

DIVISION 13 – SPECIAL CONSTRUCTION

SECTION 13100 GRINDER PUMP GUARDIAN MONITORING SYSTEM

1.0 GENERAL

- A. The Contractor shall furnish all the materials necessary to complete and make operable the grinder pump monitoring system and services plus technical training and support as requested. The Contractor must also include at no additional cost all necessary equipment and software to make the system operable. This system shall be manufactured and supplied by High Tide Technologies, LLC.

2.0 PERFORMANCE ATTRIBUTES OF GRINDER PUMP MONITORING SYSTEM

- A. The following performance attributes of this system are:
1. Grinder Pump Guardian Remote (GPG Remote) – The GPG Remote will be a small enclosure for mounting externally to the existing control box or an internally mounted electronic board shrink wrapped in a rubberized compound; each will include the radio, a power supply; two input relays, and a microprocessor. The radio will be operate in the 900MHZ ISM band. Firmware in each radio will automatically implement the self forming and self healing mesh networks that will enable every remote in the neighborhood to communicate alarm status to the GPG Collector. The remote will alarm on high water level. The remote will monitor pump starts/stops and run-times on a 24 hour period and alarm if the starts/stops and run-times exceed pre-set values.
 2. Grinder Pump Guardian Collector (GPG Collector) – The GPG Collector can be located anywhere in the neighborhood as long as it is in range of at least one GPG Remote (typically 500ft or less but might be longer depending on the terrain. When the GPG Collector receives an announcement message from a GPG Remote it checks its memory to see if it has heard from that GPG remote before. If it has, it ignores the message; if it has not, then it performs two functions. One, it sends a few configuration messages to the GPG Remote to tell it the radio address of the GPG Collector so that it will know where to send its alarm status messages. The second, a satellite message is sent to the GPG information center notifying it that the new GPG Remote has been registered. This information will be used to build the database of Grinder Pump locations being monitored.
 3. Grinder Pump Guardian Information Center (GPG Information Center)– The GPG Information Center collects all the alarm and location data from the GPG Remotes via the GPG Collectors. The GPG Information Center will notify the utility operator when the GPG Collector transmits a GPG Remote

in alarm. The GPG Information Center also hosts the web based GPGview (Grinder Pump Guardian View) user interface.

The GPGview interface will provide the following functions:

1. All users will go to the same web address. www.GPGuardian.com
2. Login will direct the user to the appropriate utility section.
3. Opening screen will show a quick list of all GPG Remotes, GPG Guardians in alarm.
4. Opening screen will reflect GPG Remotes that have exceeded the pre-set start/stop or runtime thresholds and report the last 24 hour starts/stops and runtimes for that particular pump.
5. Ability to acknowledge or disable alarms of GPG Remotes with problems.
6. Ability to set the stop/start accumulated 24 hour alarm threshold.
7. Ability to set the pump runtime accumulated 24 hour alarm threshold.
8. Screens to let the utility maintain various alarm delivery lists such as voice, text, email or fax.
9. Ability to view alarm lists in tables or on maps.
 - i. Screens for utilities to input and maintain address/location information for newly installed GPG Remotes.
 - ii. Screens for viewing alarm history by location, neighborhood, or utility.
 - iii. Screens for entering and maintaining warrantee and maintenance records.
10. Administrators will be able to add and remove users with various interface privileges.

B DATA TRANSMISSION GRINDER PUMP GUARDIAN MONITORING SYSTEM

1. GPG Collector – The grinder pump monitoring system shall be designed to utilize the Orbcomm Satellite System to transmit alarms to the GPG Information Center from the individual GPG Remote Units.
2. Alarm Conditions– The GPG Remote Units will transmit an alarm condition to the GPG Collector Unit upon the change of status of the grinder pump control panel alarm light. The GPG Collector shall transmit the alarm condition to the GPG Information Center which will notify the operator of the alarm condition at the specific address via text message or voice alarm. The GPG Collector will monitor the health of each GPG Remote Units throughout the day, failure of any GPG remote to communicate with the GPG Collector will cause the GPG Collector to notify the GPG Information Center of a communication failure. The GPG Information Center will notify the operator of a communication failure at the address of the concern via text message or voice alarm.

3. Run Time or Start/Stop Alarm- The GPG Remote Units will monitor the grinder pump start/stops and total accumulated runtimes for a 24 hour period. Exceeding either pre-set parameter, the GPG Remote Unit will issue an alarm and send the actual readings for starts/stops and runtimes for the last 24 hours to the GPG Collector for transmission to the GPGview web site.
4. Automatic Update and Routing
 - a. Grinder Pump Enrolling The GPG remote and the GPG collector shall be designed to automatically identify any new GPG remote and the installer shall enroll the pump in the GPG information center in order to minimize administrative error and reduce cost of configuration management.
 - b. Dynamic Routing The GPG remote and the GPG collector shall be designed to create redundant paths automatically for radio transmission from the GPG remote and the GPG collector in order to minimize administrative error and reduce cost of configuration management.

3.00 EQUIPMENT SUPPLIED BY CONTRACTOR

- A. The Contractor shall furnish in quantities as requested from Owner, various Grinder Pump Guardian system devices including the following components:

1. Grinder Pump Guardian Remotes

The GPG Remote will be a small NEMA 4 enclosure which will include the radio, antenna, power supply, two input relays, and a microprocessor. A water tight connector shall be included to attach the NEMA 4 enclosure to the exterior of the grinder pump control panel. Provide color coded wiring for connection to power, the alarm circuit and run status.

Or

The GPG Remote will be the bare circuit board enclosed in a rubberized shrink wrap and will include the radio, antenna, power supply, two input relays, and a microprocessor for installation within the existing control box. Provide color coded wiring for connection to power, alarm circuit and run status.

2. Grinder Pump Guardian Collectors

The Grinder Pump Guardian Collector shall be a HTT1100 model A/C collector unit provided with a NEMA 4 enclosure, satellite modem, eight digital inputs, four analog inputs, serial connection, antenna, antenna cable, and battery. The GPG Collector shall be capable of communicating

with the GPG Information Center via the Orbcomm Satellite Network. GPG system installation will be the responsibility of the Contractor. Any equipment necessary to successfully install this system shall be included in this Proposal.

4.00 SERVICES PROVIDED BY SUPPLIER

GRINDER PUMP WIRELESS MONITORING SYSTEM

- A. The Supplier shall furnish sufficient trained personnel to provide the support services, training and repairs as described below. These services to be performed by the Supplier under this contract shall include, but not be limited to, the following:
1. Provide training of Owner's employees as required for installation and operation of the Grinder Pump Guardian system.
 2. Provide personnel and training to assist Contractor in the location, installation and wiring of the GPG Collectors, matching the GPG remote units with the neighborhood address.
 3. Provide programming support to assure Grinder Pump Guardian software is tested successfully, alarms to the operator's cell and telephone lines.
 4. Provide a one year standard warranty on all electronics from the date of installation.

END OF GRINDER PUMP GUARDIAN SPECIFICATIONS