LUCAS COUNTY

MEMO

To: Lucas County Data Processing Board

From: Jim Shaw, P.E., Sanitary Engineer

Date: September 10, 2014

RE: DP Board Meeting Agenda Request - EMERGENCY

Please accept this memo as our request to be included for DP Board approval as an EMERGENCY to pursue a fueling system software connection to the Sanitary Engineer's network via an IP address.

As a result of replacing our existing fueling system, we are also replacing the associated software. We had originally been told that that the existing conduit and wires could be utilized and once the electrician and software installer arrived on site, it was determined that a separate connection to the server would be the most cost effective and practical method to meet our needs.

The emergency nature of this request is to ensure fueling system control and documentation instead of waiting until the next DP Board meeting on October 4, 2014. Had we known that we were connecting to the network, we could have scheduled for the DP Board meeting in advance.

Funding for the purchase of the hardware/software upgrades is from the Sanitary Engineer Dept. budget.

Thank you

THE OSCAR W. LARSON COMPANY

Corporate Office: 10100 Dixie Highway, Clarkston, MI 48348

Ph: (248) 620-0070 – (248) 549-3610 * Fx: (248) 620-0071 – (248) 620-0072

6568 Clay Avenue SW, Grand Rapids, MI 49548 — Ph: (616) 698-0001 – Fx: (616) 698-2265
1360 Pineview, Gaylord, MI 49735 — Ph: (989) 732-4190 – Fx: (989) 732-3377
1816 N. Telegraph Road, Dearborn, MI 48124 — Ph: (810) 217-6524 – Fx: (313) 278-6030
26670 Glenwood, Suite B, Perrysburg, OH 43551 — Ph: (419) 873-0555 – Fx: (419) 873-0559
2246 Research Drive, Fort Wayne, IN 46808 — Ph: (260) 496-9870 – Fx: (260) 496-9480
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EQUIPMENT * INSTALLATION * SERVICE

We Offer Layout, Installation and Service on all Liquid Handling Jobs

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To: Lucas County
Sanitary Engineer
1111 South McCord Road
Holland, OH 43528

Date: June 27, 2014 (Revised)

Phone: 419 213-2926
Fax: 419 865-1951

Attention: Jim Shaw

Email: jshaw@co.lucas.oh.us

Conditions: 1) This proposal is open for 30 days from the date stated above. However, prices of components, equipment and raw materials may increase before the date such items are ordered. If so, such increases will be added to the quoted cost. THE OSCAR W. LARSON COMPANY will itemize such costs upon receipt of a signed Proposal. If such cost increases are unacceptable to Customer, Customer may elect to cancel order under the terms of the Master Services Agreement.

2) This Proposal and the Master Services Agreement constitute the full and complete agreement of the parties, and any inconsistent terms stated in any acceptance, invoice, purchase order, or any other document whatsoever are ineffective. This provision conforms to the requirements of RC 1302.10 (B) (1).

3) Contract documents incorporated by reference as though fully stated herein:
1) The Master Services Agreement 2) This Proposal

Special Terms: 25% upon acceptance of proposal, 25% on commencement, balance prior to start-up (or) upon completion of proposal (Based on Approved Credit).

SUBJECT: FuelMaster

Option #1:

1. Supply One (1) FuelMaster Fuel Management System with:
   a. One (1) FMU 2500 Plus ProKee Master Unit
   b. One (1) Fuel Master Plus Windows Software
   c. One (1) Hose Control Board
   d. Sixty (60) ProKees
   e. One (1) ProKee Encoder
   f. One (1) HID Proximity Card Reader

Option #1 Total: $ 8,676.00

Option #2:

1. Supply One (1) FuelMaster Fuel Management System with:
   a. One (1) FMU 3505 PlusG ProKee Master Unit
   b. One (1) Fuel Master Plus Windows Software
   c. One (1) Hose Controller
   d. Fifty (50) ProKees
   e. One (1) ProKee Encoder
   f. Six (6) AIM 2.4 Module Assembly Kits, Internal Antenna
   g. One (1) Generic Proximity Card Reader

Option #2 Total: $12,015.00

Note: *Additional AIM 2.4 Kits - $225.00 Each + Tax*

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To: Lucas County
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1111 South McCord Road
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Attention: Jim Shaw

Date: June 27, 2014 (Revised)

Phone: 419 213-2926
Fax: 419 865-1951

Email: jshaw@co.lucas.oh.us

SUBJECT: FuelMaster

Installation:

1. Reuse existing conduit, pull new wires.
2. Reuse existing pulsars.
3. Start up and program system.

Installation Total: $ 4,800.00

ACCEPTANCE: This Proposal, when accepted by the purchaser, and approved by a Corporate Officer of the Oscar W. Larson Company, will constitute a contract between us, subject to all terms and conditions contained in the Master Services Agreement. It is expressly agreed that there are no promises, agreements, or understanding, oral or written, not specified in this proposal and the Master Services Agreement.

