount with the same docket number. The previous printed docket will be discarded and the new one used.

### 3.7.6 Database Options

The customer table will be sorted alphabetically in either the Customer Code or Customer Name, whichever is selected.

### 3.7.7 Dump Options

- (1) Normal Dump: Operator has to press “Dump” button on AxiBatch to dump.
- (2) Automatic Dump: Dump automatically occurs when ready to dump.
- (3) Remote Dump: Dump by using the button on the remote control or AxiBatch Dump button.

When “Truck Enable Dump Button” is checked the dump will not occur until the truck driver has pressed a physical “Ready to Dump” pushbutton located near his truck. This must be wired in for it to function.

## CHAPTER 4 MATERIALS LIST

To access the file select *Edit*, → *Materials List* on the *Menus* bar.

The material table defines all the materials used in the plant. If a material in the *Materials List* is not assigned to a Bin then the system will notify the *User* it cannot start the batch as the material in the mix design does not exist. Therefore a *Mix Design* (discussed later) cannot be created unless the materials are present in this list.

As each material entry is made, the *User* must ‘post’ the entries by clicking the ✓ button to save the information. Moving around the screen can be carried out by either using the mouse or by left, right, up and down arrows on the keyboard.

### 4.1 CODE

The material *Code* is the key signature that identifies the material and its characteristics across the system, such *Mix Design*, *Inventory*, *Materials Added*, *Bin Setup (Assignments)* etc... The *Code* can be up to 20 alphanumeric characters, however it is recommended for ease of operation to keep the code to a minimal amount. To enter the description click on the field until the mouse cursor appears, then commence typing.

### 4.2 NAME

The *Name* is usually a more descriptive form of the *Code* but still simplified to maintain ease of operation. Some installations use the same description for the *Name* as for the *Code*. The *Name* can be up to 40 alphanumeric characters.

Database Tables

MATERIALS MIX DESIGNS DELIVERY VEHICLES CUSTOMERS SUPPLIERS

Filter Materials By ALL Sort By ID

CODE	NAME	DESCRIPTION	UNITS	TYPE	COST TYPE	COST	Qty/CuM	LEVEL	WARN
12MM	12MM Agg	12MM Aggregate	Kg	Aggregate				0	
10MM	10MM Agg	10MM Aggregate	Kg	Aggregate					
SAND	SAND	SAND	Kg	Aggregate					
GOL	GOLIATH	GOLIATH (AUST CEMENT)	Kg	Cement				0	
GP	PORTLAND	Portland (Type GP) Cement	Kg	Cement					
WATER	WATER	WATER	Kg	Water				0	
AIR905	Micro Air	Micro Air 905	ml/100 kg of Cement	Additive				0	
FIB0952	Fibre	MasterFibre 0952	ml/CuM	Additive				0	
MESH	MESH	Screen Mesh	Each	MISC	Fee	40.00		100	
BLK0X	Black Oxide	Black Oxide	Each	MISC	Fee	35.00		96	
POZ370	Pozzoloth	Pozzoloth 370 Water Reducing	ml/CuM	Additive					
POZ322	Pozzoloth	Pozzoloth 322 Strength Increaser	ml/100 kg of Cement	Additive					
POL819	Polyheed	Polyheed 819 Reducer	ml/CuM	Additive					

First Prev Next Last Insert Delete Cancel Accept

RETURN

Figure: 25

## 4.3 DESCRIPTION

The *Description* field allows the *User* to enter a detailed identification of the material.

## 4.4 UNITS

Each *Material* must have a *Unit* assigned to it that identifies how the system will measure and dispense the material. The Units are selected by clicking on the drop down box where three options are listed;

- (i) **kg** (for Aggregates, Cement and Water)
- (ii) **ml /CuM** (for Additives)
- (iii) **ml / 100 kg of Cement** (for Additives)
- (iv) **Each** (typically for Misc items)

As previously mentioned owing to the density of water at room temperature, it is treated and measured as a weight.

### **WARNING!**

It is imperative that the units are added for the Additives as the batch size for these additives are dependent on the units selected.

## 4.5 TYPE

There four (4) *Types* of categories that can be assigned to a *material* that impact on the system. The type will determine where the *materials* should be allocated when searching in the relevant *Bin Assignments* and inventory lists. The four types are;

- (a) **Aggregate**
- (b) **Cement**
- (c) **Water**
- (d) **Additive**
- (e) **MISC**

Each material must have a *type* assigned to it and is selected by clicking on the drop down box.

## 4.6 COST TYPE

There're two cost type options: Rate and Fee.

The definitions as used in the program are as follows;

*Rate* – is multiplied by the Concrete batch per CuM

*Fee* – is used to multiply the cost per EACH unit.

Typically these costs are used for any item that can be individually sold (mainly MISC Items)

## 4.7 COST

Cost of each material based on cost type.

## **4.8 Qty/CuM**

Currently not used for anything.

## **4.9 LEVEL**

Current amount or level of material.

If the material is in a Bin Setup and stored in multiple bins then this level is the accumulated level. Do not alter the level for Aggregate, Cement, Water or Additive types as they are automatically updated in the “Add Material” function or when a Load has completed. Misc types are the only levels you should alter.

## **4.10 WARNING LEVEL**

If the level falls below this value then a warning alarm is activated to warn you of the low level. For Aggregates/Cement/Additives/Water this should be set in the Bin Setup. For MISC items set the warning levels in here.

## **4.11 CAPACITY**

It's the maximum storage capacity of each material.

## **4.12 TIME / DATE CLEARED**

This field is automatically generated by the system to reflect when the storage was last emptied either through usage or stock control.

## CHAPTER 5 BIN SETUP (Assignments)



There are three (3) methods of access to this file; one is via the “View Bin Tables” icon on the *Toolbar*, second is via the *Menus*, *View*, and *Bin Assignments* file and thirdly through the *Menus*, *Settings*, and *Bins* file.

The *Bin Setup (Assignments)* are the main storage units. In an overhead plant the aggregates would be either silos or structural vessels that store the *materials*. In a Front End loader plant the traditional method of storage is in open concrete bays. *Cement* is generally stored in silos, *water* is usually mains supply and *additives* are stored in large drums or holding vessels. Each storage system will have a maximum holding capacity as well as a minimum threshold level that warns the *User* the material requires replenishment.

The system is based on eight (8) aggregate bins feeding one weigh hopper and eight (8) aggregate bins feeding the second weigh hopper. However all 16 Bins can feed either Hopper. The *Cement* setup allows for up to four (4) silos of differing supplies; *Water* has four (4) optional storage abilities and *Additives* also has four (4) storage abilities.

Each Bin can be setup with its own physical characteristics to optimise the performance of the feeding system. The setup procedures will be discussed as a combined format whereby the only difference in terminology will exist in the solid materials such as *Aggregates* and *Cement* that are measured in kg compared with the fluid materials such as *Water* and *Additives* that are measured in litres (or ml).

The format viewed via the icon button (*Figure: 25*) has a complete view on the screen for an individual bin and the subsequent bins are viewed by clicking on the up and down arrow buttons. The alternative view (*Figure: 26*) is selected through the *Menus* shows the grouping of the eight bins as line entries and the values for each condition can be seen by scrolling either left or right by clicking on the arrows buttons on the bottom of the folder or by using the left and right arrow buttons on the keyboard.

You can have a material defined in up to 4 bins.

No	MATERIAL CODE	ACTIVE	AUTO INF	INFLIGHT SMALL	INFLIGHT MEDIUM	INFLIGHT LARGE	BIN_INFLIGHT_PC	DUAL GATE	FAST
1	20B	Yes	No	0	3	5	1	Yes	
2	14B	Yes	No	0	3	5	1	No	
3	PCS	Yes	No	0	3	5	1	No	
4	14P	Yes	No	0	3	5	1	No	
5		No	No	0	0	0	0	No	
6		No	No	0	0	0	0	No	
7		No	No	0	0	0	0	No	
8		No	No	0	0	0	0	No	

**Figure: 26**

Any changes or insertions that are entered through one view will be reflected in the other view. The following procedures will be based on the *Figure: 20* format.



**Note: All the Materials that are to be allocated to particular Bins must be present in the Materials List!**

## 5.1 MATERIAL

**5.1.1 Material** Click on the *Folder* that will represent the group of *Materials* where they will be stored. To allocate a *Material*, select the desired *Bin* number by clicking on the up or down arrow buttons. In this example *material BCS* (Coarse Sand Boral) will be used, on the basis the material was entered in the *Material List* (as described in Section 4.0).

**5.1.2 Enable the use of the material in the bin** click on the drop down box and select 'Yes'. Select the *material* (BCS) by clicking on the drop down box where all the materials will be listed. Click on *BCS* where it will then be displayed in the field. If the particular storage vessel has dual gates select 'Yes', otherwise select 'No'.

**5.1.3 The Gate Feedback Time (sec)** is the time allowed for an acknowledgement signal to return confirming the gate has responded. Depending on the age and configuration of the plant if the gate is slow acting time should be extended, otherwise an alarm condition will continually register on the system. Enter the appropriate time in the field box.

The screenshot shows the 'Bin Setup' window with the following fields and values:

- BIN NO. 7**
- Material:** Material in this Bin is Enabled for use: Yes; Material: BCS; Enable Dual Gate use for Bin: Yes; Gate Feedback Time (Sec): 2; Moisture as %: 5
- Inflights:** Automatic Inflight Update is Enabled: Yes; Small Inflight (Kg): 2; Medium Inflight (Kg): 5; Large Inflight (Kg): 10; Inflight Percentage Change (%): 5; Fast Feed (Cutoff Value) as (%): 5
- Flow Settings:** Initial Flow Check Time (Sec): 3; Flow Check Time (Sec): 2; Flow Check Amount (Kg): 60; Flow Rate (Kg/Sec): 30; Enable Flow Rate Update: Yes
- Jog Parameters:** Jog Init Time (Sec): 2; Jog Unit Time (Sec): 1; Jog Unit Amount (Kg): 2; Jog Max Time (Sec): 5; Jog Max Amount (kg): 10; Note: If Jog Unit Time = 0 then Jog is Disabled!
- Bin Levels:** Actual Level (Kg): 500000; Bin Capacity (Kg): 500000; Bin Low Level Warning (Kg): 5000; Date/Time Last Cleared:
- Targets:** Agg#1 Target (Kg): ; Agg#1 Tolerance (Kg): ; Agg#2 Target (Kg): ; Agg#2 Tolerance (Kg):

**Figure: 26**

**5.1.4 Moisture (%)** is the amount of water physically present on the *Material*, typically with the sands the moisture value must be inserted into the field as this will be compensated for in the *mix design* and the *data view table* prior to batching. To enter the figure, click in the field box and type in the value.

## 5.2 JOG PARAMTERS

The *Jog Parameters* are used by the system during batching, enabling the computer to control small increments of *material* to achieve accurate targets. The parameters are entered in as time (sec) and weight (kg) values, or in the case of liquids litres (and ml with the additives). When a device (such as a feeder) is started there is often a response delay before any material is seen by the scale (this is often the case with screw feeders or pumps).

### 5.2.1 Jog Initial Time (sec)

is the time allowed for before deciding something is wrong (such as bin being empty). Once the time exceeds the value entered an error message is displayed on the computer screen. Click in the field and type in a numerical value.

### 5.2.2 Jog Unit Time (sec)

is the time taken for the Jog Unit Amount (5.2.3) to discharge from the Bin. Click in the field and type in a numerical value.

**If the Jog Unit Time has a value of zero (0) then the jogging parameters are disabled.**

### 5.2.3 Jog Unit Amount (kg)

is the amount of material that is to flow within a specified time (5.2.2). Click in the field and type in a numerical value. Hence based on the value used in Figure 26, 2 kg/sec will be used as a jogging (incremental) rate to achieve accuracy.

### 5.2.4 Jog Max Time (sec)

is the maximum time limit allowed for jogging to take place. Click in the field and type in a numerical value.

### 5.2.5 Jog Max Amount (kg)

is the maximum amount allowed for any jog. Click in the field and type in a numerical value.

## 5.3 INFLIGHTS

The “*In-Flight*” is the mount of material in motion after the gate (feeder or screw) closes. The computer calculates and updates this value on a continual basis. The values inserted into the field are a guide for the system to narrow down its search during the initial setup period.

For example, if a 1,000 kg (1.0 CuM) batch fell short at (980 kg) say 10kg (Target 1,000kg – In-flight 15kg +/- Tolerance 10 kg). The In-Flight % Change allowed in the fields below is 5%, the in-flight was 15kg, now the new in-flight = 14kg. {Original 15kg – (10 x 5%) = 14.5kg}

### 5.3.1 Automatic In-flight Update

*is Enabled* activates the system to monitor and control the *in-flight* calculations and update the information accordingly. If the activity is not enabled then the system will rely on the values set out in the field settings. To activate the automatic updating mode, click on the drop down field and select ‘Yes’.

### 5.3.2 Small In-Flight (kg)

set for small batches (as identified in the Plant Setup file) eg. < 1.3 CuM. To enter a value, click in the field and type in a numerical value, i.e. 50 (kg).

### 5.3.3 Medium In-Flight (kg)

set for medium sized batches (as identified in the Plant Setup file) eg.  $1.3 = x < 3.0$  CuM. To enter a value, click in the field and type in a numerical value i.e. 100 (kg).

### 5.3.4 Large In-Flight (kg)

set for large sized batches (as identified in the Plant Setup file) eg.  $x = 3.0$  CuM. To enter a value, click in the field and type in a numerical value i.e. 150 (kg).

### 5.3.5 In-Flight Percentage Change (%)

is the allowable change in value that the short fall will be altered by. To enter a value, click in the field and type in a numerical value i.e., 10 (%).

### 5.3.6 Fast Feed (Cutoff Value) as (%)

is a value that stops the fast feed control at a particular point below the *Target* weight, at which time the *jogging* function will take over. To enter a value, click in the field and type in a numerical value i.e., 10 (%).

## 5.4 FLOW SETTINGS

The *Flow Settings* for the *Bin Assignments* perform the same functionality as defined for the hoppers in the *Plant Setup* File.

### 5.4.1 Initial Flow Check Time (sec)

when a signal is sent to the hopper to commence discharging, there is always a delay before any material discharge is seen by the indicator. The value (in seconds) entered in this field denotes a waiting time that signals the system, after this time if no action (or weight movement) occurs then an alarm message is displayed.

### 5.4.2 Flow Check Time (sec.)

In this field the system will monitor material flow once it has commenced and as such if motion has halted beyond the entered value an alarm message will be displayed.

### 5.4.3 Flow Check Amount (kg)

entered is measured in conjunction with the *Initial* and *Flow* values that the system uses as a (weight) target by which an increase must be evident or an alarm will be displayed.

For example, if the *Initial* is set to “2” (secs), the *Flow* is set to “3” (secs) and the *Amount* is set to “5” (kg);

A batch is commenced and within 2 secs material flow is detected (no *Initial* alarm is displayed). However, after 3 secs from commencement of discharge the material flow continues but slows down significantly to a point where it is trickling out at a rate of less than 5kg in 3 secs (1.67kg/sec), an alarm will be displayed highlighting a flow error based on the values entered.

### 5.4.4 Flow Rate (kg/sec)

is the calculated feed rate based on the ‘*Flow Check Time*’ and ‘*Flow Check Amount*’. If the ‘*Update Flow Rate*’ field is enabled the system will automatically update the value.

#### 5.4.5 Enable Flow Rate Update

when enabled will automatically update the flow rate achieved by the bin.

### 5.5 BIN LEVELS

The *Bin Level* values are generated as a means of monitoring the inventory levels for each material. The computer will automatically update the information to reflect usage and incoming materials.

#### 5.5.1 Actual Level (kg)

It is the current amount of material in place based on the completed batches. The computer will automatically update this field. The *User* can override the value by inserting another figure; this is often carried out when correcting inventory levels. It must be understood the *Materials Added* file will not be able to store the additional management information such as *Supplier* etc... The value shown in this field is reported based on the units used in the batch sequence.

#### 5.5.2 Bin Capacity (kg)

It is the maximum holding capacity of the storage vessel. To insert a value click in the field and enter the numerical value, noting the units.

#### 5.5.3 Bin Low Level Warning (kg)

This field is the safety warning level that the plant will signal enabling the *User* to decide whether or not to re-stock the material.

#### 5.5.4 Date/Time Last Cleared

It is automatically inserted by the system when the bin has been completely emptied either through usage or by stock clean out / adjustment.

### 5.6 TARGETS

#### 5.6.1 Target

It is automatically inserted by the system reflecting the batch target values used at the time.

#### 5.6.2 Tolerance

It is automatically inserted by the system reflecting the batch target values used at the time.

**Note:** Both the above figures cannot be altered by the *User*.

## CHAPTER 6 SUPPLIERS



This file can be viewed by either clicking on the icon or by clicking on the ‘*Edit → Suppliers*’ list on the *Menus* bar.

The *Suppliers* file enables the user to register the entire *suppliers* that provide material to the plant. This file once completed will provide ease of inward receivables information that can be controlled against administration records. The file forms part of the database that can be *exported* or *backed up* for security.

Each *supplier* can be inserted by clicking on the relative fields and typing in the relevant information. The fields available are as follows;

CODE	NAME	ADDRESS 1	ADDRESS 2	PHONE	FAX	MOBILE	CONTACT	COMMENT
BASF	BASF Chemical Company	45 Red Street	Cranbourne	3 7887 7878			Heath Ledger	Additive Suppli
CCAA	Concrete and Cement Aggregate Suppliers	56 Fonatana Avenue	Melbourne	3 9876 6676			Steve Segall	Aggregate Supj
ICL	Independant Cement and Lime	12 Salmon Street	Port Melbourne	3 9876 6677			John Axe	Cement Supplie

Figure: 27

### 6.1 Code

This is an alphanumeric field that can be used to summarise the *suppliers* information.

### 6.2 Name

Alphanumeric field.

### 6.3 Address(s)

There up to four separate address fields that can be used to link the particular supplier if more than one location is required to source the material. Not all the *addresses* have to be used.

**6.4 Phone** numeric field

**6.5 Fax** numeric field

**6.6 Mobile** numeric field

**6.7 Contact** alphanumeric field

## 6.8 Comment

Alphanumeric field enables the user to enter miscellaneous information regarding the *supplier*.

# CHAPTER 7 MATERIALS

## 7.1 Add Material Form

This file allows the user to record all inward materials which form part of the inventory management. Recording all the deliveries and usage, the system will present a snap shot of stock levels at any one time based on completed batches.

To access the file, click on the ‘*Edit → Add Materials*’ list on the *Menus* bar, or by right clicking the mouse anywhere on the *Batch* or *Pre-Order Screen* and selecting “*Add Material*”, in the selection list.

To take full advantage of the file all the information should be inserted, however three of the fields are mandatory.

**7.1.1 Select Supplier** Once the suppliers have been recorded into the data base (Chapter 6.0), entry is carried out by clicking on the drop down lookup box and selecting the relevant supplier.

**7.1.2 Docket Number** The docket number generally relates to the suppliers reference code and is inserted by typing in the appropriate information.

**7.1.3 Vehicle Number** The vehicle’s registration is usually entered into this field.

**7.1.4 Select Material** This field is mandatory as it impacts on the stock levels that enables the system to determine if sufficient materials is present to proceed with the batches. To enter the material, click in the drop down box and select the appropriate material (that was initially inserted in Chapter 4.0).

**7.1.5 Material Type** The *type* of material is a mandatory field that associates the product to a particular category within the data base. To enter the type click on the drop down box and select one of the four *types* present.

**7.1.6 Type in Amount** The *amount* of material delivered is entered in as a bulk quantity. For example if an *Aggregate* is delivered, the unit will be displayed as tonnes, *Additives* as litres etc... When entering the *amount* ensure the decimal point is inserted if present on the delivery docket. This field is mandatory.

**7.1.7 Amount Paid (\$)** As is often the case most deliveries do not provide a pricing detail for the material, hence this field is optional.



Once all the necessary fields are completed click on the ‘✓Enter Data’ button to save and enter the information into the data base. If one or more of the mandatory fields are not entered an error message will be displayed.

At this point the *User* may continue with entering delivery data or click on the ‘X Cancel/Return’ button to exit the file.

**Note:**

*If a material is defined in multiple bins a prompt will appear requesting you to select the bin number that that amount will be required to be added to.*

## 7.2 Bin (Materials) Levels

	BIN	MATERIAL	LEVEL	CAPACITY	WARNING LEVEL
Aggregate #1 Bins	1	20B	13216	20000	2000
	2	14B	58312	20000	5000
	3	PCS	175271	20000	5000
	4	14P	60400	20000	2000
	5				
	6				
	7				
	8				
Aggregate #2 Bins	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
Cement Silos	1	GOL	96192	100000	2000
	2				
	3				
	4				
Water Tanks	1	H2O	19995442	2000000	2000
	2				
	3				
	4				
Additive Tanks	1	WRW	183740	200000	4000
	2	AEA	192324	200000	4000
	3	WRS	195354	200000	4000
	4	SIL	198926	200000	5000

The *Bin Levels* are an instant view of the current status of *materials* assigned to the enabled (active) bins. To view the file click on the ‘View → *Material Levels*’ list on the *Menus* bar.

Note that the values reflect stock on hand (level), the holding capacity and minimum warning levels.





The values cannot be edited and are purely for viewing purposes only.

## 7.3 Materials Added Form

Similarly to the Bin Levels this file is a line entry summary of the material that have been added to stock. The intent is to view the *delivery* of *materials* by date and time. To access the file click on the ‘View → *Materials Added*’ list on the *Menus* bar. The file cannot be altered or edited and is purely a viewing file.



**Materials Added**

**Filter Material Type**  
 ALL

**Filter Supplier**  
 ALL



**Filter Material**  
 ALL

☐ All Dates

**Order**  
 ID

**Date From**  
 22/06/2009

**Date To**  
 22/06/2009

CODE	MATERIAL	BIN NO.	AMOUNT	DATE / TIME	AMOUNT PAID	DOCKET NO.	SUPPLIER NAME	VEHICLE NO	TYPE

**Figure: 30**

## CHAPTER 8 MIX DESIGN



The *Mix Design* folder is an important function that dictates the combination of *materials* used in the batch. The folder can be accessed by either one of the following methods;

- ◆ Clicking on the *icon*, or
- ◆ *Edit*, → *Mix Design* on the Menus bar, or
- ◆ Clicking on the “**Mix Design**” text on the Pre-Order screen, or
- ◆ Clicking on the “**Mix Design**” text on the Batch screen.

Access to this file is restricted to the Administrator Level and higher.

### 8.1 New Mix Design

To enter a new *Mix Design* click on the ‘+’ button on the bottom of the folder, this adds a new sheet to the file.

