Description

Tank ELS is a simple “prepackaged” implementation of SCADAvantage™ for Tank Battery Applications. This system is pre-engineered to the most popular configurations and data displays. The system provides options for both remote and local security for oil removal.
SCADAvantage™ system for tank battery applications
System software products

Features

- The initial system requires no system engineering and can be deployed quickly and inexpensively
- Tank ELS can support any number of Tank locations and Tanks at each site. The detail display screen can show up to five tanks at one time.
- Includes a full SCADAvantage™ license with all features – DVI polling engine, real-time relational data base, trending, unlimited client access, etc.
- Supports Totalflow Flow Computers and Remote Terminal Units (RTU).
- Includes three basic screens. In addition, all of the built-in SCADAvantage™ screens are available, including trend display and set point download for authorized users
- Includes one basic reports – The Daily Production Report
- A Monthly Production Report is available as an option.
- Installation, configuration, and basic operator training at customer’s site (Cost depends on time spent, but is normally 3 to 5 days). Further training (e.g., System Administration Training) is available in Bartlesville.
- Fully expandable in the future
- Kickoff meeting (normally by telephone) to review hardware and installation requirements
- Pricing is based on the number of batteries and tanks in the system. Additional Batteries and Tanks can be added in various increments as required, and the license can be updated easily online.
- Predefined Alarming – Oil Level > {value}, Water Level > {value}
- User has the ability to define additional alarms, new users, and assign rights to user ID / password
- Proven Map, Tabbed, and Treeview navigation tools
- Can utilize WinCCU Groups for Treeview and Overview Definition

Tank ELS can show from one to five tanks at each site.
Only tanks present will be shown.
Map overview

- Security – There is optional Security available when a solenoid actuated valve is present so that Truck loading can take place only when authorized:
  - The Totalflow RTU supports a keypad where the trucker can enter a code to open the valve. The code is specified by the user and can be changed when desired (e.g., for a new trucker). Authorization can be programmed into the RTU, or the code can be returned to the SCADAvantage™ Operator as a request to open the valve. The valve can then be opened remotely.
  - The Totalflow RTU supports a proximity sensor which reads either cards or fobs. These cards or fobs can be issued to a trucker, and used to verify an authorized withdrawal. Then, either the RTU can open the valve, or a message is sent to the SCADAvantage™ Operator who can then send a command to the RTU to open the valve.
- The trucker can simply call the SCADAvantage™ Operator and request that the valve be opened. The operator can then open the valve.
- The RTU can be programmed to automatically close the valve after a specified length of time.
- The RTU can be programmed to report that the tank level is falling so that the Operator can take appropriate measures if oil is being removed without authorization.

Off-the-shelf map linked to real time data. Can show or hide features such as roads, rivers, etc. Includes Lat/Long in the upper left corner.

Placing the mouse pointer over a site will display information about the site in a flyover bubble. This can be static information (e.g., Tank ID) or selected dynamic data (e.g., Oil Volume).

Well sites, pod locations, leases, fields, etc are located automatically on the map using Lat/Long or Township/Range information.

The alarm view automatically shows and sorts alarms. Alarms can be acknowledged and cleared.
SCADAvantage™ system for tank battery applications
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Advantages over WinCCU

- Advanced navigation tools, such as the map and tree view
- Overview Display Grid – Comparative information on multiple wells on the same Display
- Sophisticated Trending
- Heightened Security
- Comprehensive Alarming
- Client / Server Architecture
- SCADAvantage™ options can be added to an existing system at any time

Screens

Tank ELS comes with three predefined Screens, Map Overview, Summary, and Site / Tank Detail.

Report

This Basic Report is provided with Tank ELS. The System Administrator supplies the Company name for this report. Y-day is the Volume for the most recent day from contract hour to contract hour. YY-Day Volume is the full day proceeding.

