## eFCAS™ Measurement

The Operations Software Suite (OSS) is like none other. OSS is the only solution on the market with everything for SCADA and Measurement built into the same suite and fully integrated out-of-the-box. eFCAS Measurement is also the only software solution that comes with Measurement specific screens built-in to the product that can be used immediately when data is received with no integration.

## Built-in Measurement Features

- Remote Monitoring,
- Gathering EFM Audit Trail data with eFCAS Communication Drivers™,
- Discover issues over thousands of meter runs with the Problem Summary,
- Overview maps to view the entire monitoring area quickly and easy,
- Templated Mimics for each well/station to ease configuration,
- Compliant Validation and Editing with the eFCAS Editor™,
- Compliant Auditing—eFCAS Editor and Secure Database™,
- Liquid and Gas Re-calculations,
- Built in screens for viewing Alarm Logs, Event Logs, Meter Configurations, etc.,
- Gas Composition—eFCAS Manage Composition Utility™,
- Enterprise Reporting—eFCAS Reports™,
- Easy 3rd Party Integration of Real-time Data —eFCAS OPC Server™,
- Exports to 3rd-party Validation Software—eFCAS Exporter™,
- Advanced Ad-hoc Reporting.

## Remote Monitoring

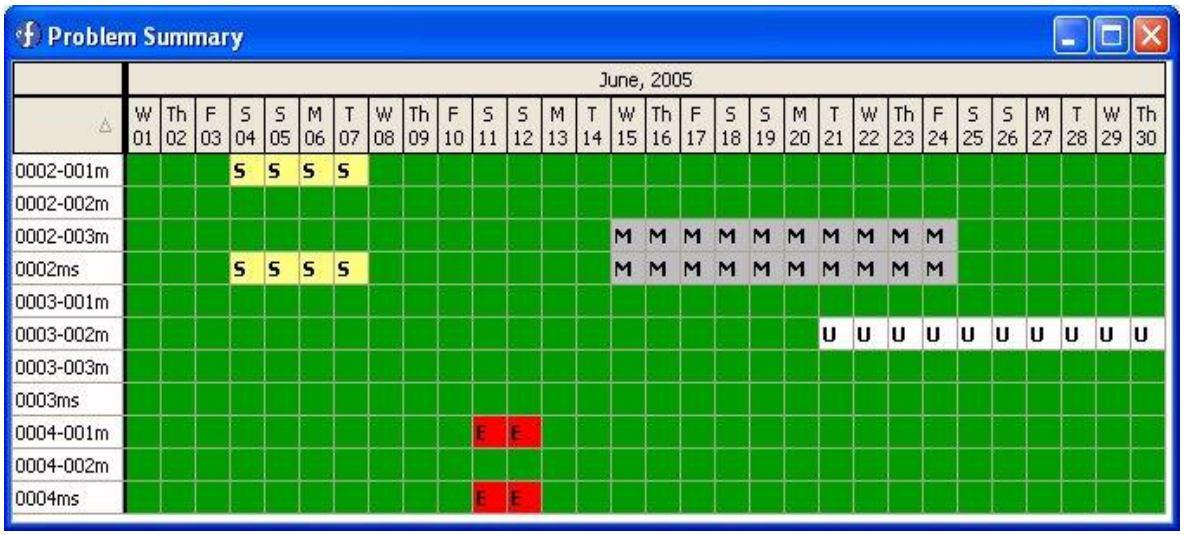
The OSS SCADA and Measurement solution architecture is built specifically so your system can be monitored from anywhere on the internet with the proper authentication.

# Data Collection

Full EFM Audit trail data collection via ***e*FCAS Communication Drivers** is scheduled through an easy process of creating tasks, using the ***e*FCAS Client** configuration screens. The ***e*FCAS Communication Drivers**, most written to use the native protocol of the device manufacturer, communicate with hundreds of devices to collect both real-time and audit trail information automatically and store the data in the *e*FCAS Secure Database. All data collection and storage is done to API 21 and Directive 17 Standards. For more information on data collection and the support manufacturers' protocol drivers, please visit our website.