#### 8.1.1 Recipe Code

It is an alphanumeric address that summarises the identity of the *recipe* when preparing a particular order or batch. To enter the code, click in the field and type in the relevant *code*.

#### 8.1.2 Recipe Name

It is an alphanumeric address that identifies the recipe. To enter the name, click in the field and type in the relevant text.

Database Tables

MATERIALS MIX DESIGNS DELIVERY VEHICLES CUSTOMERS SUPPLIERS

Recipe Code: 20MPA Recipe Name: 20MPA Date/Time Last Modified: 26/05/2009 4:06:14 PM

Recipe Description: 20 MPA CONCRETE

Slump: 20MPA Strength: 25 Agg Size: 20

ORDER	MATERIAL CODE	AMOUNT	TOLERANC
1	12MM	233	1
2	20MM	345	1
3	GOL	125	1
4	WATER	450	1
5	AIR905	260	1
6	FIB0952	780	1

CLASS PRICE MIN FLAT CLASS PRICE MIN FLAT CLASS PRICE MIN FLAT CLASS PRICE MIN FLAT

First Prev Next Last Insert Delete Cancel Accept

Move Up Move Down Add Material Edit Material Delete

RETURN

Figure: 31

#### 8.1.3 Recipe Description

It enables the user to provide additional information to describe the *recipe* such as purpose of use. To enter the text, click in the field and type in the relevant *description*.

### 8.1.4 Slump

It is information usually a numeric value that symbolises the *slump* or consistency of the *mix*. Click in the field and type in the relevant value.

### 8.1.5 Strength

It is attributable to the load rating of the *mix design* that is sometimes reflected in the *Recipe Code* and or *Name*. Click in the field and type in the numerical value.

### 8.1.6 Agg Size

It is the value that identifies the largest aggregate size used in the mix. Click in the field and type in the numerical value.

### 8.1.7 Class Fees

It refers to the pricing matrix the system will use based on the *class* structure allocated to the customer for the *mix design*. The *Price*, *Min* and *Flat* values are to be typed in according to the fees the *User (Administrator)* will apply for the particular *mix design*. Only numerical values can be entered.

Once all the information is entered into the left hand side of the screen the information is posted by clicking the ✓ button. The individual materials that form the *mix design* can now be entered into the right hand side of the screen.

### 8.1.8 Material Code

To select the material code (as outlined and entered in Chapter 4.0) click in the drop down box and select the first material. Note the material identification will be according to the code used.

### 8.1.9 Amount

Typically the *amount* (either by volume or by weight) that is required for the *material* on a per cubic metre basis. The *amount* must reflect the units used in *Materials List* (Chapter 4.0). Only numerical values can be entered. Note the values entered for *materials* (such as sand) that may contain moisture must be entered as a **dry amount**. The system will compensate for any moisture values entered in the *Bin Setup* file (Chapter 5.0) when presented in the *Data View* table.

### 8.1.10 Tolerance

The numerical value entered into this field will govern the allowable value that the *material* must achieve against the (target) *amount* on a per cubic metre basis. For example if Cement (GOL) were selected, the amount inserted as 245 (kg per cubic metre) with a *tolerance* value of 6 (kg per cubic metre). If 5.0 CuM batch is required, the Data View table will present the target value as 1225 kg of GOL and *Tolerance* as +/- 30 kg. Hence if the batch quantity achieves the target value within these parameters the batch will automatically be accepted.

To enter a new line for each *material*, click on the + button, or as each entry is completed press the ↓ (down) key on the keyboard. If the user must delete an entire line; click on the (-) button. Once all the materials and values are entered the information is saved by clicking on the ✓ button.

## 8.2 Edit Mix Design

To edit or alter a mix design click on the forward ► or reverse ◀ buttons (on the bottom left hand side of the screen) until the required mix design appears. Once the changes have been entered, post (or save) the changes by clicking the ✓ button. Once a mix design has been edited or altered the date and time of the alteration will appear in the table.

To Add a material to the Mix Design press the “Add Material” button in the far right panel. Change the parameters and press the “Accept” or “Cancel” buttons.

To Edit a material already in the table press the “Edit Material” button in the far right panel.

To delete a material select it and press the “Delete” button in the far right panel. Follow the prompts.

The screenshot displays the 'MIX DESIGNS' tab in the AxiBatch software. The left-hand panel shows the details for a selected mix design:

- Recipe Code:** 20MPA
- Recipe Name:** 20MPA
- Date/Time Last Modified:** 26/05/2009 4:06:14 PM
- Recipe Description:** 20 MPA CONCRETE
- Slump:** 20MPA
- Strength:** 25
- Agg Size:** 20

Below these fields are two sets of input boxes for material properties, labeled CLASS A through H, with sub-headers PRICE, MIN, and FLAT. The right-hand panel contains a table of materials:

ORDER	MATERIAL CODE	AMOUNT	TOLERANCE
1	12MM	233	1
2		345	1
3		125	1
4		450	1
5		260	1
6		780	1

A pop-up menu is overlaid on the table, providing options to filter materials, sort by ID, and select a material to edit or delete. The bottom of the interface includes navigation buttons (First, Prev, Next, Last, Insert, Delete, Cancel, Accept) and a 'RETURN' button.

Figure: 32

To delete an entire mix design, click on the delete button on the bottom left hand side of the screen.

## CHAPTER 9 DISCHARGE PROFILE

The folder can be accessed by either one of the following methods;

- ◆ *Edit, Discharge Profile* on the *Menus* bar, or
- ◆ Clicking on the “**Discharge Profile No.**” text on the Pre-Order screen, or
- ◆ Clicking on the “**Discharge Profile No.**” text on the Batch screen.

The discharge profile is a table that governs when each material is released with respect to the other materials. Depending on the ability of the plant and its configuration the discharge of material can occur simultaneously or sequentially based on the values entered.

There are ten (10) separate discharge profile tables available, each table having the ability of performing nine (9) individual steps based on a percentage (%) figure entered for each material type.

### 9.1 Profile No

To select a *profile number*, simply click on the drop down box and click on the number to use as the format for a particular sequence.

### 9.2 Step

Enter a percentage value for each material that the discharge sequence is to apply to. A time value (in secs) can be entered that determines the delay before proceeding to the next step. The values entered can be any number between 0 – 100. Click in the relevant field for each of the material types and steps until the profile is completed according to the *User's* requirement. If only one *aggregate* hopper is physically present in the plant then a zero (0) is placed in the *Agg2* Column.

Discharge Profile

Select the Discharge Profile Number to View/Edit 1

STEP	AGG1	AGG2	CEM1	CEM2	CEM3	CEM4	WATER	ADD1	ADD2	ADD3	ADD4	ADD5	ADD6	ADD7	ADD8	TIME DELAY (Sec)
1																
2																
3																
4																
5																
6																
7																
8																
9																

Undo SAVE

Speed Factor 1.0 Save Speed Factor

RETURN

Figure: 33

### 9.3 Save

Once all the values have been entered click on the ✓ button to save the settings.

To set up another *profile* click on the drop down box and select the next *profile number* you wish to set up.

**Note: it is recommended to keep the steps few and simple.**

### 9.3 Speed Factor

This is multiplied by the Flow Rate Setpoint to provide a modified setpoint when “time Based Control” is used in the Hopper and when that discharge sequence is selected in the batch.

## CHAPTER 10 CUSTOMERS



The Customer folder can be accessed by either one of the following methods;

- ◆ *Edit* → *Customer* on the *Menus* bar, or
- ◆ *Customer* icon, or
- ◆ Clicking on the “**Customer**” text on the Pre-Order screen, or
- ◆ Clicking on the “**Customer**” text on the Batch screen.

The customer file contains all the pertinent details relating to the clients particulars. This file is only accessible by an *Administrator* level or higher. As each *Pre-Order* is created the criteria set out in this table will apply.

To enter a new customer click on the **+** button and a new entry line will appear. To delete a customer’s details click on the **(–)** button. To move around the screen click on the vertical and horizontal scroll bars at the edge of the fields.

**10.1 Code:** The *code* is a simple reference that simplifies the client’s name, and forms the criteria for any search pattern. The *code* can be the first three or four letters of the *customers* name, a numerical system or a combination of both. It is recommended to keep the *code* between three and four characters.

CODE	NAME	CLASS MAXI	CLASS MINI	DOCKET PRICING	ADDRESS 1	ADDRESS 2	ADDRESS 3	PHONE	FAX
COD	CASH ONLY	Std Max	Std Mini	Yes					
JEN	Jensions Concreters	Cash Max	Cash Mini	No	566 Warragul Road	Oakleigh	3261	98768888	9876123

**Figure: 34**

**10.2 Name:** Here the *customer’s* full name is entered.

**10.3 Class:** The following two columns identify the category that the *Maxi* and *Mini* pricing structures (A to H) apply to. If no entries are inserted the default conditions selected in the *Accounting Setup (General 3.1)* will apply. To override the default condition for any



particular *customer(s)* triple click in the *Maxi* (and or *Mini*) column and a drop down box will appear. The required category can be selected for each *class*.

**10.4 Docket Pricing:** Generally, most *customers* do not wish to show the pricing on the delivery dockets. The current default of the system is for no pricing to be shown. However, the option in this column is available for pricing to be printed on the delivery dockets. To override the default condition triple click on the field representing the *customer* and a drop down box will appear. The user can select either 'Yes' or 'No'.

**10.5 Address (1 to 4):** This column allows the *User* to enter the *customer's* mailing and or business (residential) *address*. There are up to four (4) *address* columns that can be used particularly in the case of corporate bodies. Obviously not all have to be used. Click in the field(s) and type in the relevant information.

**10.6 MISC:** The additional columns *Phone*, *Fax*, *Mobile*, *Contact* and *Comments*, refer to miscellaneous information that can be entered by the *User* as a means of completing the database for the *customer*.

## CHAPTER 11 VEHICLES



This file can be accessed by either one of the following methods;

- ◆ Clicking on the *icon*, or
- ◆ *Edit*, → *Vehicles* on the *Menus* bar, or
- ◆ Clicking on the “**Vehicle Details**” text on the Pre-Order screen, or
- ◆ Clicking on the “**Vehicle Details**” text on the Batch screen.

The *vehicle* details determine the mixer truck configuration suitable for a particular *discharge profile* and the *batch* size. If the *truck* size is smaller than the *batch* size the system will not proceed with the *batch* and an error message will be displayed.

To enter a new *vehicle* click on the + button and a new entry line will appear. To delete a *vehicle*’s details click on the (–) button. To move around the screen click on the vertical and horizontal scroll bars at the edge of the fields.

NUMBER	DRIVER'S NAME	BOWL SIZE (CuM)	TYPE	2 WAY NO	PROFILE NO.	TARE	VEHICLE KM	START KM
RFG453	John Speed	5 Big		343567	1	0		
RTY541	Mike Yuk	2 Mini		565544	2	0		

Figure: 35

**11.1 Number:** The *number* (or *code*) is a reference that associates a particular *vehicle*’s details for the system. The *vehicle number* can be either numerical, alphabetical or both. Often the *code* is also shown on the side of the vehicle. This is a mandatory field.

**11.2 Driver’s Name:** Most *vehicles* have a dedicated driver. Type the driver’s name into the field.

**11.3 Bowl Size (CuM):** It is important to insert a value for the *bowl size* as this will matched to the *batch* size. If the *bowl* size is smaller than the *batch* size an *error message* will be displayed. The value must be numerically entered. This is a mandatory field.

**11.4 Type:** The *type* of *bowl* allocates two options *Mini* or *Big*. To select the option field triple click on the field and a drop down box will appear. This field is mandatory.

- 11.5 2 Way No:** *Two way radios* are often used in communicating between the *driver* and the plant relaying information regarding their progress with either the delivery or returning to the plant. The option exists for the *User* to enter the *vehicle's radio number*.
- 11.6 Profile No:** This field links the *profile discharge* characteristics (Chapter 9.0) to *vehicle's* ability to receive the *batch* at a certain flow rate and sequence. Typically the opening of the *bowl* will often determine the type of *discharge profile* used. This is a mandatory field.
- 11.7 Tare:** By law, *vehicles* will display a *Gross, Tare* and *Net* weight on the side of the bodies. The user has the option of recording the *tare* weight into the database.
- 11.8 Vehicle km:** The *vehicle's* km is purely a management tool that utilises the information inserted in the *Pre-order* and adds the kilometres travelled to the *vehicle's* database. This enables management to monitor the performance of the *vehicle* against running costs.
- 11.9 Start km:** A reference value is entered to commence the *vehicle's* recorded movement. This is often the odometer reading.

## CHAPTER 12 DELIVERY

The delivery folder can be accessed by either one of the following methods;

- ◆ *Edit*, → *Delivery* on the *Menus* bar, or
- ◆ Clicking on the “**Delivery**” text on the Pre-Order screen, or
- ◆ Clicking on the “**Delivery**” text on the Batch screen.

Essentially the batching system offers two methods of inserting the *delivery* address for the batched concrete;

- (i) A series of pre-recorded addresses that typify *deliveries* to the same address such as those used in a large building (or construction) project and avoiding the tediousness of repeatedly typing the same address batch after batch.
- (ii) One-of addresses that do not repeat themselves. This method is discussed at the Pre-Order (Chapter 13.0).

NAME	DIST in KM	MAP REF	ADDRESS 1	ADDRESS 2
Twin Towers Project	25 45 J12	25 Boral Street	East Burwood	

**Figure: 36**

The file can provide up to four (4) separate addresses for each project or client.

Enter the information into each field as required. A new line can be added or deleted by clicking on the + and (–) buttons respectively. Once the information has been entered click on the ✓ save (post) button.

## CHAPTER 13 PRE-ORDERS

### 13.1 ENTERING INFORMATION

To enter the **Pre-Order** screen, click on the folder tab.

The *Pre-Order* allows the *User* to enter information relating to the customer's requirements for the current or preceding days. The accuracy and depth of information will reduce the amount of input that is required at the time of batching. Once the *Pre-Order* details have been completed and saved, the summarised information can be viewed in the *Pre-Order Summary list* (Section 13.3).

**13.1.1 Project Number** an alphanumeric field that can be used if customer requests an identification reference assigned for particular *projects* or sites.

**13.1.2 Order Number** an alphanumeric field available if clients request an order number with their load(s).

**13.1.3 Date & Time Required** is simply inserted by clicking on the drop down arrow.

**Figure: 37**

**AXI-BATCH**

File Edit View Settings Tools Help

**AXION**

TEST START HOLD DUMP ABORT

**PreOrders** Batch Completed Loads Completed Orders Levels

**Customer**

Project Number  
Order Number  
Date and Time Required  
31/07/2007 Required in  
3:51:00 PM 10 mins  
Weekend?  
NO

Code Map Ref KM Class  
Customer Name  
Delivery Address

**Misc Items**

Water Adjust (Litres/CuM) QUANTITY  
Instructions

**Costing Details**

Total Misc Costs \$ 0 Change ...  
Flat Charge \$  
Concrete Cost / CuM \$  
Total \$  
Tax Amount \$  
Total (Inc.Tax) \$

**Vehicle Details**

Number Load  
Driver's Name  
Discharge Profile No.  
Vehicle Type

**Comment**

**Data View**

**Agg1** Moisture 0.0 L 0 kg

Material	Target	Actual	Diff	Accum.	Tol	Dry Targ
12M	1165	1165	0	1165	50	233
20M	1725	1725	0	2890	50	345

**Cem (Agg1)** 0 kg

Material	Target	Actual	Diff	Accum.	Tol	Dry Targ
GOL	625	0	-625	625	50	125

**Water** 2200 litres

Material	Target	Actual	Diff	Accum.	Tol	Dry Targ
WATER	2200	2200	0	2200	48	450

**Additives** 6100 ml

Material	Target	Actual	Diff	Accum.	Tol	Dry Targ
AIR905	1625	2200	575	1625	62	260
FIB0952	3900	3900	0	5525	50	780

## 13.1 ENTERING INFORMATION (Cont...)

- 13.1.4 Weekend?** Selecting whether the customer requires the load on the weekend is carried out by clicking on the up and down arrow buttons 'Yes' or 'No'.

### *Customer (information)*

Clicking on the **Customer** title will access the *Customer* file (Chapter 10.0).

- 13.1.5 Code** is the *customer code* (as recorded in Section 10.1) selectable by clicking the drop down box. The entire *customer code* list will be available and can be selected either by scrolling up and down the list or by typing in the first few characters whereby the code matching the characters will be displayed. As more of the characters are typed the closer to the particular code is displayed. Once the *code* has been selected the *customer name* matching the *code* will appear in the field below. This field is mandatory as it will determine the class pricing and *delivery* address if registered.

- 13.1.6 Map Ref** is an optional field that can be used to assist the *driver* to locate the delivery point.

- 13.1.7 KM** is the distance from the plant to the delivery site. The value entered will impact on the *cartage charge* if above the threshold inserted in Section 3.4. This field is mandatory.

- 13.1.8 Class** the default selection that is recorded in Section 3.1 will be inserted unless it is overridden by the selection in the customer file (Section 10.3). The *class* can also be overridden at this field. This field is mandatory.

- 13.1.9 Delivery Address** Two options exist for the *delivery address*; the first is based on any information recorded in Chapter 12.0, or secondly the User has the ability to manually insert a specific address that does not necessarily reflect the first option.

### *Mix Design*

- 13.1.10 Code** is selectable by clicking on the drop down field and either scrolling through the list or typing the first few characters to identify the required *mix design*. The selected *mix design* will automatically place the remaining data (as recorded in the file) into the fields below. This field is mandatory.

### *Vehicle Details*

- 13.1.11 Number** The *vehicle number* is selected by clicking on the drop down box. This field is mandatory. The number will automatically associate the *driver's name*, *load* (size of the bowl) and *Vehicle Type (Mini or Big)* as recorded in the file (Chapter 11.0) and insert the particulars into the appropriate fields.

- 13.1.2 Discharge Profile** will be inserted based on the *vehicle number*; however it may be overridden by clicking on the drop down box and selecting an alternative profile. This field is mandatory.

### Misc Items

- 13.1.13 Quantity** is the required *amount* of concrete (in CuM) as requested by the *customer*. This field is mandatory. Enter the amount by clicking in the field. The *User* also has the option of placing a '+' in the adjacent field indicating the possibility of an unknown additional *amount* may be required.
- 13.1.14 Instruction** is an optional field that provides the *User* the ability to insert pertinent information relating to the *Pre-Order*.
- 13.1.15 Costing Details** the *cost codes* can be selected by clicking on the drop down boxes for each unit. To alter any of the units for the *cost codes* (Section 3.5), click on the bolded text. The relevant charges and pricing that is calculated based on the configuration of the *Pre-Order* will be displayed (as set out in Section 3.0).
- 13.1.16 Comments** an optional field available for additional data that is pertinent to the *pre-order* and eventually the *batch*, but will not appear on the docket.

Once all the data has been inserted the information must be posted (saved) by clicking on the ✓ button.

### 13.1.17 Scrolling through the Pre-Orders

Scrolling through the entered Pre-Orders (in this screen) is carried out by clicking on the forward ► or reverse ◀ buttons on the navigator bar.

- 13.1.18 Deleting a Pre-Order** is carried out by clicking on the delete (-) button on the navigator bar.

## 13.2 NEW PRE-ORDERS



A new Pre-Order sheet can be displayed by one of the two options;

- Clicking on the *New Pre-Order* icon, or
- Right click the mouse when the pointer is positioned anywhere over the main screen (excluding the *Batch Data View Table*).

At this point, a selection field will appear (*Figure 38*). Place the mouse pointer over the “*Create New Pre-Order*” and click.



**Figure: 38**

Once the new *Pre-Order* is placed into the folder the *customers* details can be inserted as discussed in Section 13.1. The completed *Pre-Order* must then be *posted* (saved). As each pre-order is saved onto the system, a one-line summary table can be viewed to display all the posted *pre-orders*.



### 13.3 PRE-ORDER SUMMARY LIST



There are two methods of accessing a summary of the *Pre-Orders*;

- ◆ Clicking on the Pre-Order Summary icon, or
- ◆ Right clicking the mouse whilst the pointer is positioned anywhere over the main screen (excluding the *Batch Data View Table*) and selecting *Order Summary List* as shown in Section 13.2 (ii).

**PreOrder Summary**

Cust. Code	Customer Name	Del Add.	Date/Time Req	QTY	+ VEH No.
HFORH	HABITAT FOR HUMANITY	HUNTER LANE PROPERTY	30/05/2003 09:51:00	9.0	+ 2
ACEC	ACE CONTRACTING	BALWYN HWY	30/05/2003 10:51:00	6.0	+ 1
FRA	JM FRAWLEY SONS	HEALES RD	30/05/2003 15:31:06	8.0	4

Buttons: DELETE, SAVE, CREATE BATCH FROM SELECTED PREORDER

Buttons: START, HOLD, DUMP

**Progressive Orders**

Cust. Code	Customer Name	Del Add.	Date/Time Req	QTY	+ Prog.	Veh. No.	STATUS
FRA	JM FRAWLEY SONS	HEALES RD	30/05/2003 15:31:06	8	5	4	
FRA	JM FRAWLEY SONS	HEALES RD	30/05/2003 15:31:06	8		4	
HFORH	HABITAT FOR HUMANITY	HUNTER LANE PROPERTY	30/05/2003 09:51:00	9	+	2	Running
HFORH	HABITAT FOR HUMANITY	HUNTER LANE PROPERTY	30/05/2003 09:51:00	9	+	2	Part Running

Button: RETURN

**Figure: 39**

The upper section of *Figure 39* shows a typical format of *Pre-Orders* as entered through the *Pre-Order* screen. The screen provides six main items of information that allows the operator to view the *Pre-Orders* in ascending order of time and date required. The summary can be printed or featured as a batching schedule (both of which will be discussed later).

Each of the entries can either be deleted or saved based on the operator's decision.

### 13.4 SELECTION OF PRE-ORDER

To view a particular *Pre-Order*, the operator can click on the *Pre-Order* screen and scroll through the orders by using the forward and reverse buttons on the navigator bar, or right clicking the mouse as discussed in Section 13.2 (ii) and clicking on “*Select Pre-Order*”.

The *Select Pre-Order* file (as shown in *Figure 40*) provides a three field summary of the pre-orders giving the operator a simplified view.



DATE & TIME REQUIRED	CUSTOMER NAME	QTY
30/05/2003 09:51:00	HABITAT FOR HUMANITY	9.0
30/05/2003 10:51:00	ACE CONTRACTING	6.0
30/05/2003 13:51:00	JM FRAWLEY SONS	10.0
30/05/2003 15:31:06	JM FRAWLEY SONS	8.0

**Figure: 40**

RETURN

As each entry is selected the operator will see all the details appearing in the main *Pre-Order Screen*.

