# Bulk Water Fill Station

FULL SPECIFICATIONS

## PART 1 – GENERAL

### 1.1 SUMMARY

A. This section refers to the work unique to the supply and installation of the Bulk Water Fill Station, including the electrical panel used to control the associated equipment and the software used to configure and collect the data generated by the users of the station.

B. The CONTRACTOR shall furnish, install and place into operation a complete station for dispensing bulk potable water. This specification outlines the required backflow preventer, controls and software that shall, as a minimum, identify permitted users, dispense a specified volume of water and communicate the data for each transaction effortlessly to an administrator's office PC and other networked PCs (Service Truck Laptop, IT Database Manager, etc.).

C. Refer to other sections of this specification for requirements for concrete pad, truck connection fittings, pumps, valves, and instrumentation.

### 1.2 QUALITY ASSURANCE

A. The equipment, control system and software furnished under the section shall be provided by a manufacturer who has been regularly engaged in the design and manufacture of systems for at least 5 years.

B. The approved manufacturer of this system shall be required to demonstrate a fully functional system that complies with this specification. A WEB presentation shall be provided with contact information for five (5) installations.

C. The control systems shall be manufactured in accordance with all local and applicable standards and shall be inspected as an "Industrial Control Assembly" with either UL508A or CSA label identification.

D. The manufacturer shall provide documentation necessary for the installation and operation of all associated components of the system.

E. The products defined in this specification shall be furnished complete, without imposing any obligation onto the SCADA supplier or the owner to create a database, reports, or other features. Systems that imply that features are included, yet reference these features as being provided by SCADA shall not be accepted on this project.



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## 1.3 WARRANTY

A. The manufacturer shall guarantee all components furnished as part of this specification for a period of two (2) years from date of shipment.

B. The manufacturer shall provide software updates and phone support services for a period of two (2) years from date of shipment.

## 1.4 TRAINING AND FIELD SERVICE

A. The manufacturer shall provide a minimum of eight (8) hours of online orientation and web based training for initial software installation and configuration.

B. The manufacturer shall provide one (1) trip, two (2) days onsite service for administrative training and field configuration/testing of the system.

## 1.5 USAGE & LICENSING

A. The manufacturer shall provide a multi-user license to the facility to allow the software to be installed on multiple PCs (administrative office, lab, etc.) as is required without additional charge.

## 1.6 APPROVED MANUFACTURER

A. The products specified shall be a manufactured by **EleMech, Inc. of Aurora, IL USA.** The software specified is **PortALogic,** as further detailed at www.portalogic.info.

# PART 2 – PRODUCTS

## 2.1 BACKFLOW PREVENTOR AND ENCLOSURE

A. The manufacturer shall provide an approved back flow device to prevent the contamination of the potable water system from backpressure or backsiphonage.

B. The device shall be a Watts Series 957 reduced pressure zone assembly. The device shall be constructed with 304SS housing and no-lead components. The assembly shall include an easily maintained strainer and shutoff valves for testing.

C. The backflow preventer assembly must be enclosed in an approved enclosure designed in accordance with ASSE 1060. Enclosures without this certification will not be accepted.


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## 2.2 HAULER ACCESS STATION AND BASE

A. The manufacturer shall provide an access station and base. The access station shall include a keypad, card reader, and digital display for users to log on and enter a specific volume of water to be dispensed and purchased. The base shall include the electronic metering device and valve. The station and base shall be constructed and tested as an assembly prior to delivery at the site.

B. The Hauler Access station shall be an integral part of a comprehensive fully-managed bulk water fill station, including the necessary software as described later in this specification.

C. The Hauler Access Station and base shall be constructed with 304 SS, with outer door and access panels that can be closed to enable a wash down without damaging the internal mounted electrical devices. The hauler access station will be rated Type 4X.

D. The hauler access station's physical size is 24"H x 24"W x 14"D. The station factory mounted to the base that contains the metering valve. The base is 42"H x 24"W x 24"D. The hauler access station is factory mounted to the base.

E. The Hauler Access Station shall be provided with a daylight visible display and outdoor-rated, robust keypad with integral 2-track card reader. The display shall prompt the hauler with log-on instruction and display responsive messages that allow the unattended use of the facility.