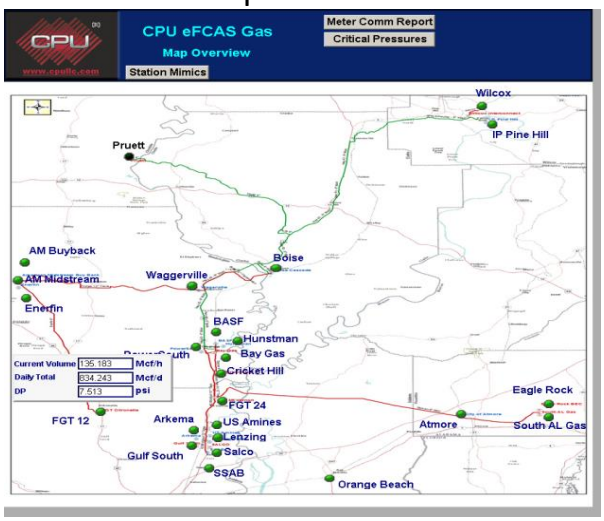
# Problem Summary

*e*FCAS presents all meters and meter stations in a consolidated view for Rapid identification of missing data, suspect data, data in error and uncollected data. This screen quickly lets the user go directly to the issue by bringing up the Flow data screen where the issue exists. Furthermore, if the data is flagged as suspect or error, you hover over the cell and a pop-up will let you know why it was suspect or in error. *e*FCAS securely stores original data—which cannot be edited—along with the edited data. All data editing is tracked in an audit trail, capturing user's name, time of, and reasons for changes.



# Overview Map

Within *e*FCAS, using the *e*FCAS Mimics, an Overview Map can be created for the Measurement territory in question. This Overview screen can be as simple or as advanced as required.

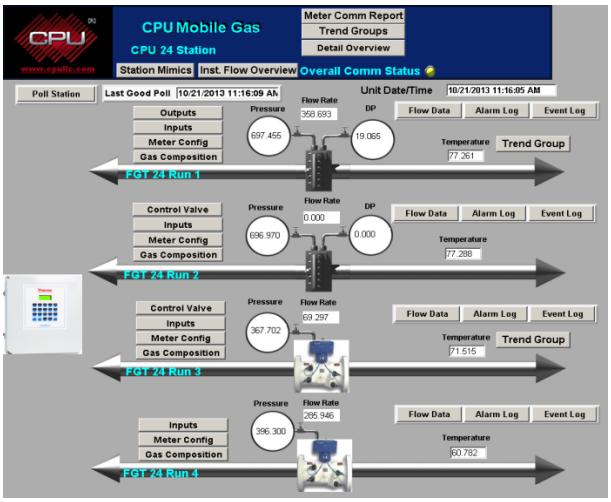



The Overview Map can offer an easy way to see quickly that everything is communicating properly. It can also provide basic production information and popup different windows for each site that provides detailed data in a glance. GIS integration is also available so that SCADA can easily be integrated with the corporate GIS system and work seamlessly.

# Templated Mimics

*e*FCAS Mimics can be templated and put into composite templates. This allows the ability to use templates within templates and for them to exist within many different mimics or templates.

The ability to create templates and have templates within templates allows for the creation of composites that when changed, automatically change within ALL other templates immediately upon reopening. Furthermore, these templates can access both real-time data as well as measurement data within the same mimic. Reports can also be linked within the mimics so all data can be accessible.