**NOTE:** This screen will allow the operator to view the *Pre-Orders* only and not edit them.

## CHAPTER 14 BATCHING

### 14.1 BATCH DATA VIEW TABLE

The *Batch Data View* table provides the operator a real time format of each aggregate, cement, water and additive device. Each device configured for the plant will display the Description, Target value, Actual achieved value, the difference, Accumulated (cumulative) figure, the specified Tolerance and the specific Dry Target weight as identified in the *Mix Design*.

**Note: the values in the Data View table cannot be edited.**

Running

Part Running

**Figure: 41**

Data View						
<div>TEST START HOLD DUMP ABORT</div>						
<b>Front Bin</b>		<b>3278 kg</b>		<b>Moisture 0.0 L</b>		
Material	Target	Actual	Diff	Accum.	Tol	Dry Targ
14B	990	993	3	990	27	550
20B	828	829	1	1818	27	460
PCS	1431	1447	16	3249	27	795
<b>Back Bin</b>		<b>3397 kg</b>		<b>Moisture 0.0 L</b>		
Material	Target	Actual	Diff	Accum.	Tol	Dry Targ
14B	990	1108	118	990	27	550
20B	828	860	32	1818	27	460
PCS	1431	1429	-2	3249	27	795
<b>Cement</b>		<b>499 kg</b>				
Material	Target	Actual	Diff	Accum.	Tol	Dry Targ
GOL	495	496	1	495	11	275
<b>Water</b>		<b>726 litres</b>				
Material	Target	Actual	Diff	Accum.	Tol	Dry Targ
H2O	270	726	456	270	54	150
<b>Additives</b>		<b>0 ml</b>				
Material	Target	Actual	Diff	Accum.	Tol	Dry Targ
AEA	180	0	-180	180	36	100
NCA	0	0	0	180	0	0
WRS	1980	0	-1980	2160	495	400
WRW	0	0	0	2160	0	0

#### 14.1.1 Batching Status

If a single *Aggregate* weigh hopper has been selected in the *Plant Setup*, the *Actual* values in the *Batch Data View* table will appear as a particular colour (*Running*).

In the case of two *Aggregate* weigh hoppers being selected in the *Plant Setup*, the *Actual* values shown in the *Batch Data View* table will appear as shown in *Running* mode (*Figure 41*), denoting the batch is sequenced to weigh the *cement* and will proceed to discharge.

If a second batch has commenced in preparation to follow the first batch but pauses after the aggregates have been weighed, it is distinguished in the *Batch Data View* table as *Part Running*, and is distinguishable by the colours of the *Actual* values

Further identification is displayed towards the right hand side of the status bar. Adjacent to each *Agg#1* and *Agg#2* notation, the reference of “*Running*”, “*Part Running*”, “*Stopped*” and “*Ready to Dump*” will be displayed.

## 14.1 BATCH DATA VIEW TABLE (Cont...)

### 14.1.2 Function Buttons

- ◆ **Test** provides the operator the ability to check the values of the *mix design* and their allocations prior to batching. Any deficiencies, corrections or error messages will be displayed in the same manner as if it were about to commence batching.
- ◆ **Start** will commence the batch sequence. Note the colour of the button is red when not batching and will change to green once the button has been clicked and the sequence started.
- ◆ **Hold** will pause the batching sequence. The background colour will alter from white to green.
- ◆ **Dump** will commence the discharge sequence for the batch in *running* mode.
- ◆ **Abort** will cancel the batching sequence after the *Hold* button has been clicked.

### 14.1.3 Moisture

The *moisture* value that appears on the *Batch Data View* table is the sum total (in litres) of *moisture* present in the *aggregate(s)* as identified in the *Bin Setup* file (Section 5.1.4). The *moisture* value is calculated from the *mix design*, converted from the moisture component(s) in the *aggregate(s)* and adjusted the *water* addition accordingly.

**For example:** If a mix design has the following components that influence the *moisture* content on a per CuM basis, then

PCS (Sand)	860 kg (dry basis)
Water	150 litres (or kg)

The *Bin Setup moisture* value for PCS is 5%, the Batch Data View table would display the values as follows;

PCS (sand)	905 kg,	Moisture as 45.3 (L) litres [5% of the 905 kg is moisture]
Water	105 litres	[105 litres – 45.3 litres = 104.7 litres]

The option of presenting the figure as an absolute value as opposed to a % (percentage) is to take into account the possibility of having more than one *aggregate* (such as sand) in the mix design with differing amounts of *moisture*. It also provides a realistic approach as to the quantum of total water present in the batch, enabling the operator to critically judge the amount of water adjustment that may be required.

## 14.2 BATCH FOLDER

The *batch* folder (Figure 42) is similar to the *Pre-Order* screen (Figure 37), whereby entries inserted in the *pre-orders* are carried through to the *batch* screen. Note the background colour of the *batch* screen compared to the *pre-order* screen is a distinguishing feature enabling the operator to quickly identify between the two.

The batch screen is where changes can be made just before commencement of batching.

As previously discussed in Section 1.2, clicking on the **bold coloured text** will allow the operator access to a particular file if adjustments need to be carried out.

**Figure: 42**

The screenshot shows the AxiBatch Batch screen with a yellow background. The main window is divided into several sections: Customer, Agg Hopper, Instructions, ADMIX ADJUSTMENTS, QUANTITY, Costing Details, and Vehicle Details. A Data View window is open on the right, showing material data for Agg1, Cem (Agg1), Water, and Additives. Arrows point from the 'Mix Design' text in the Customer section to the 'File Access' label, and from the 'Additives' section in the Data View window to the 'Access to Additives' label.

**Customer Section:**

- Class: Cash Mini
- Customer Code: JEN
- Customer Name: Jensions Concreters
- Del. Address: 25 Boral Street, East Burwood
- Map Ref: 45 J12, KM 25
- Code: 20MPA
- Description: 20 MPA CONCRETE
- Slump: 20MPA, Strength (Mpa): 25, Agg Size: 20

**Agg Hopper Section:**

- Agg Hopper: Agg1
- Order Number: Y65
- Project Number: 45666
- Docket Number: DOCN07
- Instructions: Turn Left after Brunton Ave, Deliver Black Oxide

**ADMIX ADJUSTMENTS Section:**

- Returns: 1
- Water Adjust (L/CuM): -10
- Batches Complete: 6
- Total Batches Rem.: 1
- Weekend?: NO

**QUANTITY Section:**

- Total Order: 35
- This Order: 5
- Progressive: 30

**Costing Details Section:**

- Total Misc Costs: \$ 70.00
- Flat Charge: \$
- Concrete Cost/CuM: \$ 225.00
- Total: \$ 295.00
- Tax Amount: \$ 29.50
- Total (Inc.Tax): \$ 324.50
- Prog. Cost Excl Tax: \$ 3020.00

**Vehicle Details Section:**

- Number: RFG453
- Driver's Name: John Speed
- Discharge Profile No.: 1
- Truck Type: Big

**Data View Window:**

**Agg1 Moisture 0.0 L 0 kg**

Material	Target	Actual	Diff	Accum.	Tol	Dry Targ
12M	1165	1165	0	1165	50	233
20M	1725	1725	0	2890	50	345

**Cem (Agg1) 0 kg**

Material	Target	Actual	Diff	Accum.	Tol	Dry Targ
GOL	625	0	-625	625	50	125

**Water 2200 litres**

Material	Target	Actual	Diff	Accum.	Tol	Dry Targ
WATER	2200	2200	0	2200	48	450

**Additives 6100 ml**

Material	Target	Actual	Diff	Accum.	Tol	Dry Targ
AIR905	1625	2200	575	1625	52	260
FIB0952	3900	3900	0	5525	50	780

Access to  
Additives

File Access

Scrolling through the *batch* records can be carried out by clicking on the forward and reverse arrow buttons.



## 14.2 BATCH FOLDER (Cont...)

The centre area on the right hand side of the batch folder is where some of the key adjustments can be carried out.

**Note:** Any corrections or adjustments made in the batch screen must be posted (saved) to ensure they are recorded for the particular batch.

### 14.2.1 Admix Adjustments

Once the batch record has been created, the additives that are to be used will be displayed in the *Admix Adjustment* folder.

Often a *customer* will request that either one of the additives requires more or less to be corrected in the mix, or an additive is exchanged for another such as “*Winter*” mix for “*Summer*” mix. By clicking on the ‘*Admix Adjustments*’ button the editing file appears (Figure 43). This file carries the *additives* and their respective amounts that are assigned in the *mix design*.

Material Code	Amount	Units
AEA	60	ml/CuM
NCA	0	ml/CuM
WRS	300	ml/100 kg of Cement
WRW	0	ml/100 kg of Cement

**Figure: 43** RETURN

The system provides for up to any four *additives* to be used in the *mix design*. By altering the quantity or exchanging the material(s) in the *Admix Adjustments* file will not alter the *mix design* record.

It is recommended to insert the four most common *additives* used when formatting the *mix design* table and placing a zero (0) in the “*Amount*” column next to the *additive* that is not used on a regular basis. The tolerance value is to be included.

To adjust an *additive* value simply type in the required amount into the respective box(s) and click “*Return*”. To view the adjusted values on the *Batch Data View* table, click on the “*Test*” button. The new values will remain the default for the *mix design* for the *customer’s* entire order, until either the file is reset or the order is completed.

Resetting the value(s) back to the main *mix design* is carried out by typing a **minus one (-1)** in the edited box(s).

**Note:** Adjustment to the additives can be carried either prior to commencement of the batch or after the batch has started but before discharging (dumping).

### 14.2.2 Returns

This field allows for the *User* to re-use any returned concrete that matches the mix design of the next batch. A negative number (-ve) typed in this field will increase the batch quantity by the respective amount but will not be printed on the delivery docket. A positive value (+ve) will reduce the amount of concrete to be batched but the incremental amount will not appear on the delivery docket.

However, in both cases the actual material batched through the plant will be recorded on the system's database for batch reports. These corrections must be made prior to commencement of the batch.

## 14.2 BATCH FOLDER (Cont...)

### 14.2.3 Water Adjust (L/CuM)

The *water adjustment* field enables the operator to correct for the addition or removal of water for any *batch* without the need to alter the *Bin Setup* default for the *moisture content* in the *Aggregate(s)*. By viewing the amount of *moisture* displayed for the *Aggregate* hopper and the amount of *water* present in the *mix design* (both shown on the *Batch Data View table*), the operator can adjust the amount, if required, by typing in the value. The amount typed in will reflect what is to be corrected on a per *CuM* basis for the *batch*. By entering negative values *water* will be deducted, similarly, a positive value will add *water* to the *batch*.

**Note:** If no water is to be added to the batch at all a value of minus 99 (-99) is to be typed into the field. The adjustments for water correction can be made after the batch has started but before the batch is 'dumped' (discharged).

### 14.2.4 Non Editing Fields.

Non-editing fields such as; *Progressive*, *Batches Complete* and *Tot. Batches Remaining* are values updated by the batching system after every completed *batch*. These fields are for viewing purposes only and cannot be edited.

### 14.2.5 Total Order & This Order

These fields are entries that have been recorded from the customer's pre-order and can be edited on this screen.

## 14.3 CREATING A BATCH RECORD

The power of the computerised batching system is demonstrated with the ability of any one of two methods that a *batch* record can be created;

### 14.3.1 Create New Batch from Active Pre-Order

Whilst in the *Pre-Order* screen a *Batch* record is created by right clicking the mouse and a select menu will appear (as shown in *Figure 44*). Move the pointer to select "Create New Batch from Active Pre-Order". The *Active Pre-Order* is the *pre-order* present on the screen.



**Figure: 44**

The 'New Batch Form' screen (*Figure 45*) will appear. Select the *Aggregate Hopper* that you wish to send the pre-order to by clicking on the drop down box.

If the plant is set to *Auto Cycle* or *Auto Bin Swap*, regardless of the selection



**Figure: 45**



chosen the system will automatically allocate the next weigh hopper. If a single bin plant is present the system will automatically default to the same bin.

To complete the creation of the batch, click on “Insert New Batch”. To view the batch record, click on the batch folder where it will be displayed.

### 14.3 CREATING A BATCH RECORD (Cont...)

#### 14.3.2 Pre-Order Summary List

The alternative method of generating a batch is to select the *Order Summary List* from the select menu (as shown in *Figure 44*). The posted *pre-orders* are automatically listed in this file (*Figure 46*). To create a *Batch*, select the required *pre-order* with the mouse pointer and then click the ‘*Create Batch from Selected Pre-Order*’ button. The ‘*New Batch Form*’ (*Figure 45*) screen will appear enabling the operator to select the required *Aggregate* hopper (as discussed in *Section 14.3.1*).

Once created the *batch* record is scheduled in the *Progressive Orders* section of the screen as shown below (*Figure 46*).

**Order Summary**

**PreOrder Summary**

Cust. Code	Customer Name	Del Add.	Date/Time Req	QTY	+ VEH No.
HFORH	HABITAT FOR HUMANITY	HUNTER LANE PROPERTY	30/05/2003 09:51:00	9.0	+ 2
ACEC	ACE CONTRACTING	BALWYN HWY	30/05/2003 10:51:00	6.0	+ 1
FRA	JM FRAWLEY SONS	MOUNTAINVIEW DRIVE	30/05/2003 13:51:00	10.0	+ 4
FRA	JM FRAWLEY SONS	HEALES RD	30/05/2003 15:31:06	8.0	4

Buttons: DELETE, SAVE, CREATE BATCH FROM SELECTED PREORDER

Buttons: START, HOLD, DUMP

**Progressive Orders**

Cust. Code	Customer Name	Del Add.	Date/Time Req	QTY	+ Prog.	Veh. No.	STATUS
FRA	JM FRAWLEY SONS	HEALES RD	30/05/2003 15:31:06	8	5	4	
FRA	JM FRAWLEY SONS	HEALES RD	30/05/2003 15:31:06	8		4	

No batch in progress

**Figure: 46**

RETURN

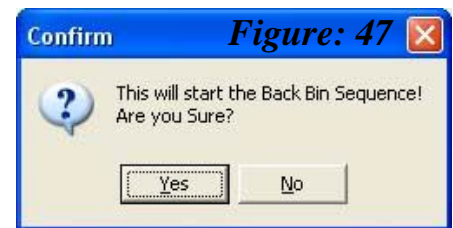
As each *batch* record is presented in the schedule of the *Progressive Orders* screen it can be started from this screen! However, the *User* (operator) must ensure that all the details are present for the *batch* to commence. The *Progressive Order* schedule also indicates the status of any batch in progress (*Figure 39*). The colour of the *Start*, *Hold* and *Dump* buttons reflect if any *batch* has commenced or is discharging. The colour red denotes no activity, whereas if the *Start* and *Dump* buttons were green, one or both of the activities has been initiated.

## 14.4 BATCH SEQUENCE

The *status bar* at the bottom of the screen will display what stage the *aggregate weigh hopper(s)* is undergoing. During the initial training period the operator is asked to confirm both the starting and dumping sequence (commands). This confirmation feature is activated in the *Options* folder (as discussed in *Section 3.7, Figure 23*). Once the *User* is comfortable with starting and dumping batches, the feature can be switched off so no confirmation message is displayed.

### 14.4.1 Starting a Batch

Prior to commencing a batch ensure all the pertinent information is entered. If any mandatory information is missing, error messages will alert the operator to correct or insert the relevant data.



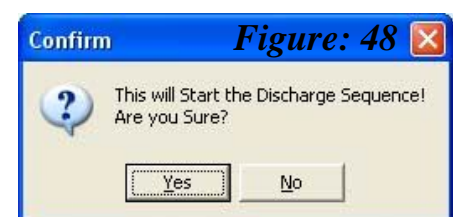
To start the batch, click the 'Start' button on the *Batch Data View* table. The data will be downloaded to the PLC and the confirmation message (*Figure 47*) if activated will be displayed. The message will highlight which bin will commence batching (if more than one is present). Click the 'Yes' button and batching will commence.

If more than one *aggregate weigh hopper* is present in the plant, one *batch* can be started whereby the sequence will continue to the point where the *batch* is ready for *discharge* until the operator clicks on the 'DUMP' button. Meanwhile, the second *aggregate weigh hopper* can also commence the *batch* but will be limited to weighing the *aggregates* only (on the basis that one *cement weigh hopper* is present in the plant). The second batch will be identified as 'Part Running' in the status bar.

Once the first *batch* has *discharged* and *cement hopper* has been emptied the second batch will revert from 'Part Running' to 'Running' and system will initiate the weighing of the cement, allowing the batch to proceed to the dump stage. In an *Auto Cycle* or *Auto Bin Swap* mode the next batch can be initiated in 'Part Running' mode but will be limited to weighing the aggregates until such time the *cement weigh hopper* is empty.

### 14.4.2 Dump (Discharging) Sequence

Unless a fault occurs within the plant, the system will progress to the *dump (discharge)* stage. This will be evident on the *status bar*. Once the *batch* is ready to *dump* click on the button and a confirmation message (if initiated) will appear. Click on the 'Yes' button to confirm the sequence.

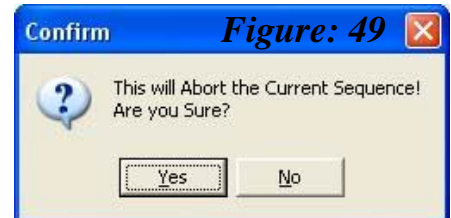


## 14.4 BATCH SEQUENCE (Cont...)

### 14.4.3 Hold and Abort

To *pause* the batch, click on the “*HOLD*” button.

To *abort* the batch, first click on the “*HOLD*” button and wait until the *pause* mode is initiated then click on the “*ABORT*” button. This will display a confirmation message (*Figure 49*). To accept the confirmation to *abort*, click ‘*Yes*’.



**Note:** Once the *batch* has been *aborted* the usage of material will not be entered into the database.

### 14.4.4 Batch Completion

Once the entire *batch* has proceeded to completion, the status bar will display the following text message;

**“Front (or Back) Bin Stopped!”**

As each *batch* is completed the usage will be updated as well as the relevant information relating to any *progressive orders*. The *delivery docket* will be printed either at the commencement of discharge or at the completion of the *batch* depending on the setup parameters that were inserted for the printing mode in *Section 3.2*. If the automatic deletion feature has been enabled, the *batch* record will be deleted from the screen if the *order* is completed.

## CHAPTER 15 COMPLETED LOADS

As each batch is completed all the data from the load is transferred to the *Completed Loads* file. The folder is accessible by clicking on the ‘*Completed Loads*’ folder tab. The screen is divided into two main areas; the upper half ‘*Completed Load Materials*’ and lower half as ‘*Completed Loads*’.



Figure: 50

## 15.1 COMPLETED LOADS

The search engine of the computerised batching system offers any combination of five selection modes to retrieve any *completed load(s)* from the database.

To view any batch record from the database click on the ‘Search’ button and the selection screen (*Figure 51*) will appear.

**Figure: 51**

**Note if the User solely selects the ‘Deliver Address’ criteria, the details must be accurate to retrieve the correct batch record.**

Once the combination has been selected, click on the ‘Search Now’ button and the selected criteria will be displayed on the bottom half of the screen (as shown in *Figure 50*).

## 15.2 COMPLETED LOAD MATERIALS

The *Completed Load Materials* section on the screen displays the individual *batch record* for a selected load. To view the *batch record*, click (or highlight) the particular load from the bottom section of the screen. The *batch record* will display all the particular details related to the selected load. The *User* can scroll through the details by clicking on the scrolling arrows at the bottom and side of the viewing table or by using the arrow keys on the keyboard.

## 15.3 PRINT LOADS/DOCKET/BATCH REPORT

To print or print preview any particular load report click on the ‘Print’ button. There are four available options (as shown in *Figure 52*).

### 15.3.1 Print Loads

The *Print Loads* option enables the *User* to print a load report over a selected date period. Each entry of the *load report* is a single line identifying ten main features of each load (*Figure 53*) with the totals at the end.

To select the date range, simply click on the drop down arrow buttons to show the calendar images (*Figure 6*) and click on the required date.