Company Name

By: _____

Its: _____

NEWCONTR 4.30.98 (REVISED 01.02.13.SR)

Matthew E. Koziel, Project Manager 06/27/14

The Oscar W. Larson Company

By: _____

Its: Bruce F. Larson, President

Date: _____

- User Keys are encoded with a user identification number and are assigned to a user
- Supervisor Keys are authorized special access to reconfigure the FMU, run built-in tests of the FMU, issue fuel to operators without a Prokee®, and enter inventory-tracking information.
- Manual Issue Keys are used to issue fuel to individuals or vehicles that do not have a Prokee®.
- Lube Truck Keys are used to fill the storage tank of a mobile fueling truck at a dispenser connected to an FMU, and to configure the operating parameters of a Mobile FMU. A Lube Truck Key effects a transfer of fuel from a fixed fueling site to a mobile fueling site.
- AIM2™ Programmer Keys are Supervisor Keys with all functions except AIM2™ programming functions removed.

Smartcards

Smartcards are a credit card sized plastic card with a read/write memory chip embedded in its face. The read/write memory chip stores the same information and functions as a Prokee®. Any Prokee® application may be applied to Smartcards.

A separate encoder is needed to encode Smartcards, and a separate reader must be installed in the FMU to read Smartcards.

Fuel Management Software

The Fuel Management Software is loaded in a personal computer to build an operating program for control of the FMUs. The operating program can be setup in four basic configurations: Verifiable Miscellaneous Number (VMN), Verifiable Vehicle Identifier (VVI), Commercial (COM), or Keyless.

- The VMN version utilizes Vehicle Keys, and rejects the input of an incorrect user identification number.
- The VVI version utilizes User Keys, and rejects the input of an incorrect vehicle identification number.
- The COM version utilizes Vehicle and/or User Keys and records the input of a vehicle and/or user identification number, but does not refuse the transaction if the number entered is incorrect.
- The Keyless option provides for starting transactions at the FMU without the need of any access device such as a Prokee®, smartcard, or mag-stripe card. Keypad entries alone initiate fueling transactions.

A database containing site, user, vehicle, customer, and transaction information is built as the program is set up and operated. Multiple copies of the FuelMaster® software may be loaded on networked computers sharing a common database.

Central Controller

The Central Controller is the personal computer used to run the Fuel Management Software. The Central Controller communicates with the Master FMU to download transaction data, upload authorizations, or to change FMU configuration. Refer to the FMPlus User Guide for minimum PC requirements and detailed operating instructions.

Prokee®/Smartcard Encoder

The Encoder uses data entered in the Fuel Management Software to encode, re-encode, or read Prokee® and Smartcard data, and to update Preventive Maintenance or odometer mileage. The Encoder is available for either USB or parallel connection to the Central Controller. The parallel connected Encoder requires a 115 VAC connection for its power supply where the USB encoder draws its power through the USB connection. If not otherwise specified, a USB connected encoder is provided.

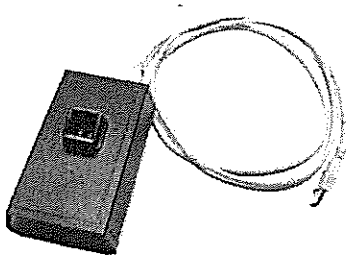

Figure 2-3.
Prokee® Encoder

Optional Equipment and Taskings

The following optional equipment and taskings (in alphabetic order) are available for use with FuelMaster®, or as a future upgrade:

Abierto Gateway Dial-to-IP Converters: the Abierto converter permits the use of the internet to gain credit card authorization. It receives an analog phone input from the FMU when it dials out for credit card authorization, and sends it out to the credit card network via the internet. An analog phone line is not required, but there is a monthly fee through Abierto Networks for credit card processing.

AIM: AIM (Automotive Information Module) is the major component of FuelMaster®'s passive system; FMU activation does not require direct user interface. When a fuel nozzle is inserted into an authorized vehicle's filler neck, the FMU receives an RF (radio frequency) authorization signal from an AIM in the vehicle. The passive FMU then turns on the applicable dispenser hose. The passive FMUs are distinguished by two antennas with AIM2™, or two external radios with AIM2.4™ attached to the upper cabinet. AIM HD (Heavy Duty) permits the AIM module to be mounted outside the vehicle in the environment. AIM HD is available in both AIM2 or AIM2.4 specifications. A thorough explanation of AIM is covered in the ***AIM2™ Installation Manual***.

Americans with Disabilities Act (ADA): Syn-Tech Systems has provided and installed shortened FMUs for compliance with the requirements of the Americans with Disabilities Act. If you have a need for an FMU with ADA compliance, speak to your distributor or FuelMaster® Regional Sales Manager. Installation considerations are covered in ***Section IV***.