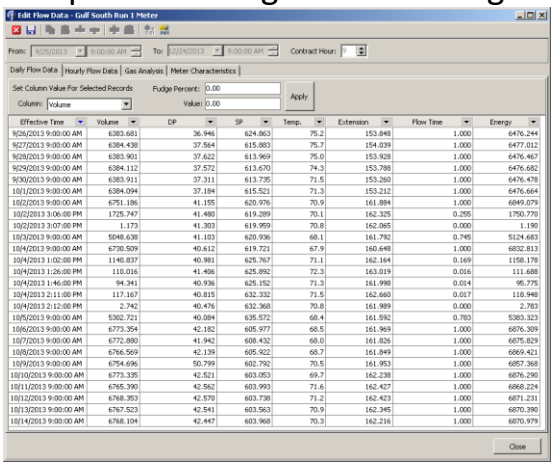



# Exports

Third-party EFM Validation software is available from several vendors, each using a proprietary file import format. The ***e*FCAS Exporter™** can access EFM information stored in the *e*FCAS Secure Database and export that information to one of the third party vendors in their respective file format. Data can also be exported through Reports as well as Object Exports and Comma Separated Value (CSV) drivers.

# Editing and Calculations

The *e*FCAS Editor is not only powerful; it is also easy to use. It forces the user into compliance with government regulations like API 21.1, 21.2 and Directive 17.




The editor gives the user all of the data necessary to decide what action to take all in one interface. The user can modify multiple records at once via column or row. Once Meter Characteristics or Analysis is modified, the entire period can be re-calculated with the click of one button. Once the changes have been made, then the new data and configuration is saved preserving the original data as well.

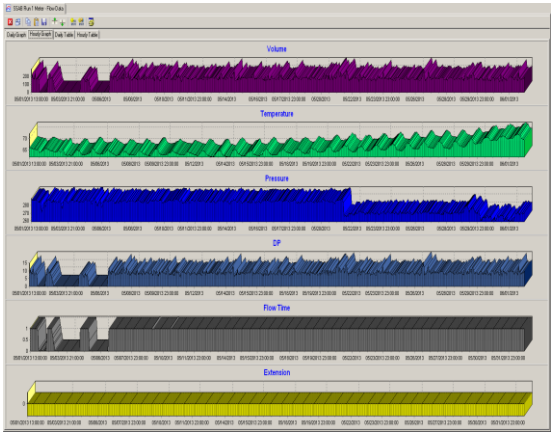
# Measurement Screens

The *e*FCAS Solution was created with Measurement in mind and that design mindset has produced the built-in screens below. These built-in screens allow for faster deployment and efficiency of use within eFCAS.

## Flow Data Screen

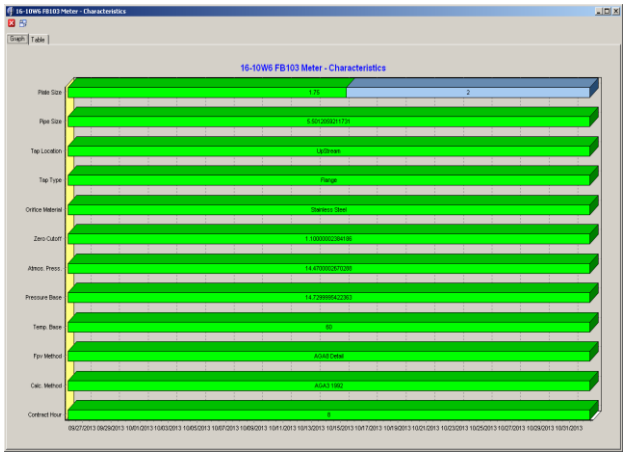
As soon as the EFM History data is collected, it can be viewed in the built-in screen called Flow Data screen.

This screen can be accessed in many different ways such as from the Tree View, from the Main Tool Bar and from a Mimic. It contains a Daily History Graph, an Hourly History Graph, a table view of the Daily History and a table view of the Hourly History. The user can also access the Edit Utility from this screen.



## Meter Characteristics Screen

The Meter Characteristics screen has two tabs, one for the Meter Characteristics graph and a table view to see the actual data over the timeframe.