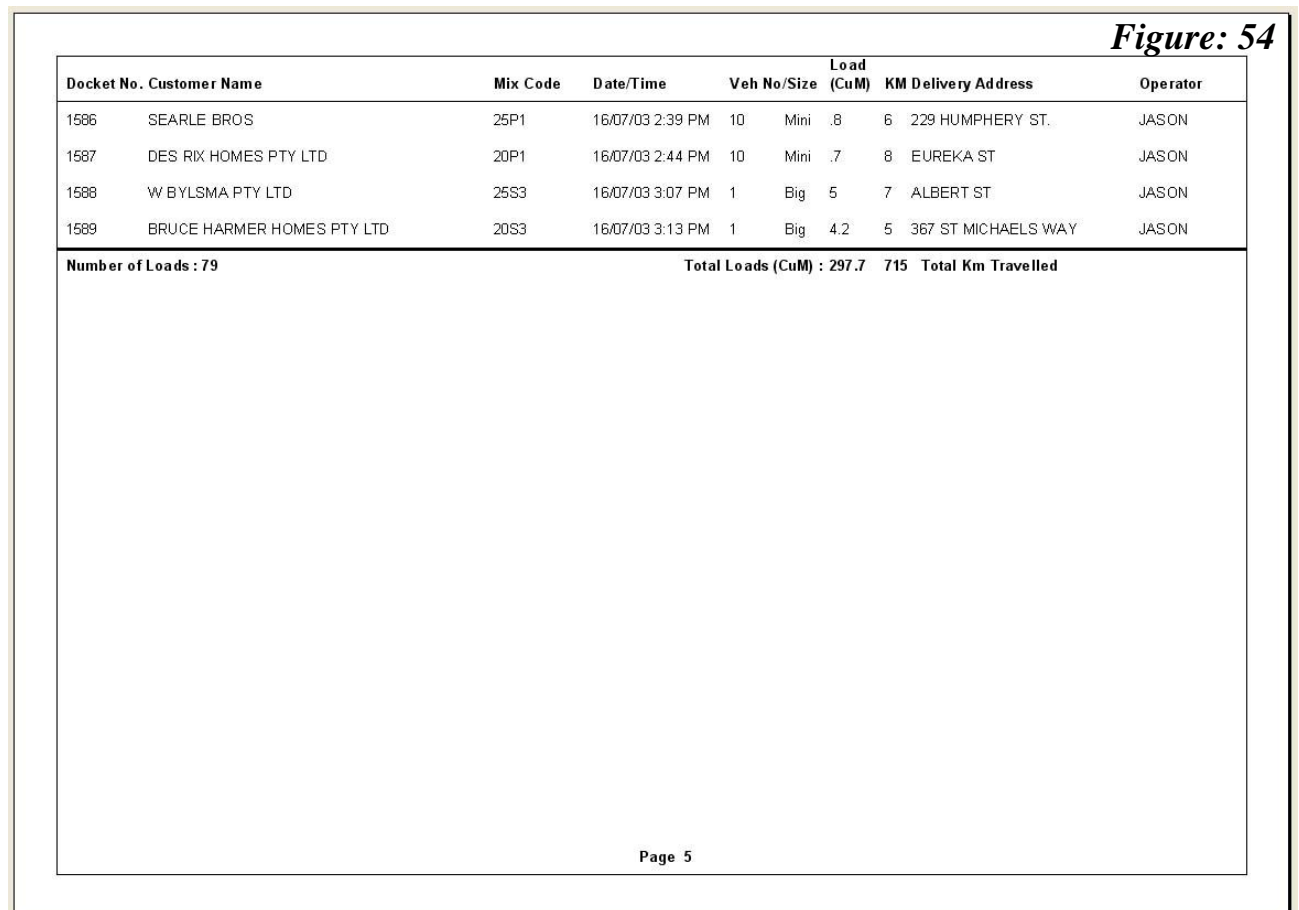
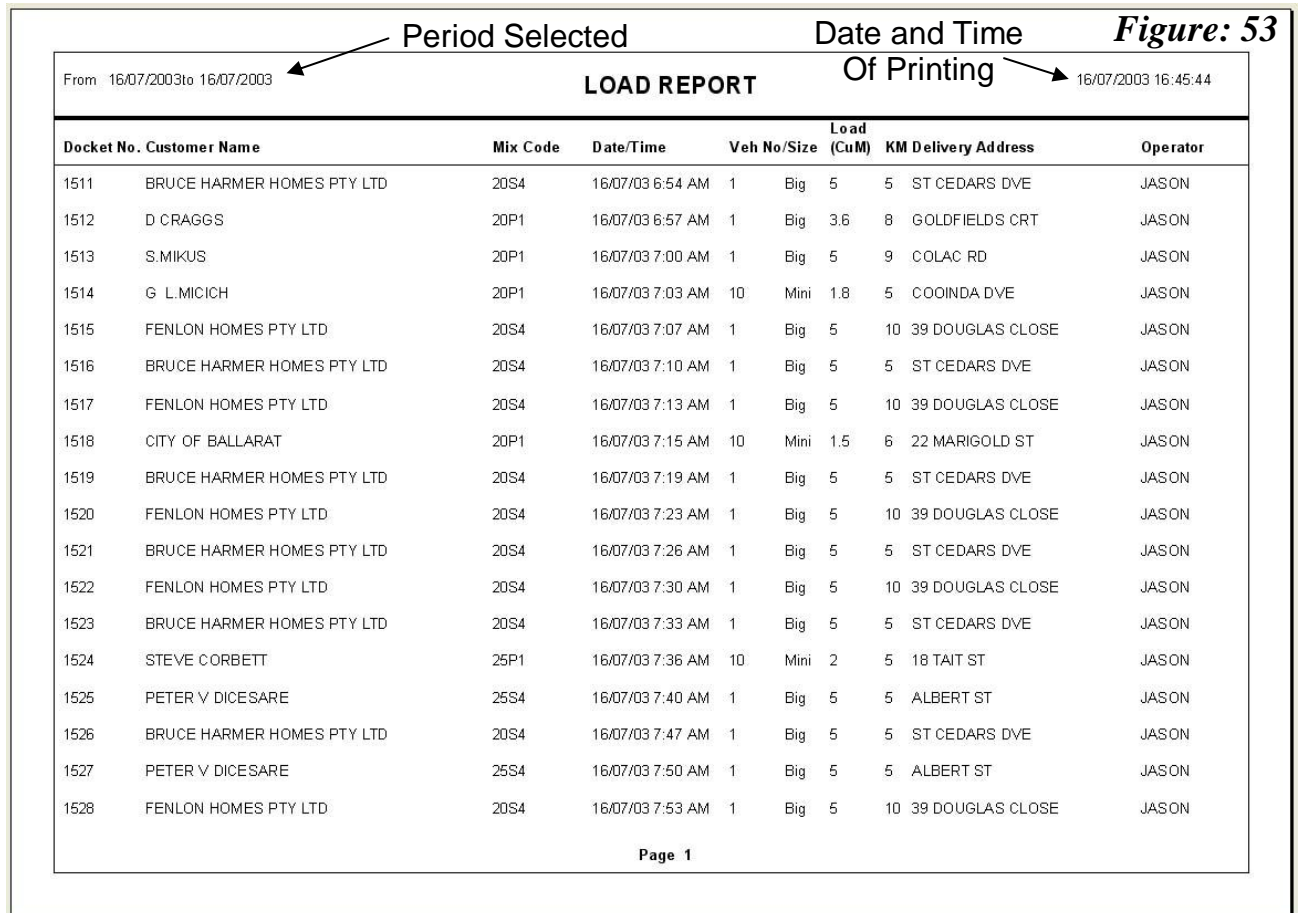
Once the date range has been selected click on the ‘Print Loads’ button and the selected load report will be appear as a *Print Preview* image. Once viewed, the report can then be printed. To print the report, click on the *Print* icon button at the top of the screen. If a separate printer is available for printing of reports ensure the *Print Setup* mode has selected the appropriate printer before clicking the *Print* button.

*Figures 53 & 54* represent the format of the Load Reports.

**Figure: 52**



### 15.3 PRINT LOADS/DOCKET/BATCH REPORT (Cont...)



## 15.3 PRINT LOADS/DOCKET/BATCH REPORT (Cont...)

### 15.3.2 Print Today's Loads

If the Print Today's Loads button is clicked the print preview and printing will automatically display today's loads without the need of selected the calendar period. The format is identical to that displayed in *Figures 53 & 54*. This feature is very useful when printing the records at the end of the day. Naturally, if the printing is carried out in the middle of the day, only the loads completed at the time of printing will be recorded.

### 15.3.3 Print Docket on Selected Load

On the occasions that a delivery docket requires re-printing, select the *completed load* from the screen (*Figure 50*) and click on the "Print Docket on Selected Load" button. The preview (*Figure 55*) will be displayed, once the *User* is satisfied with the docket the print button is clicked to initiate the printing of the delivery docket. The *User* must ensure the *Docket* printer is selected (or defaulted) at the time of printing.

**Figure: 55**

NOT A VALID DOCKET! UNREGISTERED VERSION!				
25/06/2009	Melbourne			
COD	Andrew Stone			
12 Shalimar Street		45 G4	06:36 PM	
Collect cash at site		5	Mike Yuk	
			RTY541	
1.2 CuM		1.2 CuM	1.2 CuM	
20MPA				
20MPA	20	AIR905	FIB0952	
\$0.00	\$0.00	\$0.00	\$0.00	X

This example is based on a format that accommodates pre-printed company dockets whereby the load's particular information is printed into the relevant areas.



### 15.3 PRINT LOADS/DOCKET/BATCH REPORT (Cont...)

#### 15.3.4 Print Batch Report on Selected Load

BATCH REPORT for AXION					25/06/2009		12:05 PM	
Truck No. : RTY541		Batch No. 1 of 1		Docket No. DOCNO2				
Batch Size :1.2		Mix Design : 20MPA		Operator : Technician				
Customer : Andrew Stone		Job Address : 12 Shalimar Street						
Bin Used: Agg1								
Material	M%	Mix	Target	Actual	Diff	Tolerance	Type	
12M		233	279.6	280	.4	12	Agg1	
20M		345	414	412	-2	12	Agg1	
Tot Agg1			693.6	692	-1.6			
Material	M%	Mix	Target	Actual	Diff	Tolerance	Type	
GOL		125	150	151	1	12	Cem	
Tot Cem			150	151	1			
Material	M%	Mix	Target	Actual	Diff	Tolerance	Type	
WATER		450	540	545	5	12	Water	
Tot Water			540	545	5			
Material	M%	Mix	Target	Actual	Diff	Tolerance	Type	
AIR905		260	390	392	2	15	Additives	
FIB0952		780	936	1000	64	12	Additives	

The batch record provides detailed information of the selected batch. To print the *Batch Record*, select the appropriate completed load from the screen (*Figure 50*) and click on the “*Print Batch Report on Selected Load*” button. As with the previous features, the print preview (*Figure 56*) will display the record prior to printing. Once the *User* is satisfied the information is correct, click on the *Print* button to print the record, ensuring the *Printer* setup is selected to the correct printer.

## CHAPTER 16 COMPLETED ORDERS

The *Completed Orders* file is a total of all the completed loads pertaining to a particular customer for the day. To view the information click on the *Completed Orders* tab as shown in (Figure 57).

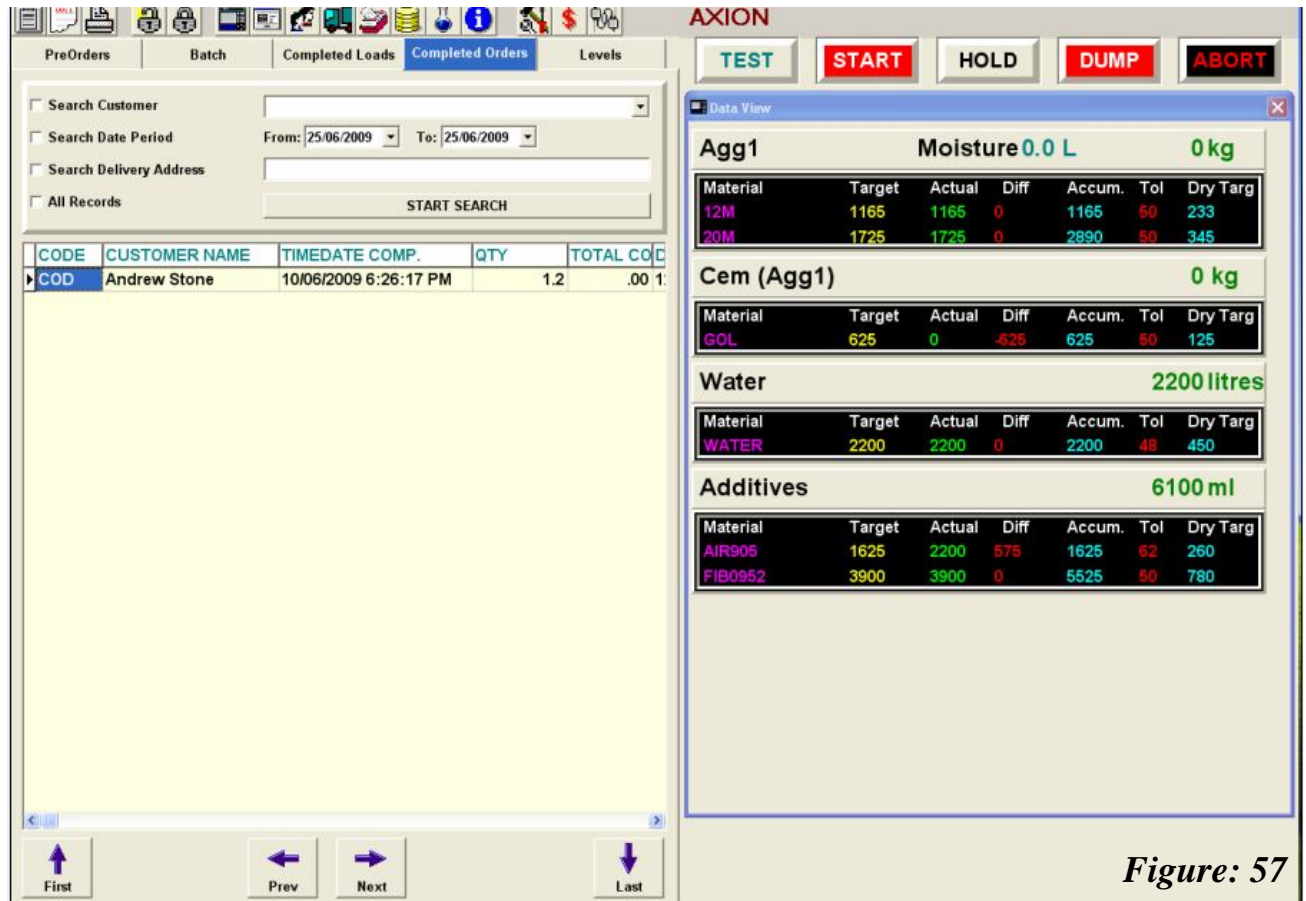


Figure: 57

The search process is similar to that described in *Section 15.1*. The various combinations offer the *User* a variety of selection criteria to identify an order(s).

Select the appropriate criteria and click on the “Search” button. Any information relating to the selection will be displayed on the screen. The *User* can then scroll through the screen to view any particular details for the completed order(s).

Printing (*Chapter 17*) of the *Completed Orders* selection can be carried through the main *Printing* mode via the *File, Print Menus* command or by clicking on the *Print* icon.



## CHAPTER 17 PRINTING

The EDI-Readymix 2003 enables the User to print a variety reports from information existing within the system. Prior to printing any report, ensure the *Setup* format commands have been correctly configured.

To enter the *Print Form* screen the *User* can either click on the *File Print* menu command or simply click on the *Print* icon.

The **Preview** box, if checked will enable the User to automatically preview the report prior to printing.

### 17.1 SETUP

The *Print Setup* is a standards *MS Windows*® feature that formats the printer(s) accordingly to the *User's* preferences.

To change the settings click on the appropriate buttons to select the changes.

Click on the “OK” button to save and exit the screen.

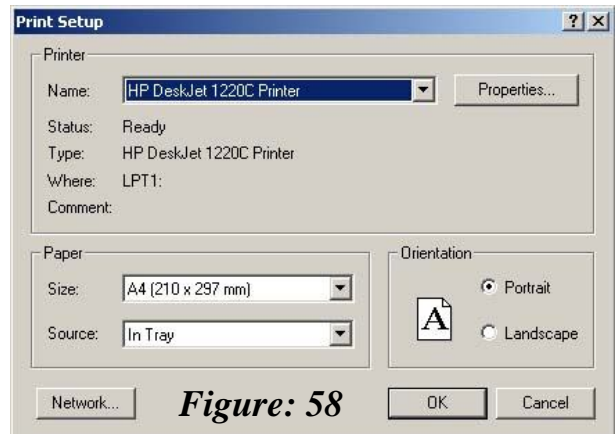


Figure: 58

### 17.2 PRINT FORM

Figure 59 displays the screen that appears when the *Print Form* is first selected. To select a *report*, click on the drop down box where a list will appear with the available *reports*.

Each report selected will also display additional selection criteria pertinent to the *report*.

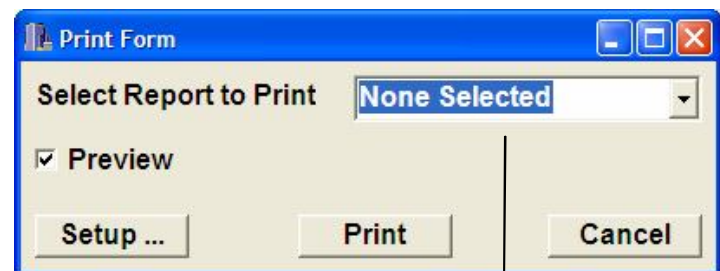


Figure: 59



### 17.3 COMPLETED ORDERS

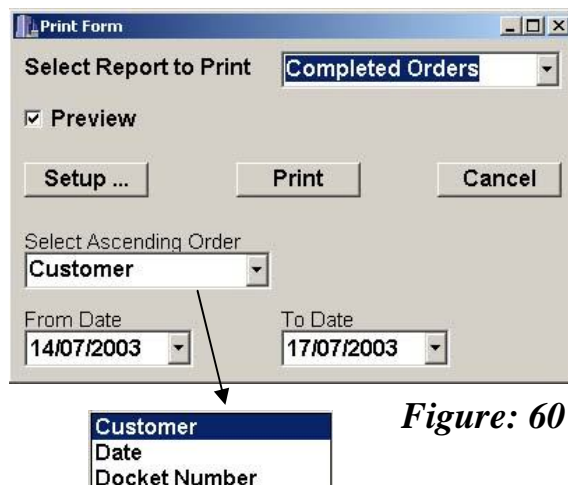


Figure: 60

The User can select the date period by which the Completed Orders report is searched as well as selecting the order in which the information is displayed. The “Ascending Order” can be set to one of the three modes (if the date period is more than one day);

- Customer (alphabetical),
- Date, or
- Docket Number

Once completed, click on the print button to view the selection.

## 17.4 CUSTOMERS

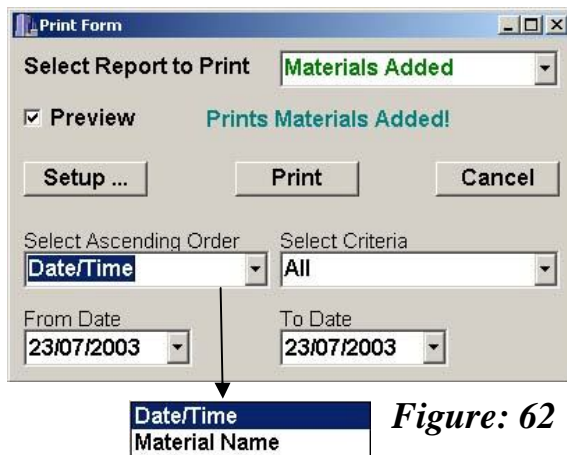
There are no additional selection criteria when printing the ‘Customer’ report. The *Report* will display eight columns of information;

- ◆ Code,
- ◆ Name,
- ◆ Class (Maxi),
- ◆ Class (Mini),
- ◆ Contact,
- ◆ Phone and
- ◆ Fax.



**Figure: 61**

## 17.5 MATERIALS ADDED



**Figure: 62**

The *Materials Added* report will display any recorded materials that have been delivered to the plant.

There are two options for the ascending order as shown in *Figure 62*, ‘Date/Time’ (of delivery) or *Material Name (Code)*. Select either choice by clicking on the drop down box.

The selection criteria allows the *User* to either select any individual material or “All” the materials listed.

Once the search criteria have been selected, click on the *Print* button to display the particular report.

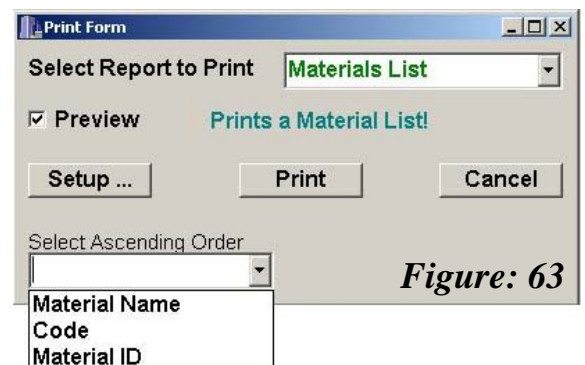
## 17.6 MATERIALS LIST

The *Materials List Report* is a printout of the materials entered into the file as outlined in *Chapter 4.0*.

The selection is simplified by choosing one of three search modes to display the report in a particular ascending order (*Figure 63*).

To display the information of the *Materials* listed, click on the ‘*Print*’ button, formatted into four columns identifying;

- ◆ Material Name,
- ◆ (Material) Code,
- ◆ Units, and



**Figure: 63**

◆ Type.

## 17.7 MIX DESIGN

Figure 64 shows the 'Print Form' dialog box for the 'Mix Design' report. The 'Select Report to Print' dropdown is set to 'Mix Design'. The 'Preview' checkbox is checked. The 'Setup ...' button is highlighted. The 'Select Ascending Order' dropdown is set to 'Material Code'. The 'Select Mix Design' dropdown is set to '15S3'. A list of ascending order options is shown: Material Code, Material Name, and Amount.

Figure: 64

The 'Mix Design' report enables the *User* to print a hard copy of the recipes that are stored in the data base.

Select the required *mix design* by clicking on the up and down arrow buttons.

Choose the method of ascending order that the report to be display by clicking on the drop down box (Figure 64). To preview the report, click on the *print* button.

## 17.8 PLANT SETTINGS

Figure 65 shows the 'Print Form' dialog box for the 'Plant Settings' report. The 'Select Report to Print' dropdown is set to 'Plant Settings'. The 'Preview' checkbox is checked. The 'Setup ...' button is highlighted. The 'Print' button is also highlighted.

Figure 66 shows the 'Plant Settings' report layout. The report is titled 'Plant Settings' and includes a timestamp '24/07/2008 11:33:47'. The report is divided into two main sections: 'Main Plant Settings' and 'PLC Settings'.

**Main Plant Settings**

- Plant Name : EUREKA PREMIX CONCRETE
- Plant Address : 1207 LATROBE ST. BALLARAT
- Plant Type : Front End Loader
- Max. Quantity per Batch (kg) : 60
- Bin Setup : Dual Bin Control
- Aggregate #1 Hopper : Enabled
- Aggregate #2 Hopper : Enabled

**PLC Settings**

- PLC Type : Hitachi (H252C)
- PLC Baud Rate : 19200
- PLC Com Port : 1
- PLC Parity : EVEN
- PLC Stop Bits : 1

The report also includes a table of settings for the aggregates, cement, water, and additives.

	Agg #1	Agg #2	Cement	Water	Additives
Hopper Name:	Front Bin	Back Bin	Cement	Water	Additives
Type:	N/A	N/A	N/A	Flow Meter	Flow Meter
No. of Gates:	Dual Gate	Dual Gate	1 Gate		
No. of Positions/Gate:	3 Positions	3 Positions	2 Positions		
Scale Factor:	1	1	1	1	0.01
Hopper Capacity (kg):	15000	15000	3000	1500	
Settling Time (sec):	3	3	2	4	4
Zero Band (kg):	15	15	15	10	
Empty Band (kg):	15	15	15	10	
Alarm - Initial Flow:	10	10	10	5	3
Alarm - Main Flow:	15	15	20	5	3
Alarm - Flow Amount:	30	30	5	32	3
Alarm - Feedback Time (sec):	5	8	6	5	3
Conveyor :	Enabled	Enabled	Dis abled		
Conveyor Delay Off Time (Sec):	10	10	3		
Conveyor Gate Delay On Time (Sec):	2	5	3		
Gate 1 Pos 1 Flow Rate:	5	5	5		
Gate 1 Pos 2 Flow Rate:	5	5	5		
Gate 1 Pos 3 Flow Rate:	5	5			
Gate 2 Pos 1 Flow Rate:	5	5			
Gate 2 Pos 2 Flow Rate:	5	5			
Gate 2 Pos 3 Flow Rate:	5	5			
Remote Display MSG Times (Sec):	2	0			
Hold Batch until 1st Aggregate Ingredient is in:			Dis abled		

Page - 1

Figure: 66

The *Plant Setup* report will summarise the settings inserted during the initial installation.