Automatic Call Processor: an Automatic Call Processor (sometimes also referred to as a comshare device) may be used to share analog phone lines between several devices when only one analog phone line is available. The Automatic Call Processor receives an input from one analog phone line. It has a default output which is usually used with a fax machine. Additional outputs are available and use switching commands to switch the output from the fax machine output to other ports for an FMU, tank monitor, or any other device requiring an analog phone line.

Credit Card Access: fixed Master FMUs may be equipped with magnetic stripe credit card readers which are accessible with most credit and gas cards. An active analog phone line must be used to acquire credit card authorization for most credit card types (see Local Authorization FMU Access for other options). A listing of ***FuelMaster® Credit Card Networks*** (effective 15 May 2013) may be found in ***Appendix E***.

Since it does not use an active analog phone line, installation of a two-way ringdown device may preclude support from Syn-Tech's Customer Satisfaction Center if the device is not positioned close to an analog phone jack. Typically the two-way ringdown device is positioned close to the analog phone jack used by the fax machine. When it is desired to attain support from Syn-Tech's Customer Satisfaction Center, the communications line from the two-way ringdown device to the FMU is disconnected from the two-way ringdown device and plugged into the analog phone jack. The line may be returned to its normal position after the assistance from the Customer Satisfaction Center is no longer needed.

- **Through a phone line extender**: download through a phone line extender is another option. A phone line extender transmits a wireless phone signal up to 14 miles to a line-of-sight receiver. Phone line extenders are not a FuelMaster® product and must be purchased by the customer. The Trailblazer phone line extender from Carlson Wireless has proven to be a reliable phone line extender. The Teletics 5.8 Zipline phone line extender has also proven itself to be another reliable phone line extender option.

- **Through a cell modem**: a kit is available to adapt a cell modem to a master FMU. The cell modem must be purchased by the customer. Different locations may have different preferred providers. Landcell as covered in ***Product Bulletin 170*** has proven to be a reliable communications option via cell phone signals.

Network Communications

Download by network may be through a Cat 5 (or equivalent) cable, a fiber optic cable, or wireless. All options require the FMU to be equipped with the optional network interface card. The network interface card supports 10/100 Ethernet communications. Any speeds greater than 100 Mbps must be stepped down to be compatible. When the network interface card option is purchased, a modem card is provided as part of the package. If a network firewall cannot be taken down to acquire support from Syn-Tech's Customer Satisfaction Center, an analog phone line may be run to the FMU to attain phone line support. If a device is mounted in the FMU which requires connection to an electrical outlet, an outlet box must be installed. Installation of an outlet box is covered in ***Section 4, Installation***.

- **Through a network cable:** download through a network cable will require a Cat 5 (or equivalent) network cable routed from the nearest network connection to the master FMU. For maximum reliability, it is not recommended that any single run of network cable be greater than 200 feet. If more than one run of network cable must be used, a network switch should be placed at the juncture of the cables.

- **Through a fiber optic cable:** additional range may be achieved through the use of fiber optic cable. Two strands of fiber optic are needed (preferably more as spares), one for transmit and one for receive. A transceiver must be installed in the FMU to convert fiber to cable to interface with the FMU network interface card. The converter installed at the originating end of the fiber optic needs to be compatible with 100 base network communications. See ***Product Bulletin 178*** for assistance with installation of a fiber optic converter.

- **Through a wireless network:** communications through a wireless network is a very practical communications option where the FMU and Central Controller are located within range of the wireless equipment. The wireless equipment may be tied into an existing network, or added as a point-to-point network. The FMU and Central Controller should not contain any secure information. A point-to-point wireless application connects the FMU to the Central Controller without interfacing your network. Use of such an interface prevents access by hackers to secure information contained within your network. When tied into an existing network, consideration must be given to effective wireless network security to prevent outside access to any secure information contained on your network. Syn-Tech utilizes Deliberant (Product Bulletin 186) and Ubiquiti Bullet (Product Bulletin 177) wireless networking equipment.

Direct Connect

Direct connect is an RS-232 connection between a PC (normally a laptop) and the FMU. This is a practical option for communications to the FMU where communications conduit are not available, or wireless communications are not practical. See Appendix D for instructions in making a direct connection to an FMU with a laptop. Connection with a desktop may be made following the same guidance. The PC used to direct connect to the FMU to download transaction data or upload authorization data must use the FuelMaster® software instead of Hyperterminal or Procomm Plus.

Direct connections between a laptop and an FMU is not possible with DoD software. Direct connections using Hyperterminal or Procomm is possible between a laptop and FMU. DoD customers desiring direct connect capability must use a two-way ringdown device between a laptop and FMU, and configure the software to assume an analog phone line connection.