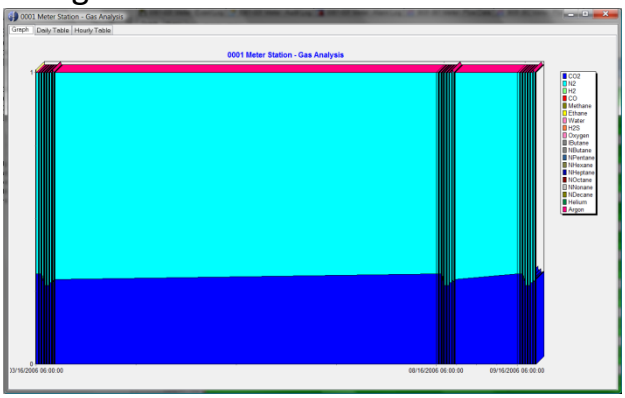



The Meter Characteristics, or configuration, graph screen shows the user, very quickly, if there are any modifications of the configuration over time by seeing the color change over the timeline. The actual data can also be viewed on the Table view tab.

## Gas Composition Screen

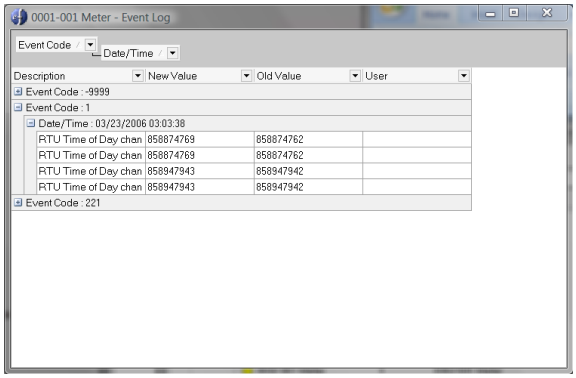
The Gas Composition Screen has two tabs as well, one for a graphical view of the gas composition and one for the table view of the original data.

The graphical view allows users to quickly see if changes in the composition have occurred, or not. The Table tab allows users to view the original data in a table form and see exactly when changes occurred.




## Event Log Screen

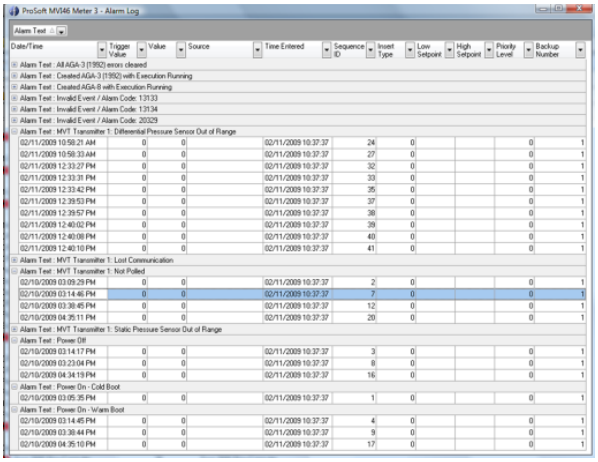
The *e*FCAS Event Log screen shows events from all devices the same exact way.




When the screen is initially opened from the Tree View or the Main Tool Bar, the screen comes up in a table view showing all of the data. The data can then be sorted or filtered with custom filters on each column. The user can also move columns up to the top section and create pivot-tables which further help the sorting and filtering of large amounts of data. The displayed Events can also be exported to HTML, XML, Text or a spreadsheet.