To print the *Plant Setup* report is click on the 'Print' button.

Figure 66 shows a typical layout.



## 17.9 PRE-ORDERS

Figure 67

The 'Pre-Orders' report is a valuable sheet that provides the *User* with a hard copy print-out of the following days expected loads.

Select the date period for the search by clicking on the respective arrows. The *User* can then select the method of ascending order by which the report will be displayed (Figure 67);

- Date/Time,
- Customer Name, and
- Quantity.

## 17.10 TRUCK REPORT

The *Truck Reporting* feature allows the business to commercially evaluate distances the vehicle travels against its ongoing vehicle costs on the basis of the inserted values in Section 3.6.

Figure 69 is an example from two pages of reporting.

Figure 68

24/07/2003 19:51		<b>Truck Report</b>			
From: 10/07/2003					
To: 10/07/2003		Vehicle No - 1			
Date	Customer Code	Load (CUM)	Dist (Km)	Truck Cost	Truck Size
10/07/03 11:14 AM	STEL	1.4	7	\$52.53	8kg
10/07/03 11:23 AM	SMYT	2.6	44	\$155.76	8kg
10/07/03 12:02 PM	BOSB	2	14	\$72.06	8kg
10/07/03 12:33 PM	CHAR	4	10	\$81.20	8kg
.....					
10/07/03 12:37 PM	CO D	2	6	\$49.74	8kg
10/07/03 1:53 PM	CO D	2	22	\$94.38	8kg
10/07/03 2:52 PM	BERM	5	5	\$78.25	8kg
10/07/03 3:29 PM	CO OM	5	5	\$78.25	8kg
TOTAL		224.1	466	\$436.57	
Page - 2					

Figure 69

## CHAPTER 18 DATA MANAGEMENT

The *Data Management* of the batching software enables the *User* to transfer key files to and from other application that contain existing information or utilises record for accounting and invoicing purposes. The *Backup* features provide security to save either the *main database* or the *completed loads* onto other storage devices for future reference or retrieval of past records for auditing processes.

### 18.1 IMPORT

The *Import* function allows the *User* the ability to transfer existing information from previous system to the current application avoiding the need to re-type the data. The transferable files are;

- Bins
- Cost Codes
- Customers
- Delivery
- Discharge Profile
- Pre-Orders
- Materials
- Mix Design
- Mix Items
- Suppliers
- Vehicles

To access the *Import* function click on *File, Import* menu command.

#### 18.1.1 Select File to Import

Typically the files that are to be imported will have a .txt, .dat or .rtf extension. Select the particular file that is to be imported into the database by click on the '*Select File to Import*' button. If the format parameters are correct a '*File Read, OK*' message will be displayed prompting the *User* to confirm by clicking on the '*O.K*' button.

#### 18.1.2 Select Table to Import To

To select the file the information is to be imported to click on the drop down box and select the required file ensuring the receiving file is the correct file to where the data will be transferred. Once selected, the '*Selected Fields to Import*' will be displayed in the box adjacent. At this stage the *User* can evaluate the relevant fields that are to be imported. If all the fields that are listed are to be imported then click on the '*Add All*' button to the '*Fields to be Imported to*' box which will display all the fields previously displayed.

**Note: The fields selected into the '*Fields to be Imported to*' box must be in the same order as the batching software's sequence.**

If all the fields are not required then *add* the fields into the box one at a time in the order that are required by clicking on the '*Add =>*' button. To remove a field that has been erroneously inserted, click on the highlighted field and click on the '<= *Delete*' button. To delete all the fields and start again, click on the '*Del All*' button. The completed selection can be saved for future reference by clicking on the '*Save*' button.



## 18.1 IMPORT (Cont...)

### 18.1.3 Select Method of Importing

To select the method to import the fields click on the drop down box and choose 'Insert'.

**Note:** This will override any other entries currently in the existing fields.

Import

Select File to Import      Filename Select -> File Selected

Select Table to Import to  
 Select Method of Importing  
 Insert  
 Select Type of File  
☐ FieldNames contain ""

Select Fields to Import

ADD =>  
 ADD ALL  
 <= DELETE  
 DEL ALL  
 SAVE LIST

Fields to be Imported to

START IMPORT

Number of Records Read => ??  
 Number of Bytes Read => ??  
 ???  
 ???  
 ???  
 ???  
 ???  
 ???  
 ???

Delete Customers	Delete Discharge Profile
Delete Suppliers	Delete Bins
Delete Delivery	Delete PreOrders
Delete Materials	Delete Mix Items
Delete Mix Designs	

RETURN

**Figure: 71**

### 18.1.4 Select Type of File

There are three typical formats that can be used to import the information into the system and these are dependant on the type of file that is to be imported. To select the type, click on the drop down box and select one of the three;

- ◆ (CSV) Comma Delimited,
- ◆ Space Delimited,
- ◆ TAB Delimited.

By viewing the format of the file to be imported in the ‘*Select File to Import*’ box the *User* will ascertain the type of file that requires selection.

For example: If the information from field to field is separated by commas then the file type is *(CSV) Comma Delimited*.

## 18.1 IMPORT (Cont...)

### 18.1.5 Field Names contain ""

If the information viewed between field to field contains quotation marks (") then the box must be checked (✓).

### 18.1.6 Start Import

Once all the field parameters and file types have been setup click on the ‘*Start Import*’ button to commence the transfer. As the information is being imported a viewing box will display the amount of information being transferred. This will be displayed as ‘*Number of Records Read*’ and ‘*Number of Bytes Read*’.

Once the importation has completed the message “*Importing of the (file name) is Complete*”, the *User* can then click on the “*OK*” button.

**Note: If any piece of information is incorrectly positioned in the importing file such as a missing address field or a supplier’s name is residing in the ‘*phone*’ field the system will display the incorrect information based on the original file as it was imported.**

To exit the screen and view the imported information, click on the ‘*RETURN*’ button and enter the necessary file in the system.

## 18.2 EXPORT

The *Export* function is similar to the *Import* features and allows the *User* the ability to transfer existing information from the current application to another application for either invoicing or analysis purposes. The *exportable* files are;

- Bins
- Completed Loads
- Cost Codes
- Customers
- Delivery
- Discharge Profile

- Pre-Orders
- Materials
- Mix Design
- Mix Items
- Suppliers
- Vehicles

To access the *Export* function click on *File, Export* menu command.

The procedures in the following discussion will be similar to the *Importing* methodology, although there will be some unique differences.

## 18.2 EXPORT (Cont...)

### 18.2.1 Select Table to Export

From the drop down box select one of the tables to *Export*.

If the *Completed Loads* table is selected a calendar form will appear (select the appropriate dates).

### 18.2.2 Select File Type

There are three distinct file types that can be used to export the table(s);

- Comma
- Space
- Tab

The type will depend on the application that the User will utilise the table.

Click on the drop down box and select one of the types.

If the fields require enclosing in *Inverted Commas* check the adjacent box.

### 18.2.3 Select Fields

As with *Section 18.1.2*, based on the purpose of the intended use, add the appropriate fields to the '*Fields to Export*' box by highlighting the required fields and clicking on the '*ADD =>*' button.

**Figure: 72**

Once the list has been completed, and the *User* intends to reuse the field configuration for future use, click on the ‘*Save*’ button.

#### 18.2.4 Start Export

Once all the information fields have been completed, click on the ‘*Start Export*’ button to commence the *exporting*. During the *export*, the number of records will be displayed in the viewing box below the ‘*Start Export*’ button. On completion of the *exported* data, an MS Windows box will appear requesting the *User* to select where the data is to be stored. The *User* can select any location for the information to be stored, however it is recommended to establish an *Export* directory where all *exporting* data is stored.

To exit the screen, click on the ‘*RETURN*’ button.

## 18.3 BACKUP DATABASE

The *Database Backup* is a crucial feature enabling any or all critical data to be saved for security purposes. The backing feature provides a ‘.GDK’ extension file that compresses the information. The information cannot be viewed under normal word or text file applications and are only viewable through the batching software application.

The frequency of backing up the information is at the discretion of the *User* (or company protocols). The backing up of information enables the *User* to retrieve (at a later date) all or any critical data and plant parameters in the event of hardware failure, theft, virus deformation, fire, etc...

Hence, the more up-to-date the *back up* file, the less the amount of manual inserting of information takes places.

It is also recommended to backup the file information onto another storage device separate to the existing hardware on which the main application is residing.



**Figure: 73**

### 18.3.1 Select a Database to Backup

There are two options of data base to select from;

- Main Database
- Completed Loads Database

The *Main Database* comprises of all the files that the application uses to create a load, such as *Mix Designs*, *Customer File*, *Accounting*, *Plant Setup*, etc... but not the batched records. The *Completed Loads* is the batched information the system has created and stored.

In backing up data, unless the *Main Database* is altered frequently it does not require frequent saving and need only be carried out when any changes are made. The *Completed Loads* require backing up more frequently but based on the businesses standard procedures. To select, click on the drop down box and select the appropriate database.

### 18.3.2 Start Backup Service

Click on the ‘*Start Backup Service*’ button to commence the backup. An MS Windows prompt will be displayed requesting the *User* to type in a file name (i.e. *Main\_DB\_{Date}.GDK*) and which folder or storage device it is to be stored to. Once completed and acknowledged the backup will start. The system will display the data backup in the viewing box below the button.

Once completed, the message ‘*Backing Up Complete!*’ will be displayed. To exit the screen, click on the ‘*RETURN*’ button.

## 18.4 RESTORE DATABASE



Figure: 74

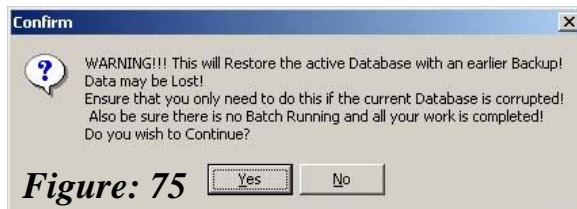


Figure: 75

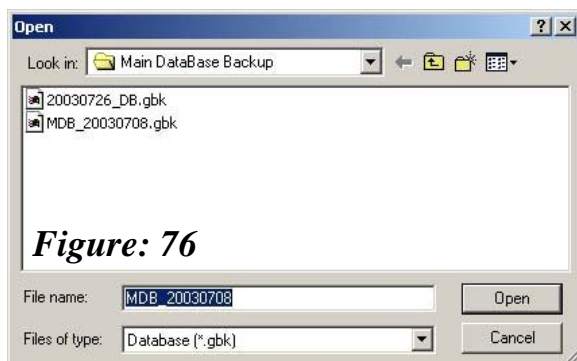


Figure: 76

Restoring of the *Database* is obviously used under critical circumstances when the *backed-up database* has been lost or corrupted.

The methodology is similar to that of backing up the *database* as described in *Section 18.3*.

Select the *Database (Main or Completed Loads)* that you wish to restore by clicking on the drop down box as shown in *Figure 74*.

### 18.4.1 Start Restore

To commence the restoring the selected database, click on the ‘*Start Restore*’ button. A message (*Figure 75*) will appear notifying the *User* that any previous information in the existing database will be over-written.

**Note: No batches must be running when the restoring exercise occurs.**

Click ‘*Yes*’ to continue.

An *MS Windows* file open screen (*Figure 76*) will appear prompting the *User* to select the required *database* by which the system will use to restore.

Click on the required file name and click ‘*Open*’.

As the system restores the database the files will commence scrolling in the viewing box below the ‘*START RESTORE*’ button.

Once completed click the ‘*RETURN*’ button to return to the main application.

The *User* should view some of the restored files to ensure all the relevant information has been transferred prior to commencement of any batching.



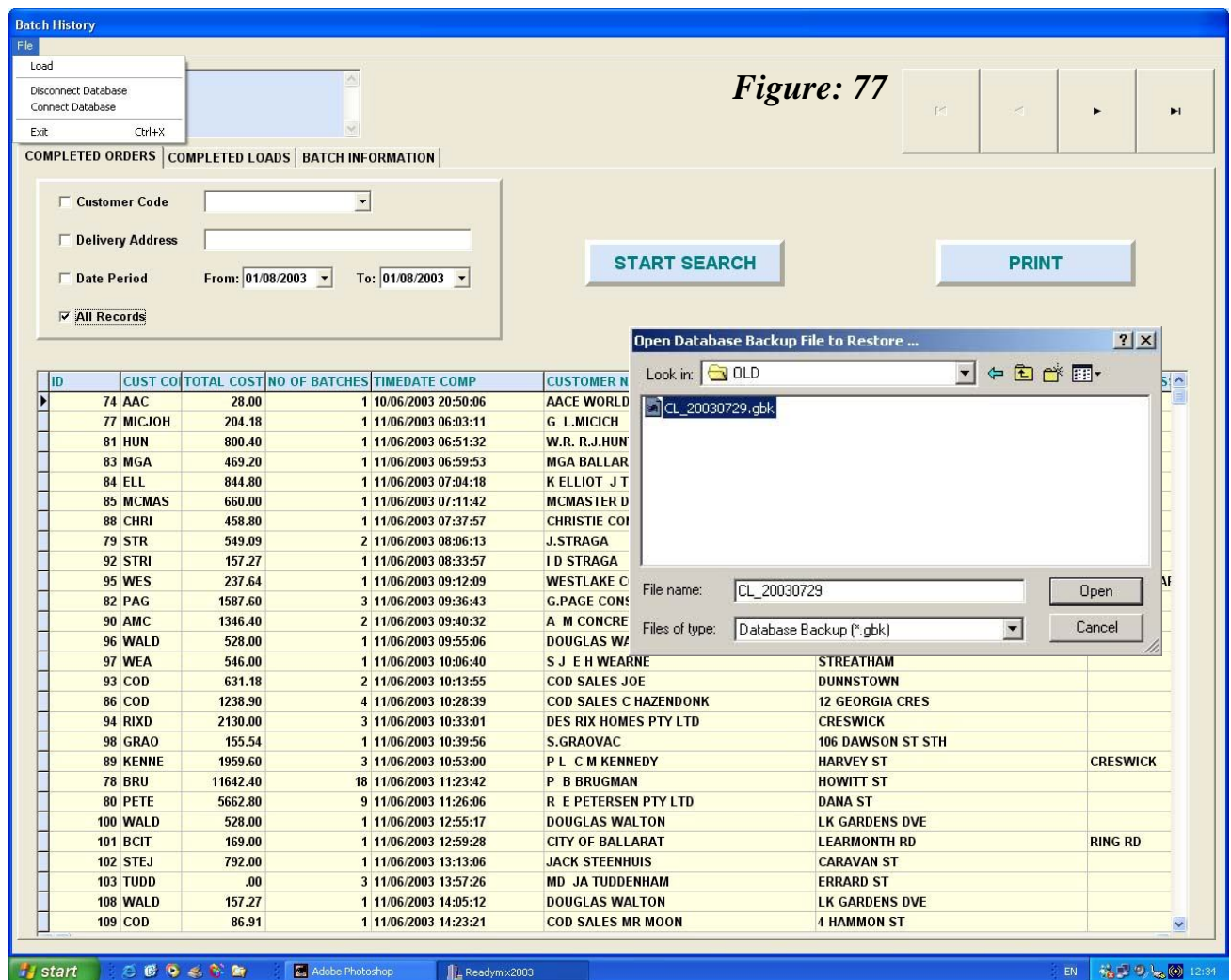
## 18.5 BATCH HISTORY

The *Batch History* function is used to view previously stored databases currently not on the system. Typically, the information may need to be retrieved for assurance or some other purpose. To access the *Batch History* file click on the *File, View, Batch History* menus command.

To select the history file, click on '*File, Load*' option and a Windows open (*Figure 77*) menu will appear. Select the required file and click '*Open*'. The file details will be loaded onto the system however, the database will still remain disconnected. To connect the database, click on '*File, Connect Database*', this will load all the history's information into the viewing table below.

Once the history's database has been loaded and connected, searching, viewing and printing can be carried out in the same manner as previously described in *Chapters 15 & 16*.

### 18.5.1 Completed Orders



The three main viewing folders reflect the Completed Orders, Loads and Batch Information screens that enable the User to search through the various selections as required.



## 18.5 BATCH HISTORY (Cont...)

### 18.5.2 Completed Loads

**Batch History**

File

**Figure: 78**

COMPLETED ORDERS | COMPLETED LOADS | BATCH INFORMATION

☐ Customer Code   
☐ Docket Number   
☒ All Records ☐ From Selected Order

☐ Delivery Address   
☐ Date Period From: 19/03/2003 To: 03/06/2003

LOAD_ID	LOAD_BATCH_ID	LOAD_ORDER_NO	LOAD_DOCKET_NO	LOAD_OPERATOR_NAME	LOAD_CUSTOMER_NAME	LOAD_CUSTOMER_CODE
1	2 4566	EC101	Technician	ACE CONTRACTING	ACEC	
2	2 4566	EC102	Technician	ACE CONTRACTING	ACEC	
3	2 4566	EC104	Technician	ACE CONTRACTING	ACEC	
4	2 4566	EC105	Technician	ACE CONTRACTING	ACEC	
5	3 A234	EC106	Technician	JM FRAWLEY SONS	FRA	
6	3 A234	EC106	Technician	JM FRAWLEY SONS	FRA	

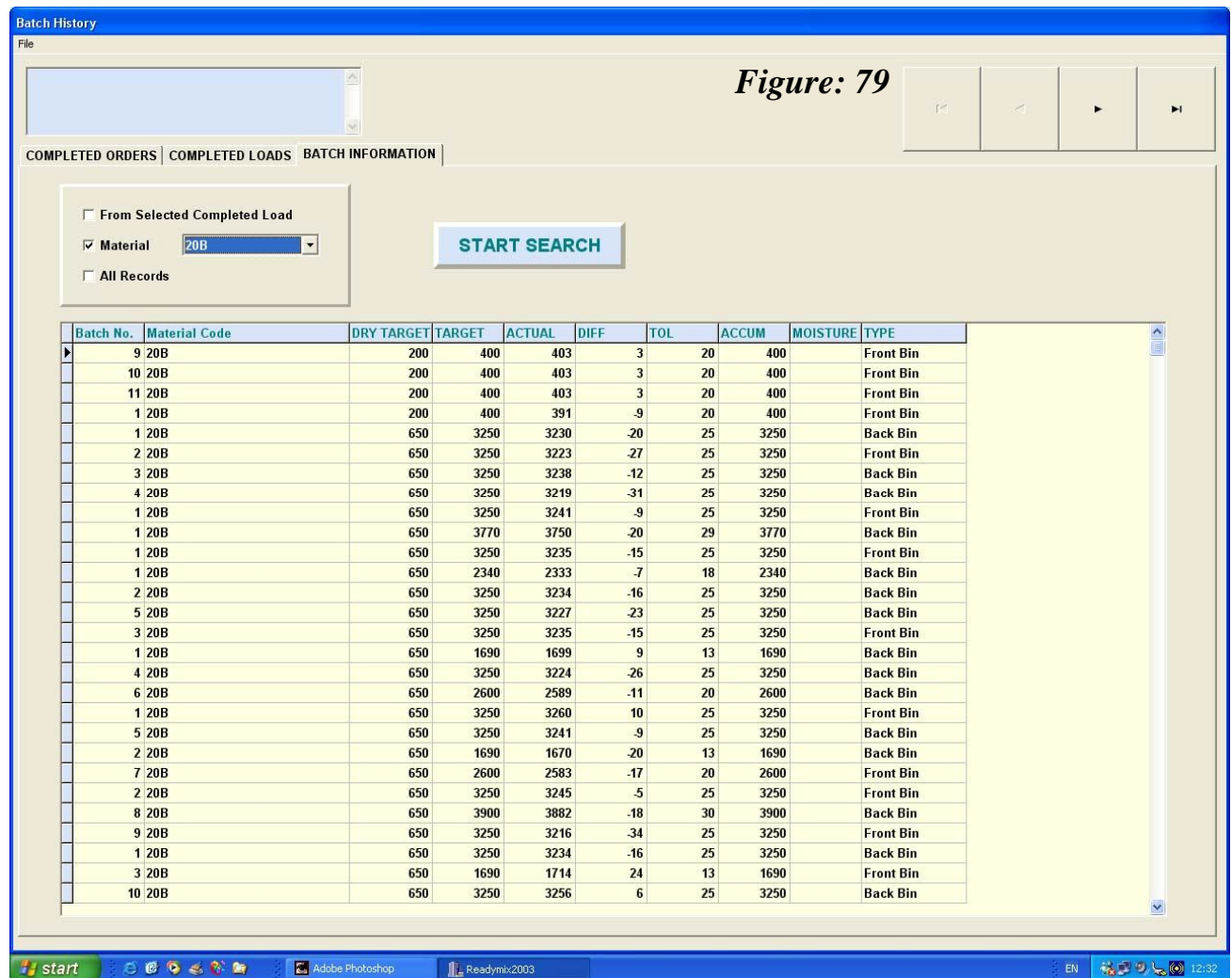
start | ReadyMix2003 | Adobe Photoshop | EN | 11:22

The Completed Loads (*Figure 78*) provides the User with information on each individual load.

## 18.5 BATCH HISTORY (Cont...)

### 18.5.3 Batch Information

The *Batch Information* screen (Figure 79) enables the *User* to select either detailed information of the Batch record from the ‘Completed Load’, ‘Material’ that provides the *User* with a specific material profile for all the batches and the ability to view ‘All Records’.



To select a specific ‘Material’ profile, check the adjacent box, click on the drop down arrow to select the required material and click on the ‘Start Search’ button.

### 18.5.4 Exit Batch History

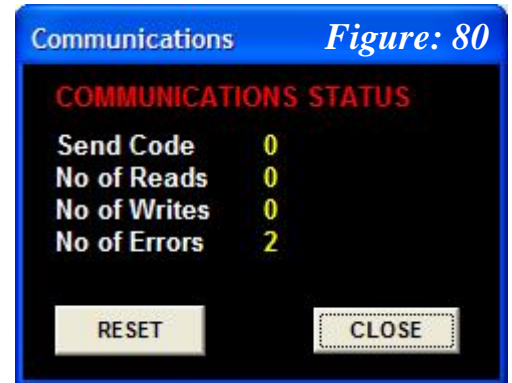
Once the *User* has completed gathering the required information from the *History* file the database must be disconnected. Click on *File, Disconnect Database* (which will clear the information so as not to remain resident on the system) and exit the screen.

## CHAPTER 19      DIAGNOSTICS

This chapter provides a simplistic discussion relating to some of the monitoring tools available in the computerised batching system. The tools are a guide for the *User* to establish what step plant is undertaking in the event a mechanical fault should arise.