F. The Hauler Access Station shall be provided with a receipt printer that will quickly print and cut the receipt. An integral light shall inform the hauler that receipt is printed. A journal copy of transactions may be stored and printed upon request. A low paper alarm shall be registered with the transaction and viewed on PortALogic.

G. The Hauler Access Station shall continue to function normally without a network connection to the office. All data shall be stored in non-volatile memory. When the network connection is established, all transaction data shall be automatically synchronized and securely stored to the SQL database.

H. The Hauler Access Station shall be maintained without requiring Arc Flash protective clothing. Changing paper shall be possible by all personnel. Motor starters or other high voltage devices must be located in a separate control panel. Control circuits greater than 24VDC shall not be accepted.

I. The hauler access station shall be provided with the following components:
    1. Enclosure
        a. NEMA TYPE 4X Stainless Steel, w/Drip Shield
        b. Internal Swing-out door, also Stainless Steel
        c. Lockable Full-Grip Handle with 3-Point Latch



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d. Available with optional sun shield and pedestal
e. Thermally protected for severe cold weather installations
f. Instruction decals

2. Access Keypad / Card Reader
    a. Secure, robust, and outdoor rated
    b. Clear, backlit LCD display, visible in all levels of light.
    c. Compliant with local and global security standards
    d. Advanced tamper-proof design

3. Programmable logic controller, PLC, including;
    a. Ethernet connection to PortALogic software.
    b. Configurable spare analog and digital I/O
    c. Printer Interface
    d. Detachable terminals
    e. Non-volatile memory

4. Printer Terminal
    a. Compact Thermal Printer
    b. Exclusive anti-paper-jam system
    c. Integral Auto-cutter
    d. Backlit receipt dispenser
    e. Printed receipt for each user
    f. RS232 and USB data port
    g. LED Illuminated paper chute

5. Pilot Devices
    a. Heavy Duty Switches and LED Lights
    b. 2-Position Switch with Done-Start Legend
    c. Green Ready Light with Legend

6. 24VDC power supply

7. Ethernet switch (non-managed)

J. The base shall be provided with the following components:
1. Enclosure
    a. Type 304 Stainless Steel
    b. Removable access panels with Full-Grip Handles
    c. Lockable
    d. Thermally protected for severe cold weather installations

2. Control Valve and Flowmeter


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a. 24VDC Solenoid Controlled
b. Flow Rate Transmitter, Pulse Type
c. Totallizer
d. +/- 2% Accuracy
e. Cast Iron Body and Cover
f. Throttled Open/Close to prevent water hammer

### 2.3 MANAGEMENT SOFTWARE:

A. The Bulk Water Fill Station shall include the necessary software to allow a local or remote networked PC to seamlessly interface with one or multiple hauler station/s using an Ethernet connection.

B. The software shall allow the facility to connect and exchange data to one or more hauler stations, located at one or more sites.

C. The software shall be used to configure the station's access device and enable/disable hauler access codes.

D. The software shall be used to configure the devices that will measure the volume. Other analog devices, if installed, will also be configured.

E. The software shall monitor each station and automatically upload the hauler's transaction data.

F. The data shall be stored into a secure SQL database. The data shall include Site ID, Station ID and Ticket Number, Hauler ID, Date and Time of Transaction, Volume loaded, Rate ID, Alarm ID, and Volume Remaining, plus five (5) additional user-defined data fields.

G. The software shall be installed on any site owned PC using Windows XP Pro or Windows 7 Pro OS with a network card configured to communicate with the hauler access station/s.

## PART 3 – SYSTEM FEATURES

### 3.1 CUSTOMER AND TRUCK FEATURES:

A. The software shall allow the facility to create a list of customers that will be billed for the station/s use. A user-friendly interface shall be provided for entering customer details and account number. The software shall not limit the facility as to the number of customer accounts that can be created.

B. The software shall allow the facility to create multiple truck accounts and link these accounts to the customer (owner of truck). The software shall not limit the facility as to the number of trucks that can be assigned to each customer.



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C. User-friendly interface shall be provided to enter the Hauler ID, PIN, and other details regarding the truck, including capacity, weight, and vehicle identification.

D. The customer shall be provided with a Hauler ID and 4-Digit PIN for each truck that will access the Water Fill Station. PIN assignment can be unique per owned truck or common to all owned trucks, depending on facility and customer preference. Software shall auto-generate a PIN or allow manual entry of a PIN.