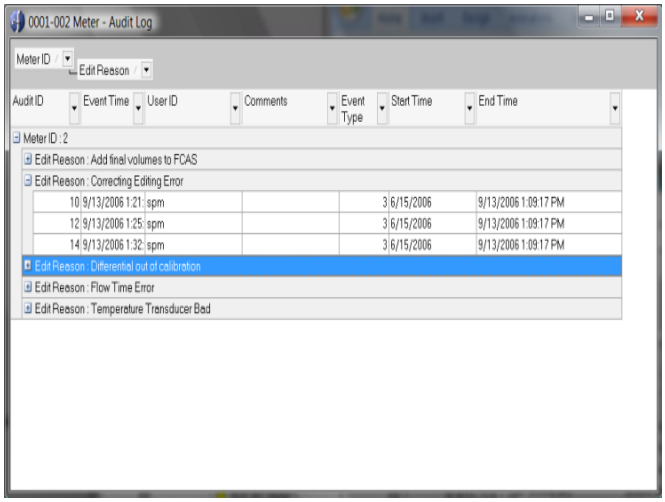
## Alarm Log Screen

The *e*FCAS Alarm Log screen shows alarms from all devices the same exact way. When the screen is initially opened from the Tree View or the Main Tool Bar, the screen comes up in a table view showing all of the data. The data can then be sorted or filtered with custom filters on each column. The user can also move columns up to the top section and create pivot-tables which further help the sorting and filtering of large amounts of data. The displayed alarms can also be exported to HTML, XML, Text or a spreadsheet.



## Audit Log Screen

The *e*FCAS Audit Log screen shows audit information from a meter in a table form.




When the screen is initially opened from the Tree View or the Main Tool Bar, the screen comes up in a table view showing all of the audit entries. The audit entry data can then be sorted or filtered with custom filters on each column. The user can also move columns up to the top section and create pivot-tables which further help the sorting and filtering of large amounts of data. The displayed audits can also be exported to HTML, XML, Text or a spreadsheet.

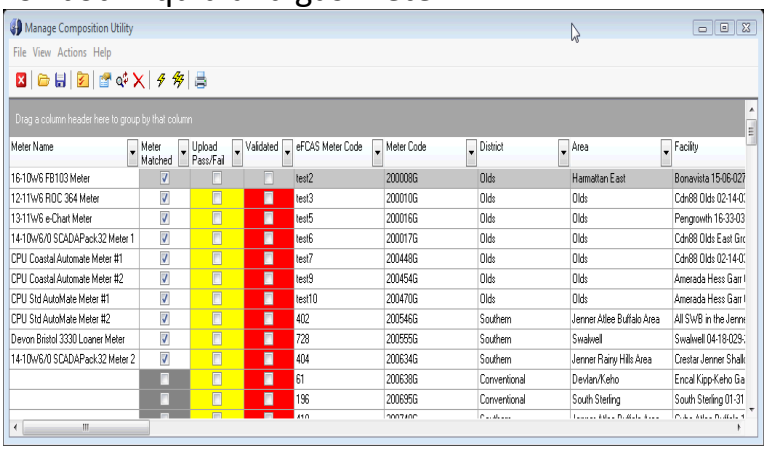
# Secure Storage

A secure data storage method is a requirement for any compliant EFM Management Solution. *e*FCAS is no different in this regard. *e*FCAS supports two secure, relational databases; Firebird 2.5 and Microsoft SQL Server. Both databases are ADO Compliance and secured with user names and passwords.

# Manage Composition Utility

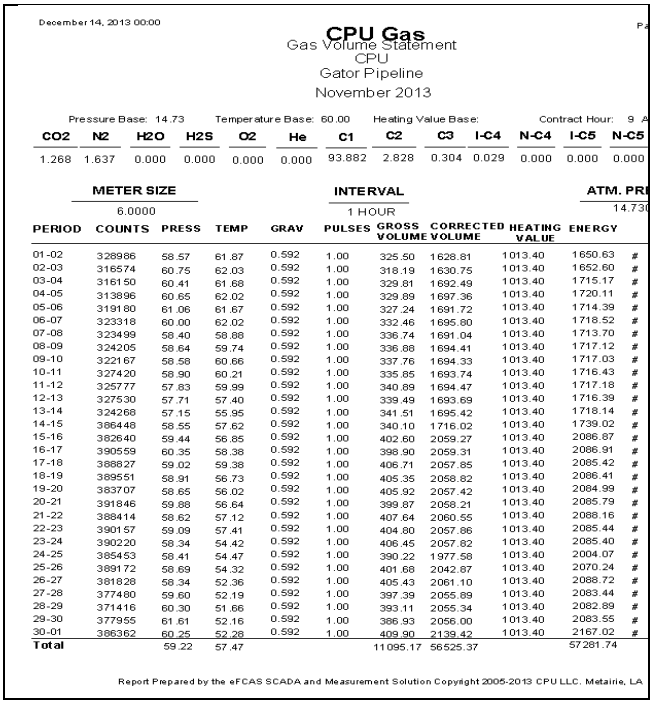
The *e*FCAS Manage Composition Utility is used to keep a record of what the composition is supposed to be for each meter run for both liquid and gas meter.