### 19.1      COMMUNICATION STATUS

The *Communications* screen (*Figure 80*) provides a real time view of the status between the PLC and the PC's batching system. This area should only be interpreted by AXION CONTROL SYSTEMS staff as a means of checking the reading and writing of information between the two systems. The information displayed on the screen is for viewing purposes only and cannot be edited.



The flow of communication can be reset by clicking on the '*RESET*' button.

### 19.2      PLANT LIVE STATUS

The *Plant Status* screen (*Figure 81*) provides the *User* with a real time view of the plant during a batching sequence. Each of the vessel's (*Agg#1*, *Agg#2*, *Cement*, etc...) function is monitored by the *Step*, *Bin No.*, *Status* and *Flow Rate*. The overall plant *Discharge No.* and *Step Sequence* is also displayed.

To access the screen which can be viewed whilst batching is accessed by clicking on the *File*, *View*, *Plant Live Status* menus command.

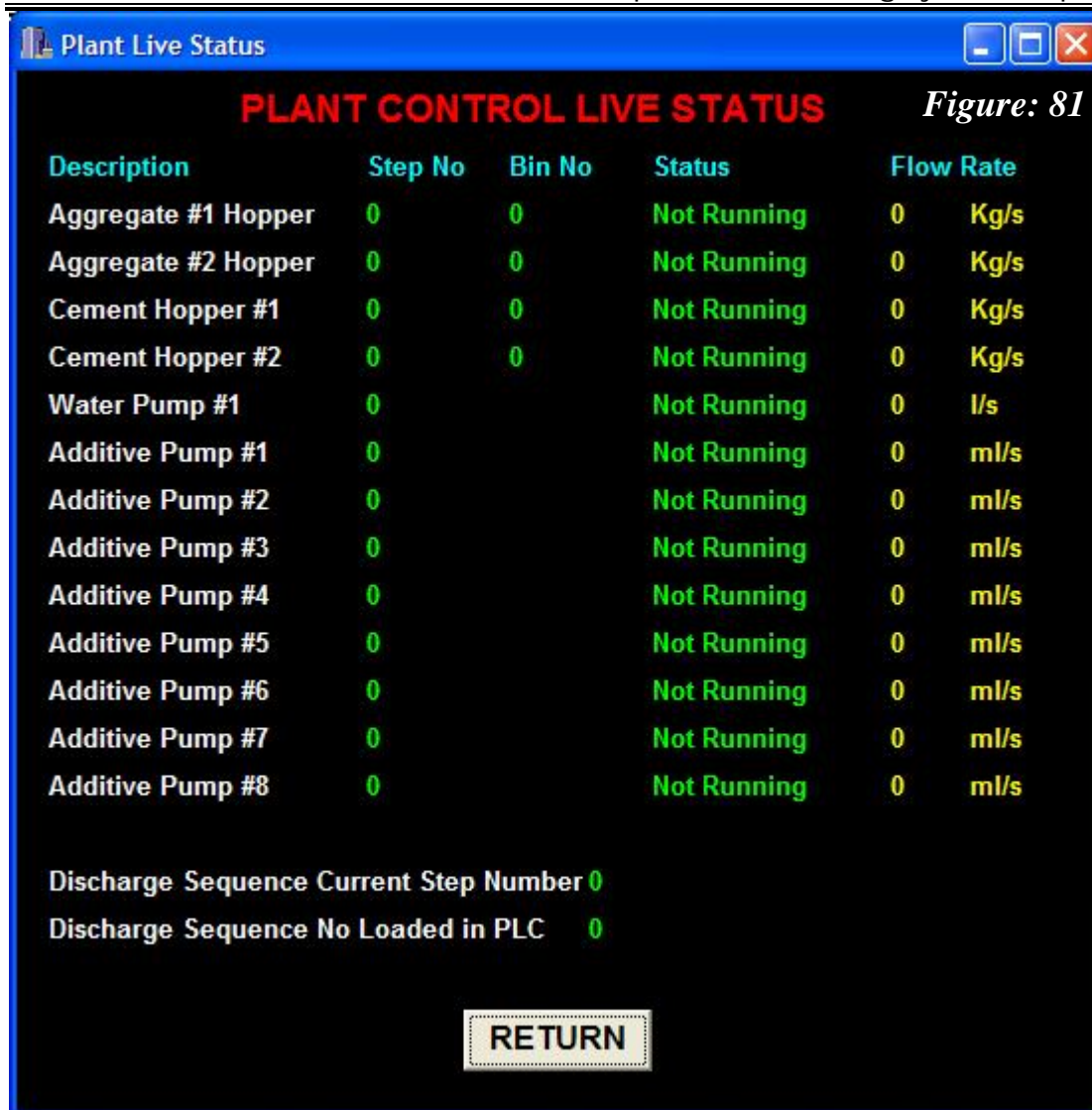


Figure: 81

### 19.3 Simulation

Simulation mode is enabled by clicking on the Simulation Toggle button. The value for each field is entered manually to simulate the value in PLC. Update weights button has to be pressed after the update on each field.

PLC Simulation

## PLC Simulation

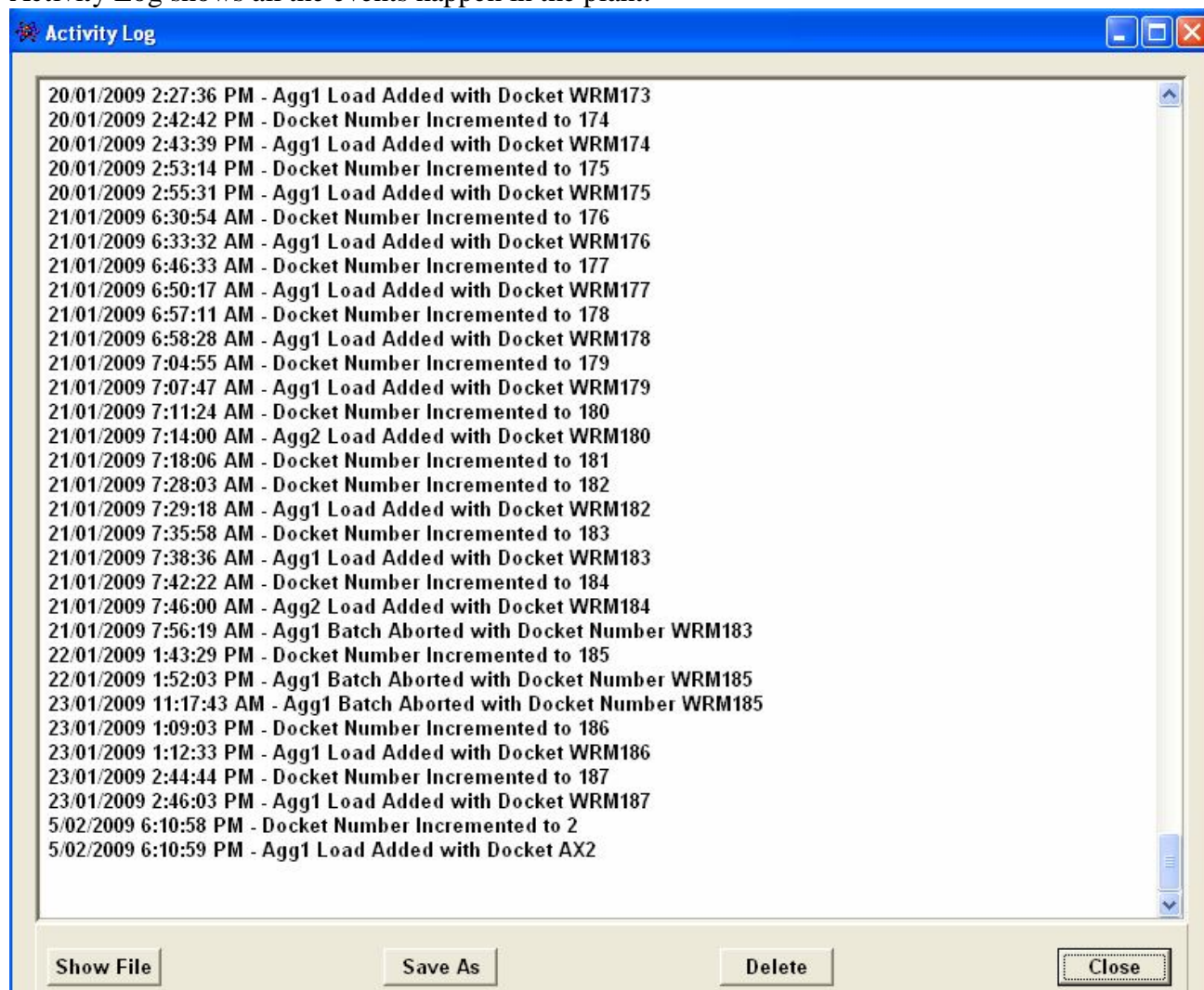
Agg#1 Hopper Scale	<input type="text" value="0"/>	<div>Simulation Toggle</div> <div>Simulation is OFF</div>
Agg#2 Hopper Scale	<input type="text" value="0"/>	
Cem#1 Hopper Scale	<input type="text" value="0"/>	
Cem#2 Hopper Scale	<input type="text" value="0"/>	
Water#1 Weight	<input type="text" value="0"/>	
Add#1 Weight	<input type="text" value="0"/>	<div>Update Weights</div>
Add#2 Weight	<input type="text" value="0"/>	
Add#3 Weight	<input type="text" value="0"/>	
Add#4 Weight	<input type="text" value="0"/>	
Add#5 Weight	<input type="text" value="0"/>	
Add#6 Weight	<input type="text" value="0"/>	
Add#7 Weight	<input type="text" value="0"/>	
Add#8 Weight	<input type="text" value="0"/>	

During Simulation ALL Outputs will NOT Energise!



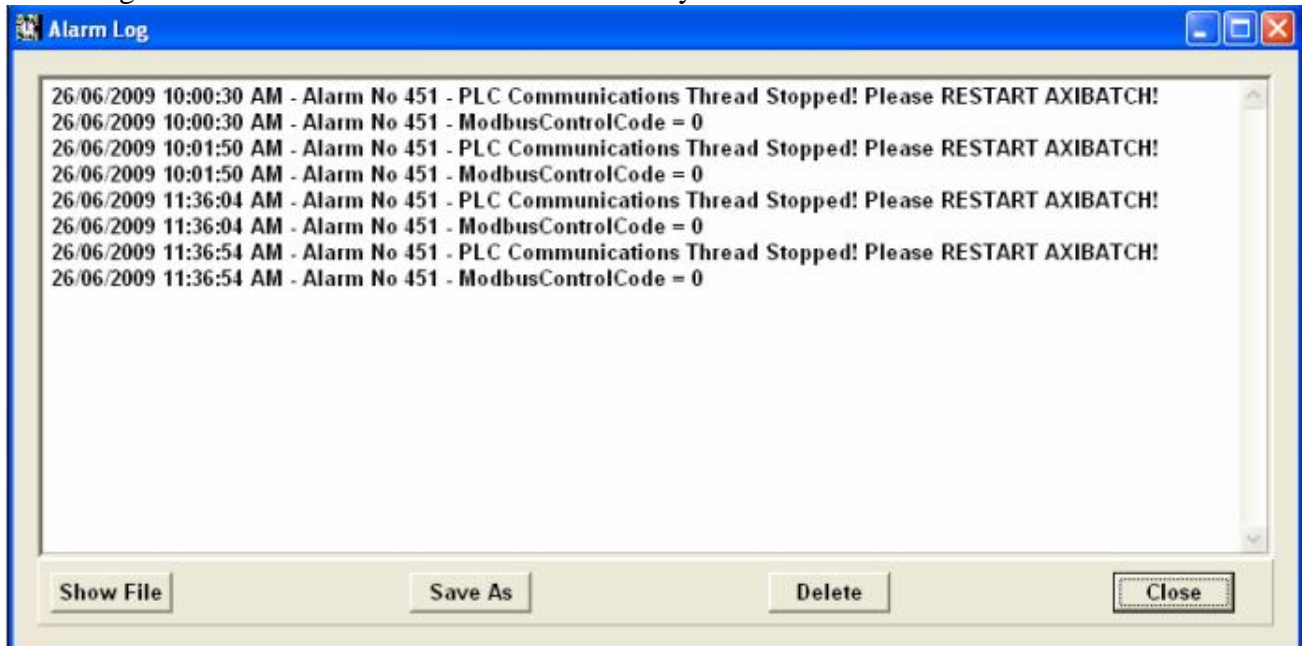
## 19.4 Activity Log

Activity Log shows all the events happen in the plant.



## 19.5 Alarm Log

Alarm log shows all the alarm histories exist in the system with date and time.





## CHAPTER 20 TROUBLESHOOTING

Anytime a fault occurs an alarm is raised to warn the *User* of the fault. Likewise an ‘*Error*’ message will be displayed if an incorrect action is about to be performed. This *Chapter* list the relevant alarms and messages that have been programmed into the system.

### 20.1 ALARMS

As a fault occurs the system will display an *alarm* onto the screen regardless of the application or folder the *User* is viewing. As previously stated the computerised batching system will take priority over other applications. Hence, if the *User* were in an *MS WORD* application, the alarm would be displayed over the *MS WORD* application.

Each alarm (*Figure 82*) will display the condition, a recorded number and a response from the *User*. Any unacknowledged alarms will remain until the condition has been rectified or corrected. The main screen will indicate the number of unacknowledged or existing alarms at the bottom left hand corner of the status bar (*Figure 1*).



Figure: 82

To view the list of specific unacknowledged alarms, click on *View, Alarm* on the menus command. *Figure 83* shows the *alarm screen* with any recorded existing *alarms*. The *User* can acknowledge the *alarm* by clicking on the ‘*RESET*’ button for the specific *alarm*.



Figure: 83

A full list of the alarms can be viewed in Appendix A at the end of the manual.

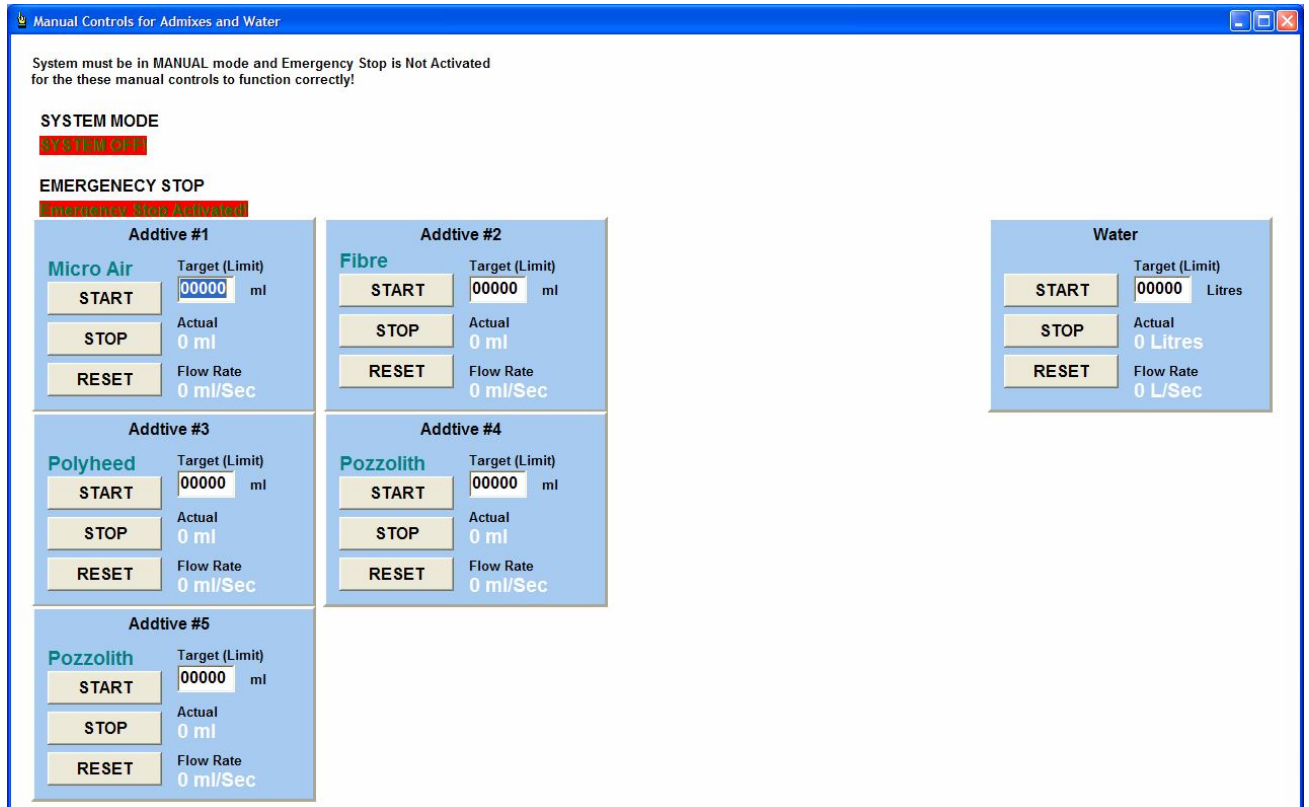
**Note:** The alarms refer to condition failures from the plant itself, albeit either mechanical or electrical.

### 20.2 ERROR MESSAGES

The “*Error Messages*” (Figure 84) advise the *User* of instructional errors or mistakes that have occurred when entering information into the system, whether it is commands or data. Note the different appearance of the message compared with that of the alarm. The error messages also contain instructional information, either to the cause or in some cases the manner in which to correct it.



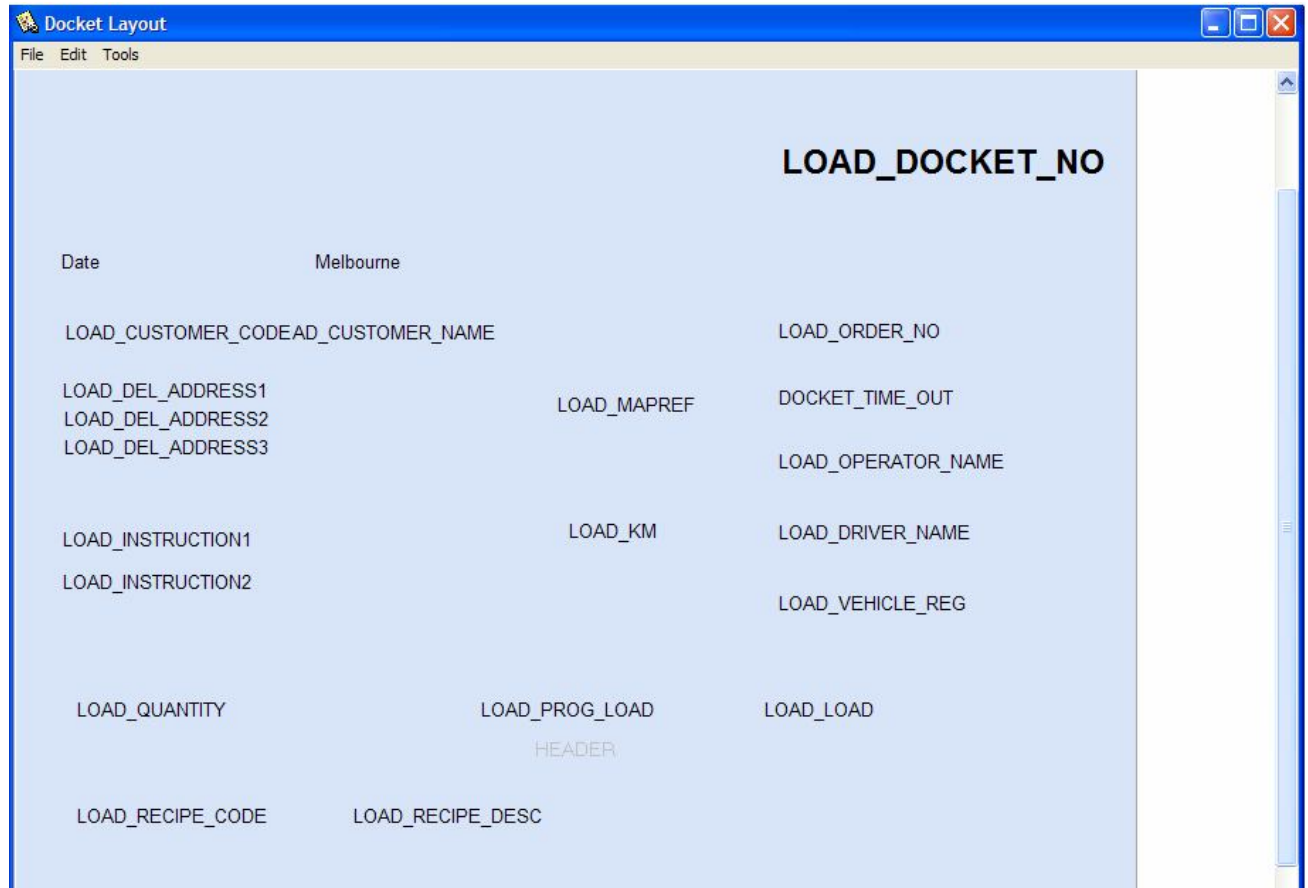
## CHAPTER 21 Manual Control



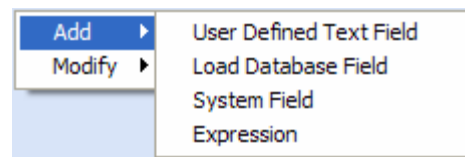
This window provides the manual control of additives and water when the system is in manual mode and emergency stop is not activated. The value for individual component can be added manually by entering the target value and click start button. Besides, alarm can be reset manually.

## CHAPTER 22 Docket Design

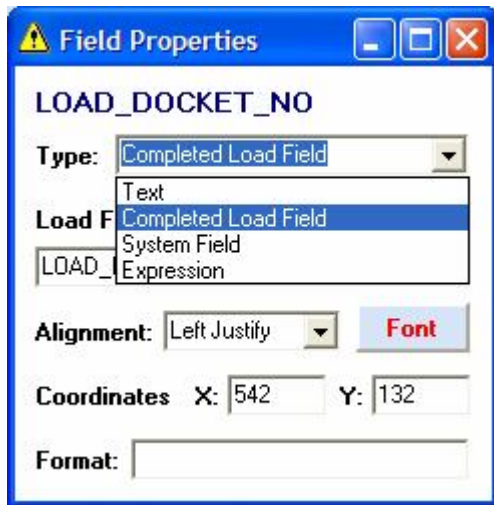
It is accessible through the Tools menu. It provides the capability to adjust the appearance and allocation of the docket content as below.



To edit the docket right click and select Add. There're 4 options available for selection which are described in the following sections. Click on one of them and the field properties window will appear. Follow the sections below to select the appropriate option from the drop down list.