Though effective communications between the Central Controller and FMU are an option with a direct connection, FMU communications to a credit card network is not possible by extending an RS-232 connection to a building where it is converted to an analog phone line.

Credit Card Authorization

Credit card authorization for retail operations is through a wired or wireless phone line connection to the FMU. Reference **Through analog phone lines** or **Through a phone line extender**, above, for a description of the communication methods used for credit card authorization.

Dispenser Compatibility

Dispensers are of two basic types: mechanical and electronic. Mechanical dispensers may be controlled directly by FuelMaster® through a hardwire or cable interface. Sometimes a pulse output option or pulser must be added to acquire quantity pulses from the dispenser. The dispenser must have a pulse output accessible by FuelMaster®.

Electronic dispensers have an internal CPU (central processing unit) which controls dispenser functions. The CPU typically requires two-wire communications inputs from a proprietary device (OEM control box) to initiate dispensing functions and extract quantity information. FuelMaster® uses an Electronic Dispenser Interface Kit to make the required connection and communicate with the dispenser CPU. Appendix H explains the application and installation of the Electronic Dispenser Interface Kit.

Appendix B contains a sample Dispenser Compatibility List with instructions for making the FMU interface with a majority of commercially available domestic and international fuel dispensers. This listing is updated periodically to include any new information acquired by Syn-Tech Systems relating to dispenser interfaces. Request the lastest Dispenser Compatiblity List from Syn-Tech Systems' Customer Satisfaction Center for FuelMaster® compatibility with the dispenser of choice.

Dispenser Control

Dispenser Control is the term used to describe how FuelMaster® controls the output of product from a dispensing hose. FMUs must be installed to attain individual control of each dispensing hose. Dispensers with multiple hoses must have a means for individually controlling each dispensing hose. In some cases this may require the installation of solenoid valves; one per dispensing hose. The base FMU provides for control of two dispensing hoses. Additional hose controls are optional.

Syn-Tech Systems will not dictate a control method which must be used for all situations. Instead, the pros/cons of each control method will be explained so the installer and customer may select the control method that best suits the application. Site layout and construction, pump handle detection, and economics must be considered when selecting an appropriate control method. Detailed wiring instructions will be found in the ***Installation*** section of this manual.

Dispenser control by FuelMaster® may best be simplified by considering the FMU a switching device

Central Controller Installation

For the purposes of this manual, Central Controller installation includes only hardware installation. The ***FuelMaster® Plus User Manual*** must be referred to for software setup and operation.

Positioning the Central Controller

NOTE

The Central Controller need not be a desktop PC. A Central Controller may be developed from a laptop computer.

In most cases the Central Controller will be developed from an existing, in-use office PC, and setup will only consist of loading the software and connecting the Prokee®/Smartcard Encoder.

Where it may be necessary to install a Central Controller, the PC must be positioned where it can interface surge protection, AC power outlets, the applicable communications medium and devices, the Prokee®/Smartcard Encoder, and a report printer. Position the Central Controller CPU, monitor, keyboard and, if applicable, mouse. Make all necessary connections to the CPU in accordance with the manufacturer's recommendations. Do not connect the Prokee®/Smartcard Encoder to the CPU until after software installation. See **Connecting the Prokee®/Smartcard Encoder**, below.

Connecting the Communications Medium/Devices

The necessary communications medium/devices must be installed in accordance with the manufacturer's recommendations. Phone or network cable connections may be made directly into the Central Controller, or into an external device such as a modem, router, network switch, etc.

If the FMU was purchased with a network card for network connection, it may also be provided with a modem. Where it may not be possible to remove the firewall from the network for Syn-Tech Customer Satisfaction Center (CSC) support, a phone line may be routed to the FMU to attain support from Syn-Tech's CSC.

Be sure power supplies are correctly matched to their intended device. Devices will not perform correctly, or will be damaged, if connected to an incorrect power supply.

Loading the Software

NOTE

The Prokee®/Smartcard Encoder cannot be connected to the Central Controller until the software is loaded. The software must detect the encoder connection.

Load the Fuel Management Software in accordance with the ***FuelMaster® Plus User Manual***, and perform ***System Configuration*** before connecting the Prokee®/Smartcard Encoder. The appropriate selections for Encoder Port and Encoder Type must be made.

Connecting the Prokee®/Smartcard Encoder

Before connecting the encoder, exit the FuelMaster® software program and shutdown the Central Controller. As necessary, connect a USB encoder to an existing USB port, or connect a parallel encoder to parallel port 1 (LPT1) or parallel port 2 (LPT2). If a parallel printer is being used, connect the parallel encoder to LPT2. If a parallel encoder was connected, connect the power supply to the encoder then plug it into an AC power outlet.

After the Prokee®/Smartcard Encoder is connected, re-enter the FuelMaster® software program and ensure the encoder is detected.