Records can be imported from a spreadsheet from a sampling lab, and then easily uploaded to the Flow Computers for the meter runs in question. Validation can be automatically checked as the data is gathered from the meters or it can be manually checked using the utility. Records can be modified at any time and uploaded to the entire meter list.




# Reports

*e*FCAS Reporting is very powerful and has two reporting methods available built-in to the eFCAS Suite. The first is the traditional advanced ad-hoc reporting typically used for compliance reporting for historical and audit trail data. The second is the eFCAS Object Reporting which is a very powerful solution that uses the Relational Objects within the eFCAS Suite to build reports that do not require the user to create SQL Queries and eases the burden of report creation.



December 14, 2013 00:00

**CPU Gas**
Gas Volume Statement
CPU
Gator Pipeline
November 2013

Pressure Base: 14.73 Temperature Base: 60.00 Heating Value Base: Contract Hour: 9

| CO2 | N2 | H2O | H2S | O2 | He | C1 | C2 | C3 | I-C4 | N-C4 | I-C5 | N-C5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.268 | 1.637 | 0.000 | 0.000 | 0.000 | 0.000 | 93.882 | 2.828 | 0.304 | 0.029 | 0.000 | 0.000 | 0.000 |

METER SIZE 6.0000 INTERVAL 1 HOUR ATM. PR 14.73

| PERIOD | COUNTS | PRESS | TEMP | GRAV | PULSES | GROSS VOLUME | CORRECTED VOLUME | HEATING VALUE | ENERGY | |
|---|---|---|---|---|---|---|---|---|---|---|
| 01-02 | 328986 | 58.57 | 61.87 | 0.592 | 1.00 | 325.50 | 1628.81 | 1013.40 | 1650.63 | # |
| 02-03 | 316574 | 60.75 | 62.03 | 0.592 | 1.00 | 318.19 | 1630.75 | 1013.40 | 1652.60 | # |
| 03-04 | 316150 | 60.41 | 61.68 | 0.592 | 1.00 | 329.81 | 1692.49 | 1013.40 | 1715.17 | # |
| 04-05 | 313896 | 60.65 | 62.02 | 0.592 | 1.00 | 329.89 | 1697.36 | 1013.40 | 1720.11 | # |
| 05-06 | 319180 | 61.06 | 61.67 | 0.592 | 1.00 | 327.24 | 1691.72 | 1013.40 | 1714.39 | # |
| 06-07 | 323318 | 60.00 | 62.02 | 0.592 | 1.00 | 332.46 | 1695.80 | 1013.40 | 1718.52 | # |
| 07-08 | 323499 | 58.40 | 58.88 | 0.592 | 1.00 | 336.74 | 1691.04 | 1013.40 | 1713.70 | # |
| 08-09 | 324205 | 58.64 | 59.74 | 0.592 | 1.00 | 336.88 | 1694.41 | 1013.40 | 1717.12 | # |
| 09-10 | 322167 | 58.58 | 60.66 | 0.592 | 1.00 | 337.76 | 1694.33 | 1013.40 | 1717.03 | # |
| 10-11 | 327420 | 58.90 | 60.21 | 0.592 | 1.00 | 335.85 | 1693.74 | 1013.40 | 1716.43 | # |
| 11-12 | 325777 | 57.83 | 59.99 | 0.592 | 1.00 | 340.89 | 1694.47 | 1013.40 | 1717.18 | # |
| 12-13 | 327530 | 57.71 | 57.40 | 0.592 | 1.00 | 339.49 | 1693.69 | 1013.40 | 1716.39 | # |