E. The software shall include an Overview Screen, divided into sections that will display the Transaction Log, Customers, Truck Status, Customer Balances and quick-link to Reports. Data views shall be configurable to show customer and truck activity using built-in sorting tools.

F. The software shall allow the facility to enable or disable a truck's access privilege. Once disabled, a Hauler's access will be immediately denied at all stations and at all sites. A message shall be displayed to inform the hauler to contact the office.

G. The software shall have multiple pre-formatted reports that can be printed to a networked printer, emailed or exported using common file formats. As a minimum, the software shall include reports to show Activity with daily totals, Statements, and Customer and Truck usage. Systems that only allow offer manual file retrieval from the station or manipulation of .csv files are not acceptable.

H. User-friendly interface screens shall be included for the facility to enter billing rates, alarm identification, station name and location. This data shall be used in both the basic and advanced features of the system management.

## 3.2 BILLING RATE FEATURES:

A. The software shall allow the facility to define a list of allowed billing rates for dispensed water. The billing rate per 1000 units is used by the software to calculate the transaction's amount. Multiple billing rates offer the facility flexibility to allow volume or residential users a discount. The use of different rates is not required to use the software. Units can be user-defined (Gallons, liters, etc.).

B. The billing rate feature can be enabled or disabled. If enabled, the hauler will be prompted during log-on to identify the billing rate. The rate entered will be part of the transaction data sent to PortALogic.

C. The software shall total the truck volume and calculate the total cost for the rate entered by the hauler. An incorrectly entered rate can be corrected at the office.



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D. The software shall include reports for the facility to transactions by waste type.

### 3.3 ALARM & STATUS FEATURES:

A. The software shall allow the facility to monitor the station status, including the truck using the station, total flow, valve status, equipment fault, and additional user-defined variables.

B. The software shall allow the facility to monitor alarms that make the station un-useable or that prevent a hauler from loading. Alarms shall be stored in the transaction details.

### 3.4 BILLING & PAYMENT FEATURES:

A. The facility shall be able to use the features of this software to substantiate the data recorded for each transaction and accurately calculate the total cost on a per customer basis.

B. The facility shall have the option to use the software to create a billing statement or export the data to the primary accounting software. Export options shall include be Adobe, Crystal Reports, Excel or Word.

C. The software shall allow the facility to manage each customer on a debit or credit basis. The customer is required to pay in advance or the customer can pay after usage of the station.

D. The software shall debit the account balance automatically and auto-deactivate the truck's access privilege should the customer's balance drops below a minimum. The remaining capacity balance is updated and printed on the hauler's receipt.

E. The software shall allow the facility to bill on a truck capacity basis, a metered basis (flow-meter or scale), or manually entered volume basis. This feature shall be configured with PortALogic.

F. The software shall allow the facility to enter payments if required. The total balance shall automatically recalculate once a payment is applied. A customer's account that is deactivated shall be automatically activated once money is received.

### 3.5 OTHER FEATURES:

A. The software shall allow the facility to define the Station's Operating Time Schedule. Each day shall be configured with Open and Close times. If closed, station will prompt the hauler that the station is CLOSED.

## PART 4 – OPERATION

### 4.1 LOG-ON SEQUENCE:

A. Turn the Selector Switch to the “START” position. The display will prompt the hauler with simple log-on messages, including the volume of water to be dispensed.

B. System Ready Pilot Light (Green) will illuminate informing the hauler that access has been granted. Valve will open.

### 4.2 LOG-OFF SEQUENCE:

A. The Valve will close once the volume requested has been dispensed or when the selector switch has be turned to the “DONE” position. A log-off sequence is initiated causing a receipt to be printed for the hauler.

### 4.3 ALARM SHUTDOWN:

A. Log-off sequence will be initiated automatically if an alarm condition is triggered. The valve will close and a receipt will be printed for the hauler. An Alarm ID will print on the receipt and will be included in the transaction data sent to PortALogic.

### 4.4 RECEIPT:

A. A receipt is printed for each load with the following information:

1. Date and Time
2. Station ID and Ticket Number
3. Hauler
4. Volume loaded
5. Elapsed Time
6. Alarm ID
7. Billing Type (optional)
8. Capacity Balance (if configured for debit based accounting)


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