<table>
<thead>
<tr>
<th>Daily Production Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: October 12, 2006</td>
</tr>
<tr>
<td>Company: Production Associates</td>
</tr>
<tr>
<td>Contract Hour: 08:00 AM</td>
</tr>
<tr>
<td>Location: Far Creek</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Well ID</th>
<th>Oil volume (inches)</th>
<th>Water volume (inches)</th>
<th>Water volume (barrels)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC-1</td>
<td>74.1</td>
<td>62.0</td>
<td>12.1</td>
</tr>
<tr>
<td>FC-2</td>
<td>239.4</td>
<td>169.0</td>
<td>70.4</td>
</tr>
<tr>
<td>FC-3</td>
<td>25.6</td>
<td>234.4</td>
<td>208.8</td>
</tr>
<tr>
<td>FC-4</td>
<td>156.4</td>
<td>36.3</td>
<td>120.1</td>
</tr>
<tr>
<td>FC-5</td>
<td>132.0</td>
<td>122.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

The Monthly Report is an optional report that is available with Tank ELS. It provides a summary of the month’s production by tank and group (normally lease). It also itemizes sales by date and volume.

<table>
<thead>
<tr>
<th>Monthly Oil Production Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: October 12, 2006</td>
</tr>
<tr>
<td>Company: Production Associates</td>
</tr>
<tr>
<td>Location: Blue Horse Creek</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tank Group</th>
<th>Tank ID</th>
<th>Tank Volume Barrels</th>
<th>Sales Barrels</th>
<th>Day of Month</th>
<th>Total Production Barrels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Far Creek</td>
<td>FC-1</td>
<td>12.5</td>
<td>179</td>
<td>6</td>
<td>345</td>
</tr>
<tr>
<td></td>
<td>FC-2</td>
<td>6.5</td>
<td>178</td>
<td>5</td>
<td>354</td>
</tr>
<tr>
<td></td>
<td>FC-3</td>
<td>9.9</td>
<td>178</td>
<td>13</td>
<td>354</td>
</tr>
<tr>
<td></td>
<td>FC-4</td>
<td>13.0</td>
<td>178</td>
<td>14</td>
<td>353</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,400</td>
</tr>
<tr>
<td>Lone Horse</td>
<td>LH-1</td>
<td>7.7</td>
<td>177</td>
<td>4</td>
<td>373</td>
</tr>
<tr>
<td></td>
<td>LH-2</td>
<td>3.9</td>
<td>178</td>
<td>23</td>
<td>373</td>
</tr>
<tr>
<td></td>
<td>LH-3</td>
<td>2.2</td>
<td>178</td>
<td>14</td>
<td>373</td>
</tr>
<tr>
<td></td>
<td>LH-4</td>
<td>15.9</td>
<td>178</td>
<td>23</td>
<td>373</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,029</td>
</tr>
</tbody>
</table>
Benefits

Engineered systems options
These options require an Engineered Solution and thus are not part of the Entry Level System. Engineered Solutions require significantly more labor to produce, and this will affect the price considerably.

These options provide much greater functionality in a SCADAvantage™ system and should be considered either in the original system configuration or as additions to a system after it has been installed.

Example engineered options
- Query Tool (See below) – This tool provides filters for the navigation display below it. Since it can be easily changed as needed and query definitions can be saved, it is a valuable tool for the operator.

A reporting feature is also available as an addition to the Query Tool. The query tool is used to specify a group of wells, then a date range can be specified at the report tab. Reports can be run, saved, and retrieved from the report tab.

- Alarm Call-out / call-in – Will call the required phone number when there is a specified alarm. Provides for escalation if there is no answer. Alternatively, it can send an email or page. An alarm code allows the recipient with proper authorization to acknowledge the alarm over the phone. It also provides for a user with proper authorization to call-in and hear current values reported Standard SCADAvantage™ Report Functionality – A battery of reports can be created easily using this SCADAvantage™ feature. The HMI can also be modified to allow the reports to be called from within.

- Non-Totalflow EFMs, RTUs, PLCs, etc. – Support for multiple protocols over the same serial port or master radio.
Summary screen – for a quick view of multiple batteries/tanks. The sites/tanks are grouped by field, lease, pumper, etc.

Tab to different views.

Treeview and Alarmview are on each display screen.

Summary data chosen by the customer from a predefined list.

Tank IDs – Click on one of these buttons and go to the detail screen.
Battery/Tank detail screen

**Buttons**

1. Fast Scan – scan now
2. Quick Trend – build trend on the fly
3. Select Trend – choose predefined trend
4. Data Grid – all the data on the screen displayed in grid format (can be printed or exported into a CSV file)

**Memo Pad**

Operator enters notes for a site (e.g. site-down, waiting on parts, should be up Friday) Notes are date and time stamped and include the operator’s ID. The notes are stored in the database along with the data/time stamp and operator ID and can be included in reports or site logs.

**Query tool**

Query filters
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