| 13-14 | 324268 | 57.15 | 55.95 | 0.592 | 1.00 | 341.51 | 1695.42 | 1013.40 | 1718.14 | # |
| 14-15 | 386448 | 58.55 | 57.62 | 0.592 | 1.00 | 340.10 | 1716.02 | 1013.40 | 1739.02 | # |
| 15-16 | 382640 | 59.44 | 56.85 | 0.592 | 1.00 | 402.60 | 2059.27 | 1013.40 | 2086.87 | # |
| 16-17 | 390559 | 60.35 | 58.38 | 0.592 | 1.00 | 398.90 | 2059.31 | 1013.40 | 2086.91 | # |
| 17-18 | 388827 | 59.02 | 59.38 | 0.592 | 1.00 | 406.71 | 2057.85 | 1013.40 | 2085.42 | # |
| 18-19 | 389551 | 58.91 | 56.73 | 0.592 | 1.00 | 405.35 | 2058.82 | 1013.40 | 2086.41 | # |
| 19-20 | 383707 | 58.65 | 56.02 | 0.592 | 1.00 | 405.92 | 2057.42 | 1013.40 | 2084.99 | # |
| 20-21 | 391846 | 59.88 | 56.64 | 0.592 | 1.00 | 399.87 | 2058.21 | 1013.40 | 2085.79 | # |
| 21-22 | 388414 | 58.62 | 57.12 | 0.592 | 1.00 | 407.64 | 2060.55 | 1013.40 | 2088.16 | # |
| 22-23 | 390157 | 59.09 | 57.41 | 0.592 | 1.00 | 404.80 | 2057.96 | 1013.40 | 2085.44 | # |
| 23-24 | 390220 | 58.34 | 54.42 | 0.592 | 1.00 | 406.45 | 2057.82 | 1013.40 | 2085.40 | # |
| 24-25 | 385453 | 58.41 | 54.47 | 0.592 | 1.00 | 390.22 | 1977.58 | 1013.40 | 2004.07 | # |
| 25-26 | 389172 | 58.69 | 54.32 | 0.592 | 1.00 | 401.68 | 2042.87 | 1013.40 | 2070.24 | # |
| 26-27 | 381828 | 58.34 | 52.36 | 0.592 | 1.00 | 405.43 | 2061.10 | 1013.40 | 2088.72 | # |
| 27-28 | 377480 | 59.60 | 52.19 | 0.592 | 1.00 | 397.39 | 2055.89 | 1013.40 | 2083.44 | # |
| 28-29 | 371416 | 60.30 | 51.66 | 0.592 | 1.00 | 393.11 | 2055.34 | 1013.40 | 2082.89 | # |
| 29-30 | 377955 | 61.61 | 52.16 | 0.592 | 1.00 | 386.93 | 2056.00 | 1013.40 | 2083.55 | # |
| 30-01 | 386362 | 60.25 | 52.28 | 0.592 | 1.00 | 409.90 | 2139.42 | 1013.40 | 2167.02 | # |
| Total | | 59.22 | 57.47 | | | 11095.17 | 56525.37 | | 57281.74 | |

Report Prepared by the eFCAS SCADA and Measurement Solution Copyright 2005-2013 CPU LLC, Metairie, LA

The traditional ***e*FCAS** advanced reporting system, which is built-in, uses "out-of-the-box" standard **eFCAS Reports,** or user-developed ad-hoc reports, which can be scheduled to run automatically, reducing reporting time and cost to the enterprise. ***e*FCAS Reports** can even be customized to do **Daily Production Reports** as well as **Allocation Reports**.

The eFCAS Object Reporting is an amazing technology that allows users and operators to create reports by dragging and dropping items from an eFCAS Object Type onto an Object Report canvas; no SQL required. For more information, go to the *e*FCAS Reporting page.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