## 22.1 Type



Text: User defined text

Completed Load Field: Display any information related to the completed load

System Field: Display date, time, and page number

Expression: Logical expression to display or hide the content

## 22.2 Load Field



Under type “Completed Load Field”, following Load Field options are available:

Docket \_Date\_Out: Date out of completed order

Docket \_ID: Identification of the docket (internal use, normally not used)

Docket \_Time\_Out: Current time + (time in min to be added from accounting form)

Load\_ADD1: Shows if the Additive was enabled (Yes/No)

Load\_ADD1\_ACTUAL: Actual amount of additive 1 added during batching

Load\_ADD1\_TARGET: Target amount of additive 1 suppose to be added

Load\_AEA: Only for old version to indicate if additive AEA was selected (Yes/No)

Load\_AGG: To indicate if it was Agg Hopper 1, 2 or manual

Load\_AGG\_SIZE: Aggregate size as defined in Mix Design

Load\_AGG1\_ACTUAL: Actual amount of aggregate added during batching

Load\_AGG1\_MOISTURE: Percentage of moisture exist in aggregate

Load\_AGG1\_TARGET: Target amount of aggregate suppose to be added.

Load\_BATCH\_ID: Identification of batch record (internal use only)

Load\_BATCHNUMBER: Total batch number for an order

Load\_CARTAGE\_FEE: Total cartage fees as defined in Accounting Setup (use if creating docket before end of dump)

Load\_CEM1\_ACTUAL: Actual amount of cement added during batching

Load\_CEM1\_TARGET: Target amount of cement suppose to be added.

LOAD\_CLASS: Class of the completed load as defined in PreOrders

LOAD\_COMMENT: Load comment stated in PreOrders

LOAD\_CONCRETE\_COST: Shows concrete cost

LOAD\_CUSTOMER\_ADDRESS1: Customer address field 1 as defined in Customer database table

LOAD\_CUSTOMER\_ADDRESS2: Customer address field 2 as defined in Customer database table

LOAD\_CUSTOMER\_ADDRESS3: Customer address field 3 as defined in Customer database table

LOAD\_CUSTOMER\_ADDRESS4: Customer address field 4 as defined in Customer database table

LOAD\_CUSTOMER\_CODE: customer code as defined in customer database table.

LOAD\_CUSTOMER\_DOCK\_PRICING: Docket pricing enable/disable as defined in Customer databse table

LOAD\_CUSTOMER\_ID: Identification of the customer (internal use only)

LOAD\_CUSTOMER\_NAME: Customer name

LOAD\_DEL\_ADDRESS1/2/3/4: Delivery address as defined in PreOrders

LOAD\_DEL\_NAME: Delivery name in delivery address

LOAD\_DISCH\_PROFILENO: Discharge Profile number

LOAD\_DOCKET\_NO: Docket number of the completed load as defined in Accounting Setup??

LOAD\_DRIVER\_NAME: Name of driver

LOAD\_FLATCHARGE: Flat charge rate

LOAD\_GST: Shows percentage of tax on total cost

LOAD\_ID: Identification of the load (internal use only)

LOAD\_INSTRUCTION1/2: Instruction as defined in Preorders's Misc Items

LOAD\_INT\_CARTAGE\_FEE: Total cartage fees as defined in Accounting Setup (use if creating docket at the end of dump)

LOAD\_KM: Distance for the delivery address

LOAD\_LOAD: Load as defined in Preorders's Vehicle details

LOAD\_MAPREF: Map reference delivery address

LOAD\_MISC1\_AMOUNT: Amount of MISC 1 added during batching

LOAD\_MISC1\_CODE: Code for MISC 1

LOAD\_MISC1\_DESCRIPTION: MISC 1's description

LOAD\_MISC1\_QTY: Quantity of MISC1 stored

LOAD\_MISC1\_TYPE: Type of MISC1 added

LOAD\_MIXER\_TIME: Only used if internal mixer exits

LOAD\_NCA: for old version to indicate if additive NCA was selected (Yes/No)

LOAD\_NO\_OF\_BATCHES: Number of Batch done for an order (internal use only)

LOAD\_OPERATOR\_NAME: Name of operator

LOAD\_ORDER\_NO: Order number as defined in PreOrders

LOAD\_PROG\_COST: Shows progressive cost excluded tax

LOAD\_PROG\_LOAD: Shows progressive load

LOAD\_PROJECTNO: Project number of completed load as defined in PreOrders

LOAD\_QTY\_SIGN: Shows total order quantity sign (+/-)

LOAD\_QUANTITY: Quantity of load as defined in Preorders's Misc Items

LOAD\_RECIPE\_CODE: Recipe code for completed load as defined in Mix Design

LOAD\_RECIPE\_DESC: Recipe code's description

LOAD\_RECIPE\_ID: Identification for a recipe (internal use only)

LOAD\_RECIPE\_NAME: Name of recipe

LOAD\_RETURNS: What was returned into the truck at batch

LOAD\_SHORTFALL\_FEE: Total penalty fees

LOAD\_SLUMP: Load slump as defined in Mix Design

LOAD\_STRENGTH: Load strength as defined in Mix Design

LOAD\_TIMEDATE\_COMP: Completion time and date of load

LOAD\_TIMEDATE\_REQ : Time and date requested to start the load

LOAD\_TIMEDATE\_STARTED: Time and date the batch started

LOAD\_TOTAL\_COST: Shows total cost of completed load (excluded tax)

LOAD\_VEHICLE\_REG: Driver's vehicle registration number

LOAD\_VEHICLE\_SIZE: Type of vehicle for delivery

LOAD\_WATER1\_ACTUAL: Actual amount of water added during batching

LOAD\_WATER1\_TARGET: amount of water suppose to be added.

LOAD\_WATERADJUST: Shows water adjustment figure as defined in PreOrders

LOAD\_WEEKEND: shows weekends production (Yes/No)

LOAD\_WRS: for old version to indicate if additive WRS was selected (Yes/No)

LOAD\_WRW: for old version to indicate if additive WRW was selected (Yes/No)

Under type "System Field", following Load Field options are available:

Date: current date

Page: page number

Time: current time

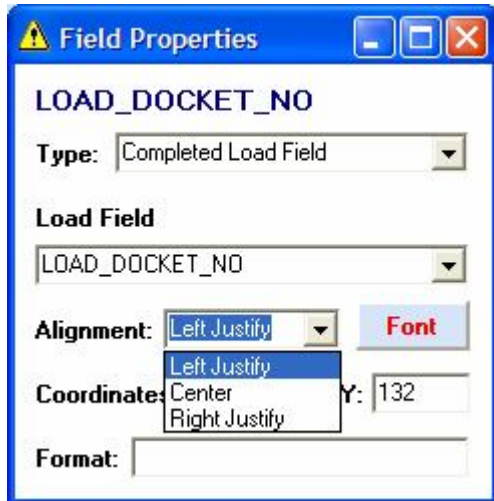


Under type “Expression”, following example format is used:

```
IF(LOAD_CUSTOMER_DOCK_PRICING = 'Yes', LOAD_CONCRETE_COST, ")
```

If the customer’s docket pricing is enabled, display the concrete cost.

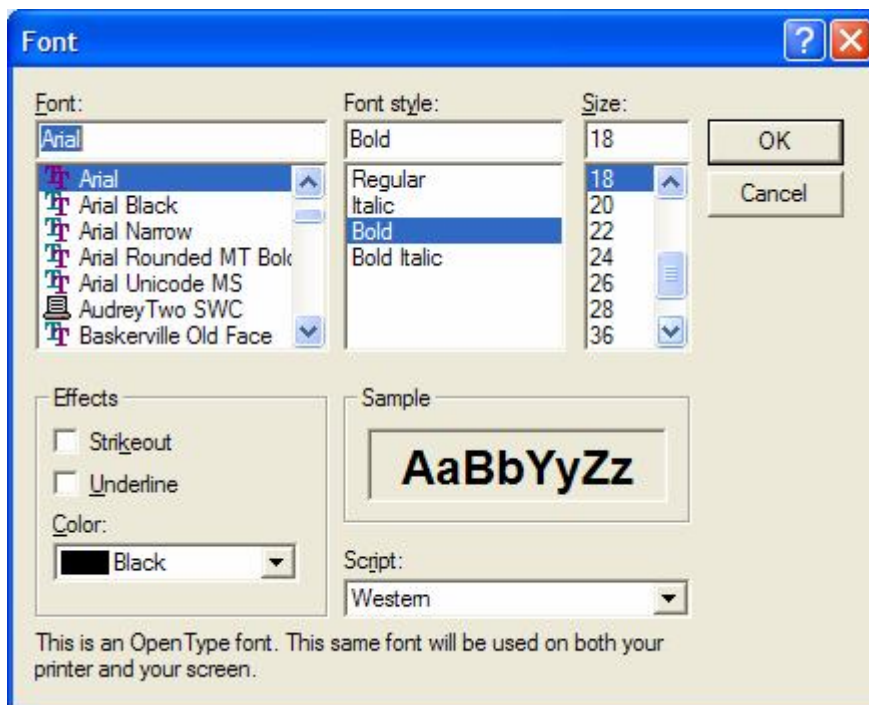
## 22.3 Alignment



Alignment options:

Left Justify, Center or Right Justify.

## 22.4 Font



Font is editable via the “Font” button.

## CHAPTER 23 Alarm Listing

Alarm No	Name	Conditions	Descriptions
1	Plant Emergency Stop		Energize when emergency stop is pressed
2	Power Failure on PLC		Energize when there's power failure
3	PLC Battery Fault		Energize when there's PLC battery failure
4	System Switched to Manual		Energize when the system is switched to manual
5	Recipe Data Error!		Energize when the recipe data is inserted incorrectly or not completed
6	Settings Data Error!		Energize when there's incorrect setting
7	Generic Module in Slot 1 Error		PLC Module Slot 1 error
8	Input Module in Slot 2 Error		PLC Module Slot 2 error
9	Generic Module in Slot 3 Error		PLC Module Slot 3 error
10	Relay Module in Slot 4 Error		PLC Module Slot 4 error
11	Transistor Module in Slot 5 Error		PLC Module Slot 5 error
12	Relay Module in Slot 6 Error		PLC Module Slot 6 error
13	Analog Input Module in Slot 7 Error		PLC Module Slot 7 error
17	Agg 1 Failed To Tare		Fail to obtain the weight of Aggregate 1
18	Agg1 Not Empty before Filling		Aggregate 1 is not empty before filling in for next batch
19	Agg1 Zero Band error		Aggregate 1's starting weight is out of the Zero Band
20	Agg1 Hopper Empty Alarm		Aggregate 1 hopper is empty
21	Agg1 Hopper Flow Alarm		Aggregate 1 hopper fail to achieve desire flow rate
22	Agg 1 Underweight		Aggregate 1 is underweight
23	Agg 1 Overweight		Aggregate 1 is overweight
33	Agg 1 Gate 1 Closed Fault		Aggregate 1's gate 1 fails to close
34	Agg 1 Gate 1 Pos 1 Fault	If only 1 position control was enabled	Agg 1 Gate 1 doesn't reach Pos 1 (about 33%)
35	Agg 1 Gate 1 Pos 2 Fault	If only 2 positions control is enabled	Agg 1 Gate 1 doesn't reach Pos 2 (about 66%)
36	Agg 1 Gate 1 Pos 3 Fault	If only 3 positions control is enabled	Agg 1 Gate 1 doesn't reach Pos 3 (about 100%)
37	Agg 1 Gate 2 Closed Fault	If only there's gate 2	Aggregate 1's gate 2 fails to close
38	Agg 1 Gate 2 Pos 1 Fault	If only there's gate 2 and 1 position control was enabled	Agg 1 Gate 2 doesn't reach Pos 1 (about 33%)
39	Agg 1 Gate 2 Pos 2 Fault	If only there's gate 2 and 2 positions control is enabled	Agg 1 Gate 2 doesn't reach Pos 2 (about 66%)
40	Agg 1 Gate 2 Pos 3 Fault	If only there's gate 2 and 3 positions control is enabled	Agg 1 Gate 2 doesn't reach Pos 3 (about 100%)
41	Agg 1 Gate 3 Closed Fault	If only there's gate 3	Aggregate 1's gate 3 fails to close

42	Agg 1 Gate 3 Pos 1 Fault	If only there's gate 3 and 1 position control is enabled	Agg 1 Gate 3 doesn't reach Pos 1 (about 33%)
43	Agg 1 Gate 3 Pos 2 Fault	If only there's gate 3 and 2 positions control is enabled	Agg 1 Gate 3 doesn't reach Pos 2 (about 66%)
44	Agg 1 Gate 3 Pos 3 Fault	If only there's gate 3 and 3 positions control is enabled	Agg 1 Gate 3 doesn't reach Pos 3 (about 100%)
45	Agg 1 Common Gates Not Closed	If only gate 1,2 and 3 were combined	Agg 1 Gate 1, 2, and 3 fail to close
46	Agg 1 Conveyor Fault	If only conveyor sensor was enabled	Aggregate 1's conveyor not working properly
47	Agg 1 Conveyor TOL		Aggregate 1's conveyor overload
49	Agg 1 Bin #1 Gate #1 Fault	If only overhead bin was selected	Agg 1 Bin #1 Gate #1 fails to close
50	Agg 1 Bin #1 Gate #2 Fault	If only overhead bin was selected	Agg 1 Bin #1 Gate #2 fails to close
51	Agg 1 Bin #2 Gate #1 Fault	If only overhead bin was selected	Agg 1 Bin #2 Gate #1 fails to close
52	Agg 1 Bin #2 Gate #2 Fault	If only overhead bin was selected	Agg 1 Bin #2 Gate #2 fails to close
53	Agg 1 Bin #3 Gate #1 Fault	If only overhead bin was selected	Agg 1 Bin #3 Gate #1 fails to close
54	Agg 1 Bin #3 Gate #2 Fault	If only overhead bin was selected	Agg 1 Bin #3 Gate #2 fails to close
55	Agg 1 Bin #4 Gate #1 Fault	If only overhead bin was selected	Agg 1 Bin #4 Gate #1 fails to close
56	Agg 1 Bin #4 Gate #2 Fault	If only overhead bin was selected	Agg 1 Bin #4 Gate #2 fails to close
57	Agg 1 Bin #5 Gate #1 Fault	If only overhead bin was selected	Agg 1 Bin #5 Gate #1 fails to close
58	Agg 1 Bin #5 Gate #2 Fault	If only overhead bin was selected	Agg 1 Bin #5 Gate #2 fails to close
59	Agg 1 Bin #6 Gate #1 Fault	If only overhead bin was selected	Agg 1 Bin #6 Gate #1 fails to close
60	Agg 1 Bin #6 Gate #2 Fault	If only overhead bin was selected	Agg 1 Bin #6 Gate #2 fails to close
61	Agg 1 Bin #7 Gate #1 Fault	If only overhead bin was selected	Agg 1 Bin #7 Gate #1 fails to close
62	Agg 1 Bin #7 Gate #2 Fault	If only overhead bin was selected	Agg 1 Bin #7 Gate #2 fails to close
63	Agg 1 Bin #8 Gate #1 Fault	If only overhead bin was selected	Agg 1 Bin #8 Gate #1 fails to close
64	Agg 1 Bin #8 Gate #2 Fault	If only overhead bin was selected	Agg 1 Bin #8 Gate #2 fails to close
65	Agg 1 Bin #1 Empty Fault		Aggregate 1's Bin #1 is empty
66	Agg 1 Bin #1 Flow Fault		Aggregate 1's Bin #1 fail to achieve desire flow rate
67	Agg 1 Bin #2 Empty Fault	If only there's Bin #2	Aggregate 1's Bin #2 is empty
68	Agg 1 Bin #2 Flow Fault	If only there's Bin #2	Aggregate 1's Bin #2 fail to achieve desire flow rate
69	Agg 1 Bin #3 Empty Fault	If only there's Bin #3	Aggregate 1's Bin #3 is empty
70	Agg 1 Bin #3 Flow Fault	If only there's Bin #3	Aggregate 1's Bin #3 fail to achieve desire flow rate
71	Agg 1 Bin #4 Empty Fault	If only there's	Aggregate 1's Bin #4 is empty

		Bin #4	
72	Agg 1 Bin #4 Flow Fault	If only there's Bin #4	Aggregate 1's Bin #4 fail to achieve desire flow rate
73	Agg 1 Bin #5 Empty Fault	If only there's Bin #5	Aggregate 1's Bin #5 is empty
74	Agg 1 Bin #5 Flow Fault	If only there's Bin #5	Aggregate 1's Bin #5 fail to achieve desire flow rate
75	Agg 1 Bin #6 Empty Fault	If only there's Bin #6	Aggregate 1's Bin #6 is empty
76	Agg 1 Bin #6 Flow Fault	If only there's Bin #6	Aggregate 1's Bin #6 fail to achieve desire flow rate
77	Agg 1 Bin #7 Empty Fault	If only there's Bin #7	Aggregate 1's Bin #7 is empty
78	Agg 1 Bin #7 Flow Fault	If only there's Bin #7	Aggregate 1's Bin #7 fail to achieve desire flow rate
79	Agg 1 Bin #8 Empty Fault	If only there's Bin #8	Aggregate 1's Bin #8 is empty
80	Agg 1 Bin #8 Flow Fault	If only there's Bin #8	Aggregate 1's Bin #8 fail to achieve desire flow rate
81	Agg 2 Failed To Tare	If only there's Agg 2	Fail to obtain the weight of Aggregate 2
82	Agg 2 Not Empty before Filling	If only there's Agg 2	Aggregate 2 is not empty before filling in for next batch
83	Agg 2 Zero Band error	If only there's Agg 2	Aggregate 2's starting weight is out of the Zero Band
84	Agg 2 Hopper Empty Alarm	If only there's Agg 2	Aggregate 2 hopper is empty
85	Agg 2 Hopper Flow Alarm	If only there's Agg 2	Aggregate 2 hopper fail to achieve desire flow rate
86	Agg 2 Underweight	If only there's Agg 2	Aggregate 2 is underweight
87	Agg 2 Overweight	If only there's Agg 2	Aggregate 2 is overweight
97	Agg 2 Gate 1 Closed Fault	If only there's Agg 2	Aggregate 2's gate 1 fails to close
98	Agg 2 Gate 1 Pos 1 Fault	If only there's Agg 2 and 1 position control was enabled	Agg 2 Gate 1 doesn't reach Pos 1 (about 33%)
99	Agg 2 Gate 1 Pos 2 Fault	If only there's Agg 2 and 2 positions control was enabled	Agg 2 Gate 1 doesn't reach Pos 2 (about 66%)
100	Agg 2 Gate 1 Pos 3 Fault	If only there's Agg 2 and 3 positions control was enabled	Agg 2 Gate 1 doesn't reach Pos 3 (about 100%)
101	Agg 2 Gate 2 Closed Fault	If only there's Agg 2	Aggregate 2's gate 2 fails to close
102	Agg 2 Gate 2 Pos 1 Fault	If only there's Agg 2 and 1 position control was enabled	Agg 2 Gate 2 doesn't reach Pos 1 (about 33%)
103	Agg 2 Gate 2 Pos 2 Fault	If only there's Agg 2 and 2 positions control was enabled	Agg 2 Gate 2 doesn't reach Pos 2 (about 66%)
104	Agg 2 Gate 2 Pos 3 Fault	If only there's Agg 2 and 3 positions control was enabled	Agg 2 Gate 2 doesn't reach Pos 3 (about 100%)
105	Agg 2 Gate 3 Closed Fault	If only there's Agg 2	Aggregate 2's gate 3 fails to close

106	Agg 2 Gate 3 Pos 1 Fault	If only there's Agg 2 and 1 position control was enabled	Agg 2 Gate 3 doesn't reach Pos 1 (about 33%)
107	Agg 2 Gate 3 Pos 2 Fault	If only there's Agg 2 and 2 positions control was enabled	Agg 2 Gate 3 doesn't reach Pos 2 (about 66%)
108	Agg 2 Gate 3 Pos 3 Fault	If only there's Agg 2 and 3 positions control was enabled	Agg 2 Gate 3 doesn't reach Pos 3 (about 100%)
109	Agg 2 Common Gates Not Closed	If only gate 1,2 and 3 were combined	Agg 2 Gate 1, 2, and 3 fail to close
110	Agg 2 Conveyor Fault	If only there's Agg 2	Aggregate 2's conveyor not working properly
111	Agg 2 Conveyor TOL	If only there's Agg 2	Aggregate 2's conveyor overload
113	Agg 2 Bin #1 Gate #1 Fault	If only there's Agg 2 and overhead bin was selected	Agg 2 Bin #1 Gate #1 fails to close
114	Agg 2 Bin #1 Gate #2 Fault	If only there's Agg 2 and overhead bin was selected	Agg 2 Bin #1 Gate #2 fails to close
115	Agg 2 Bin #2 Gate #1 Fault	If only there's Agg 2 and overhead bin was selected	Agg 2 Bin #2 Gate #1 fails to close
116	Agg 2 Bin #2 Gate #2 Fault	If only there's Agg 2 and overhead bin was selected	Agg 2 Bin #2 Gate #2 fails to close
117	Agg 2 Bin #3 Gate #1 Fault	If only there's Agg 2 and overhead bin was selected	Agg 2 Bin #3 Gate #1 fails to close
118	Agg 2 Bin #3 Gate #2 Fault	If only there's Agg 2 and overhead bin was selected	Agg 2 Bin #3 Gate #2 fails to close
119	Agg 2 Bin #4 Gate #1 Fault	If only there's Agg 2 and overhead bin was selected	Agg 2 Bin #4 Gate #1 fails to close
120	Agg 2 Bin #4 Gate #2 Fault	If only there's Agg 2 and overhead bin was selected	Agg 2 Bin #4 Gate #2 fails to close
121	Agg 2 Bin #5 Gate #1 Fault	If only there's Agg 2 and overhead bin was selected	Agg 2 Bin #5 Gate #1 fails to close
122	Agg 2 Bin #5 Gate #2 Fault	If only there's Agg 2 and overhead bin was selected	Agg 2 Bin #5 Gate #2 fails to close
123	Agg 2 Bin #6 Gate #1 Fault	If only there's Agg 2 and overhead bin was selected	Agg 2 Bin #6 Gate #1 fails to close
124	Agg 2 Bin #6 Gate #2 Fault	If only there's	Agg 2 Bin #6 Gate #2 fails to close

		Agg 2 and overhead bin was selected	
125	Agg 2 Bin #7 Gate #1 Fault	If only there's Agg 2 and overhead bin was selected	Agg 2 Bin #7 Gate #1 fails to close
126	Agg 2 Bin #7 Gate #2 Fault	If only there's Agg 2 and overhead bin was selected	Agg 2 Bin #7 Gate #2 fails to close
127	Agg 2 Bin #8 Gate #1 Fault	If only there's Agg 2 and overhead bin was selected	Agg 2 Bin #8 Gate #1 fails to close
128	Agg 2 Bin #8 Gate #2 Fault	If only there's Agg 2 and overhead bin was selected	Agg 2 Bin #8 Gate #2 fails to close
129	Agg 2 Bin #1 Empty Fault	If only there's Agg 2	Aggregate 2's Bin #1 is empty
130	Agg 2 Bin #1 Flow Fault	If only there's Agg 2	Aggregate 2's Bin #1 fail to achieve desire flow rate
131	Agg 2 Bin #2 Empty Fault	If only there's Agg 2	Aggregate 2's Bin #2 is empty
132	Agg 2 Bin #2 Flow Fault	If only there's Agg 2	Aggregate 2's Bin #2 fail to achieve desire flow rate
133	Agg 2 Bin #3 Empty Fault	If only there's Agg 2	Aggregate 3's Bin #3 is empty
134	Agg 2 Bin #3 Flow Fault	If only there's Agg 2	Aggregate 3's Bin #3 fail to achieve desire flow rate
135	Agg 2 Bin #4 Empty Fault	If only there's Agg 2	Aggregate 4's Bin #4 is empty
136	Agg 2 Bin #4 Flow Fault	If only there's Agg 2	Aggregate 4's Bin #4 fail to achieve desire flow rate
137	Agg 2 Bin #5 Empty Fault	If only there's Agg 2	Aggregate 5's Bin #5 is empty
138	Agg 2 Bin #5 Flow Fault	If only there's Agg 2	Aggregate 5's Bin #5 fail to achieve desire flow rate
139	Agg 2 Bin #6 Empty Fault	If only there's Agg 2	Aggregate 6's Bin #6 is empty
140	Agg 2 Bin #6 Flow Fault	If only there's Agg 2	Aggregate 6's Bin #6 fail to achieve desire flow rate
141	Agg 2 Bin #7 Empty Fault	If only there's Agg 2	Aggregate 7's Bin #7 is empty
142	Agg 2 Bin #7 Flow Fault	If only there's Agg 2	Aggregate 7's Bin #7 fail to achieve desire flow rate
143	Agg 2 Bin #8 Empty Fault	If only there's Agg 2	Aggregate 8's Bin #8 is empty
144	Agg 2 Bin #8 Flow Fault	If only there's Agg 2	Aggregate 8's Bin #8 fail to achieve desire flow rate
145	Cement Failed To Tare		Fail to obtain the weight of Cement
146	Cement Not Empty before Filling		Cement is not empty before filling in for next batch
147	Cement Zero Band error		Cement's starting weight is out of the Zero Band
148	Cement Hopper Empty Alarm		Cement hopper is empty
149	Cement Hopper Flow Alarm		Cement hopper fail to achieve desire flow rate
150	Cement Ingredient Underweight		Cement is underweight
151	Cement Ingredient Overweight		Cement is overweight
161	Cement Hopper Gate 1 Closed Fault		Cement's gate 1 fails to close

162	Cement Hopper Gate 1 Pos 1 Fault	1 position control was enabled	Cement Gate 1 doesn't reach Pos 1 (about 33%)
163	Cement Hopper Gate 1 Pos 2 Fault	2 positions control was enabled	Cement Gate 1 doesn't reach Pos 2 (about 66%)
164	Cement Hopper Gate 2 Closed Fault	If only there's Cement gate 2	Cement's gate 2 fails to close
165	Cement Hopper Gate 2 Pos 1 Fault	If only there's Cement gate 2 and 1 position control was enabled	Cement Gate 2 doesn't reach Pos 1 (about 33%)
166	Cement Hopper Gate 2 Pos 2 Fault	If only there's Cement gate 2 and 2 positions control was enabled	Cement Gate 2 doesn't reach Pos 2 (about 66%)
167	Cement Hopper Common Gate Closed Fault	If only gate 1 and 2 were combined	Cement Gate 1 and 2 fail to close
168	Cement Silo #1 Gate Fault		Cement Silo #1 Gate fails to close
169	Cement Silo #2 Gate Fault	If only there's Silo #2	Cement Silo #2 Gate fails to close
170	Cement Silo #3 Gate Fault	If only there's Silo #3	Cement Silo #3 Gate fails to close
171	Cement Silo #4 Gate Fault	If only there's Silo #4	Cement Silo #4 Gate fails to close
172	Cement Conveyor Fault		Cement's conveyor not working properly
173	Cement Conveyor TOL		Cement's conveyor overload
177	Cement Silo #1 Empty Fault	If only there's Silo #1	Cement Silo #1 is empty
178	Cement Silo #1 Flow Fault	If only there's Silo #1	Cement's Silo #1 fail to achieve desire flow rate
179	Cement Silo #2 Empty Fault	If only there's Silo #2	Cement Silo #2 is empty
180	Cement Silo #2 Flow Fault	If only there's Silo #2	Cement's Silo #2 fail to achieve desire flow rate
181	Cement Silo #3 Empty Fault	If only there's Silo #3	Cement Silo #3 is empty
182	Cement Silo #3 Flow Fault	If only there's Silo #3	Cement's Silo #3 fail to achieve desire flow rate
183	Cement Silo #4 Empty Fault	If only there's Silo #4	Cement Silo #4 is empty
184	Cement Silo #4 Flow Fault	If only there's Silo #4	Cement's Silo #4 fail to achieve desire flow rate
193	Water Failed To Tare		Fail to obtain the weight of Water
194	Water Not Empty before Filling		Water is not empty before filling in for next batch
195	Water Zero Band error		Water's starting weight is out of the Zero Band
196	Water Hopper Empty Alarm		Water hopper is empty
197	Water Hopper Flow Alarm		Water hopper fail to achieve desire flow rate
198	Water Hopper Ingredient Underweight		Water is underweight
199	Water Hopper Ingredient Overweight		Water is overweight
200	Water #1 Ingredient Underweight		Water Tank #1 is underweight
201	Water #1 Ingredient Overweight		Water Tank #1 is overweight
202	Water #2 Ingredient Underweight	If only Water Tank #2 was	Water Tank #2 is underweight



		enabled	
203	Water #2 Ingredient Overweight	If only Water Tank #2 was enabled	Water Tank #2 is overweight
204	Water #3 Ingredient Underweight	If only Water Tank #3 was enabled	Water Tank #3 is underweight
205	Water #3 Ingredient Overweight	If only Water Tank #3 was enabled	Water Tank #3 is overweight
206	Water #4 Ingredient Underweight	If only Water Tank #4 was enabled	Water Tank #4 is underweight
207	Water #4 Ingredient Overweight	If only Water Tank #4 was enabled	Water Tank #4 is overweight
209	Water Hopper Gate Fault	If only Water Hopper was used	Water Hopper Gate fails to close
210	Water 1 Valve Fault	If only water 1 valve sensor is connected to PLC	Water Tank #1 Valve fails to close/open
211	Water 1 Pump Fault	If only water 1 pump sensor is connected to PLC	Water Tank #1 Pump fails to run
212	Water 2 Valve Fault	If only water 2 valve sensor is connected to PLC	Water Tank #2 Valve fails to close/open
213	Water 2 Pump Fault	If only water 2 pump sensor is connected to PLC	Water Tank #2 Pump fails to run
214	Water 3 Valve Fault	If only water 3 valve sensor is connected to PLC	Water Tank #3 Valve fails to close/open
215	Water 3 Pump Fault	If only water 3 pump sensor is connected to PLC	Water Tank #3 Pump fails to run
216	Water 4 Valve Fault	If only water 4 valve sensor is connected to PLC	Water Tank #4 Valve fails to close/open
217	Water 4 Pump Fault	If only water 4 pump sensor is connected to PLC	Water Tank #4 Pump fails to run
225	Water Tank #1 Empty Fault		Water Tank #1 is empty
226	Water Tank #1 Flow Fault		Water's Tank #1 fail to achieve desire flow rate
227	Water Tank #2 Empty Fault	If only there's Water Tank #2	Water Tank #2 is empty
228	Water Tank #2 Flow Fault	If only there's Water Tank #2	Water's Tank #2 fail to achieve desire flow rate
229	Water Tank #3 Empty Fault	If only there's Water Tank #3	Water Tank #3 is empty
230	Water Tank #3 Flow Fault	If only there's Water Tank #3	Water's Tank #3 fail to achieve desire flow rate
231	Water Tank #4 Empty Fault	If only there's	Water Tank #4 is empty

		Water Tank #4	
232	Water Tank #4 Flow Fault	If only there's Water Tank #4	Water's Tank #4 fail to achieve desire flow rate
241	Additive Failed To Tare		Fail to obtain the weight of Additive
242	Additive Not Empty before Filling		Additive is not empty before filling in for next batch
243	Additive Zero Band error		Additive's starting weight is out of the Zero Band
244	Additive Hopper Empty Alarm		Additive hopper is empty
245	Additive Hopper Flow Alarm		Additive hopper fail to achieve desire flow rate
246	Additive Hopper Ingredient Underweight		Additive is underweight
247	Additive Hopper Ingredient Overweight		Additive is overweight
248	Additive #1 Ingredient Underweight	If only there's Additive Tank #1	Additive Tank #1 is underweight
249	Additive #1 Ingredient Overweight	If only there's Additive Tank #1	Additive Tank #1 is overweight
250	Additive #2 Ingredient Underweight	If only there's Additive Tank #2	Additive Tank #2 is underweight
251	Additive #2 Ingredient Overweight	If only there's Additive Tank #2	Additive Tank #2 is overweight
252	Additive #3 Ingredient Underweight	If only there's Additive Tank #3	Additive Tank #3 is underweight
253	Additive #3 Ingredient Overweight	If only there's Additive Tank #3	Additive Tank #3 is overweight
254	Additive #4 Ingredient Underweight	If only there's Additive Tank #4	Additive Tank #4 is underweight
255	Additive #4 Ingredient Overweight	If only there's Additive Tank #4	Additive Tank #4 is overweight
257	Additive Hopper Gate Fault		Additive Hopper Gate fails to close
258	Additive 1 Valve Fault	If only there's Additive Tank #1	Additive 1 Valve fails to close/open
259	Additive 1 Pump Fault	If only there's Additive Tank #1	Additive 1 Pump fails to run
260	Additive 2 Valve Fault	If only there's Additive Tank #2	Additive 2 Valve fails to close/open
261	Additive 2 Pump Fault	If only there's Additive Tank #2	Additive 2 Pump fails to run
262	Additive 3 Valve Fault	If only there's Additive Tank #3	Additive 3 Valve fails to close/open
263	Additive 3 Pump Fault	If only there's Additive Tank #3	Additive 3 Pump fails to run
264	Additive 4 Valve Fault	If only there's Additive Tank #4	Additive 4 Valve fails to close/open
265	Additive 4 Pump Fault	If only there's Additive Tank	Additive 4 Pump fails to run

		#4	
273	Additive Tank #1 Empty Fault	If only there's Additive Tank #1	Additive Tank #1 is empty
274	Additive Tank #1 Flow Fault	If only there's Additive Tank #1	Additive's Tank #1 fail to achieve desire flow rate
275	Additive Tank #2 Empty Fault	If only there's Additive Tank #2	Additive Tank #2 is empty
276	Additive Tank #2 Flow Fault	If only there's Additive Tank #2	Additive's Tank #2 fail to achieve desire flow rate
277	Additive Tank #3 Empty Fault	If only there's Additive Tank #3	Additive Tank #3 is empty
278	Additive Tank #3 Flow Fault	If only there's Additive Tank #3	Additive's Tank #3 fail to achieve desire flow rate
279	Additive Tank #4 Empty Fault	If only there's Additive Tank #4	Additive Tank #4 is empty
280	Additive Tank #4 Flow Fault	If only there's Additive Tank #4	Additive's Tank #4 fail to achieve desire flow rate
281	Additive Tank #5 Empty Fault	If only there's Additive Tank #5	Additive Tank #5 is empty
282	Additive Tank #5 Flow Fault	If only there's Additive Tank #5	Additive's Tank #5 fail to achieve desire flow rate
283	Additive Tank #6 Empty Fault	If only there's Additive Tank #6	Additive Tank #6 is empty
284	Additive Tank #6 Flow Fault	If only there's Additive Tank #6	Additive's Tank #6 fail to achieve desire flow rate
285	Additive Tank #7 Empty Fault	If only there's Additive Tank #7	Additive Tank #7 is empty
286	Additive Tank #7 Flow Fault	If only there's Additive Tank #7	Additive's Tank #7 fail to achieve desire flow rate
287	Additive Tank #8 Empty Fault	If only there's Additive Tank #8	Additive Tank #8 is empty
288	Additive Tank #8 Flow Fault	If only there's Additive Tank #8	Additive's Tank #8 fail to achieve desire flow rate
289	Additive #5 Ingredient Underweight	If only there's Additive Tank #5	Additive Tank #5 is underweight
290	Additive #5 Ingredient Overweight	If only there's Additive Tank #5	Additive Tank #5 is overweight
291	Additive #6 Ingredient Underweight	If only there's Additive Tank #6	Additive Tank #6 is underweight
292	Additive #6 Ingredient Overweight	If only there's Additive Tank #6	Additive Tank #6 is overweight
293	Additive #7 Ingredient Underweight	If only there's Additive Tank	Additive Tank #7 is underweight

		#7	
294	Additive #7 Ingredient Overweight	If only there's Additive Tank #7	Additive Tank #7 is overweight
295	Additive #8 Ingredient Underweight	If only there's Additive Tank #8	Additive Tank #8 is underweight
296	Additive #8 Ingredient Overweight	If only there's Additive Tank #8	Additive Tank #8 is overweight
297	Additive 5 Valve Fault	If only there's Additive Tank #5	Additive 5 Valve fails to close/open
298	Additive 5 Pump Fault	If only there's Additive Tank #5	Additive 5 Pump fails to run
299	Additive 6 Valve Fault	If only there's Additive Tank #6	Additive 6 Valve fails to close/open
300	Additive 6 Pump Fault	If only there's Additive Tank #6	Additive 6 Pump fails to run
301	Additive 7 Valve Fault	If only there's Additive Tank #7	Additive 7 Valve fails to close/open
302	Additive 7 Pump Fault	If only there's Additive Tank #7	Additive 7 Pump fails to run
303	Additive 8 Valve Fault	If only there's Additive Tank #8	Additive 8 Valve fails to close/open
304	Additive 8 Pump Fault	If only there's Additive Tank #8	Additive 8 Pump fails to run
305	Cement #2 Failed To Tare	If only there's Cement #2	Fail to obtain the weight of Cement #2
306	Cement #2 Not Empty before Filling	If only there's Cement #2	Cement #2 is not empty before filling in for next batch
307	Cement #2 Zero Band error	If only there's Cement #2	Cement#2's starting weight is out of the Zero Band
308	Cement #2 Hopper Empty Alarm	If only there's Cement #2	Cement #2 hopper is empty
309	Cement #2 Hopper Flow Alarm	If only there's Cement #2	Cement #2 hopper fail to achieve desire flow rate
310	Cement #2 Ingredient Underweight	If only there's Cement #2	Cement #2 is underweight
311	Cement #2 Ingredient Overweight	If only there's Cement #2	Cement #2 is overweight
321	Cement #2 Hopper Gate 1 Closed Fault	If only there's Cement #2	Cement#2's gate 1 fails to close
322	Cement #2 Hopper Gate 1 Pos 1 Fault	If only there's Cement #2 and 1 position control was enabled	Cement #2 Hopper Gate 1 doesn't reach Pos 1 (about 33%)
323	Cement #2 Hopper Gate 1 Pos 2 Fault	If only there's Cement #2 and 2 positions control was enabled	Cement #2 Hopper Gate 1 doesn't reach Pos 2 (about 66%)
324	Cement #2 Hopper Gate 2 Closed Fault	If only there's Cement #2	Cement#2's gate 2 fails to close
325	Cement #2 Hopper Gate 2 Pos	If only there's	Cement #2 Hopper Gate 2 doesn't reach

	1 Fault	Cement #2 and 1 position control was enabled	Pos 1 (about 33%)
326	Cement #2 Hopper Gate 2 Pos 2 Fault	If only there's Cement #2 and 2 positions control was enabled	Cement #2 Hopper Gate 2 doesn't reach Pos 2 (about 66%)
327	Cement #2 Hopper Common Gate Closed Fault	If only gate 1 and 2 were combined	Cement #2 Hopper Gate 1 and 2 fail to close
328	Cement #2 Silo #1 Gate Fault	If only there's Cement #2	Cement #2 Silo #1 Gate not working
329	Cement #2 Silo #2 Gate Fault	If only there's Cement #2	Cement #2 Silo #2 Gate not working
330	Cement #2 Silo #3 Gate Fault	If only there's Cement #2	Cement #2 Silo #3 Gate not working
331	Cement #2 Silo #4 Gate Fault	If only there's Cement #2	Cement #2 Silo #4 Gate not working
332	Cement #2 Conveyor Fault	If only there's Cement #2	Cement#2's conveyor not working properly
333	Cement #2 Conveyor TOL	If only there's Cement #2	Cement#2's conveyor overload
337	Cement #2 Silo #1 Empty Fault	If only there's Cement #2	Cement #2 Silo #1 is empty
338	Cement #2 Silo #1 Flow Fault	If only there's Cement #2	Cement #2 Silo #1 fail to achieve desire flow rate
339	Cement #2 Silo #2 Empty Fault	If only there's Cement #2	Cement #2 Silo #2 is empty
340	Cement #2 Silo #2 Flow Fault	If only there's Cement #2	Cement #2 Silo #2 fail to achieve desire flow rate
341	Cement #2 Silo #3 Empty Fault	If only there's Cement #2	Cement #2 Silo #3 is empty
342	Cement #2 Silo #3 Flow Fault	If only there's Cement #2	Cement #2 Silo #3 fail to achieve desire flow rate
343	Cement #2 Silo #4 Empty Fault	If only there's Cement #2	Cement #2 Silo #4 is empty
344	Cement #2 Silo #4 Flow Fault	If only there's Cement #2	Cement #2 Silo #4 fail to achieve desire flow rate
401	Aggregate #1 Bin #1 Level Low		Aggregate #1 Bin #1 Level lower than Bin Low Level Warning
402	Aggregate #1 Bin #2 Level Low		Aggregate #1 Bin #2 Level lower than Bin Low Level Warning
403	Aggregate #1 Bin #3 Level Low		Aggregate #1 Bin #3 Level lower than Bin Low Level Warning
404	Aggregate #1 Bin #4 Level Low		Aggregate #1 Bin #4 Level lower than Bin Low Level Warning
405	Aggregate #1 Bin #5 Level Low		Aggregate #1 Bin #5 Level lower than Bin Low Level Warning
406	Aggregate #1 Bin #6 Level Low		Aggregate #1 Bin #6 Level lower than Bin Low Level Warning
407	Aggregate #1 Bin #7 Level Low		Aggregate #1 Bin #7 Level lower than Bin Low Level Warning
408	Aggregate #1 Bin #8 Level Low		Aggregate #1 Bin #8 Level lower than Bin Low Level Warning
409	Aggregate #2 Bin #1 Level Low	If only there's Aggregate #2	Aggregate #2 Bin #1 Level lower than Bin Low Level Warning
410	Aggregate #2 Bin #2 Level Low	If only there's Aggregate #2	Aggregate #2 Bin #2 Level lower than Bin Low Level Warning
411	Aggregate #2 Bin #3 Level Low	If only there's Aggregate #2	Aggregate #2 Bin #3 Level lower than Bin Low Level Warning
412	Aggregate #2 Bin #4 Level Low	If only there's	Aggregate #2 Bin #4 Level lower than Bin

		Aggregate #2	Low Level Warning
413	Aggregate #2 Bin #5 Level Low	If only there's Aggregate #2	Aggregate #2 Bin #5 Level lower than Bin Low Level Warning
414	Aggregate #2 Bin #6 Level Low	If only there's Aggregate #2	Aggregate #2 Bin #6 Level lower than Bin Low Level Warning
415	Aggregate #2 Bin #7 Level Low	If only there's Aggregate #2	Aggregate #2 Bin #7 Level lower than Bin Low Level Warning
416	Aggregate #2 Bin #8 Level Low	If only there's Aggregate #2	Aggregate #2 Bin #8 Level lower than Bin Low Level Warning
417	Cement Silo #1 Level Low		Cement Silo #1 Level lower than Bin Low Level Warning
418	Cement Silo #2 Level Low		Cement Silo #2 Level lower than Bin Low Level Warning
419	Cement Silo #3 Level Low		Cement Silo #3 Level lower than Bin Low Level Warning
420	Cement Silo #4 Level Low		Cement Silo #4 Level lower than Bin Low Level Warning
421	Water Tank #1 Level Low		Water Tank #1 Level lower than Bin Low Level Warning
422	Water Tank #2 Level Low	If only Water Tank #2 was enabled	Water Tank #2 Level lower than Bin Low Level Warning
423	Water Tank #3 Level Low	If only Water Tank #3 was enabled	Water Tank #3 Level lower than Bin Low Level Warning
424	Water Tank #4 Level Low	If only Water Tank #4 was enabled	Water Tank #4 Level lower than Bin Low Level Warning
425	Additive Tank #1 Level Low	If only Additive Tank #1 was enabled	Additive Tank #1 Level lower than Bin Low Level Warning
426	Additive Tank #2 Level Low	If only Additive Tank #2 was enabled	Additive Tank #2 Level lower than Bin Low Level Warning
427	Additive Tank #3 Level Low	If only Additive Tank #3 was enabled	Additive Tank #3 Level lower than Bin Low Level Warning
428	Additive Tank #4 Level Low	If only Additive Tank #4 was enabled	Additive Tank #4 Level lower than Bin Low Level Warning
429	Additive Tank #5 Level Low	If only Additive Tank #5 was enabled	Additive Tank #5 Level lower than Bin Low Level Warning
430	Additive Tank #6 Level Low	If only Additive Tank #6 was enabled	Additive Tank #6 Level lower than Bin Low Level Warning
431	Additive Tank #7 Level Low	If only Additive Tank #7 was enabled	Additive Tank #7 Level lower than Bin Low Level Warning
432	Additive Tank #8 Level Low	If only Additive Tank #8 was enabled	Additive Tank #8 Level lower than Bin Low Level Warning
433	Cement Hopper #1 Level Low	If only Cement Hooper #1 was used as bin	Cement Hopper #1 Level lower than Bin Low Level Warning
434	Cement Hopper #2 Level Low	If only Cement Hooper #2 was used as bin	Cement Hopper #2 Level lower than Bin Low Level Warning
451	Modbus Watchdog Alarm		PLC is not communicating
452	LED Comms Watchdog Alarm		LED is not communicating

