Responsibilities, Procedures, and Software Distribution

Responsibilities

The Station Design section of Station Engineering is responsible for revising the application software.

Changes to the application software may be made by the end user (district employee, facility engineer, or pipeline engineer, as applicable) only in an operational emergency. These changes must be documented in accordance with the procedures listed below.

For a non-emergency software revision, the end user (district employee, facility engineer, or pipeline engineer, as applicable) is responsible for submitting a "Work Request" (WR) to the Station Design section of Station Engineering in accordance with the procedures listed below.

Changes to the microprocessor device's field-accessible parameters (e.g., alarm limits, tuning parameters, etc.) may be made by the end user. These changes must be documented and the parameter values sent to the Station Design section of Station Engineering for recordkeeping.

Procedures

Revisions Made by the Station Design Section

1. The requester must initiate a WR through the Gas Engineering Pipeline Maintenance (PLM) program. The initial WR will be forwarded to an engineer within the Station Design section. Additionally, copies of the initial WR must be sent to the section's supervising engineer and to the facility or pipeline engineer, as applicable.
2. The WR must include the following information:
   a) Facility name.
   b) A description of the affected control system equipment with program name(s).
   c) A description of the intent of the revision to the application software.
   d) Concurrence of the facility or pipeline engineer, as applicable.

   The requester may include a hard copy of the application software program code and/or control philosophy with the proposed changes marked in red.
3. The Station Design section will analyze the initial WR. The Station Design section supervising engineer or the engineer responsible for the change must send an acknowledgement of receipt of the WR to the requester with a cost estimate and an estimated completion date.
4. The approved WR must first be sent from the Station Design section to the facility or pipeline engineer, as applicable, for review and concurrence. The facility or pipeline engineer will forward the approved WR back to the Station Design section following the review.
5. Upon completion of the revisions and acceptance tests by the Station Design section, copies of the new revision of the application software will be prepared and distributed as described in "Software Distribution" on Page 3.

6. Questions and discrepancies that arise during the analysis will be discussed and resolved by the requester and the facility or pipeline engineer before revising the application software.

Revisions Made by End Users

1. Prepare a copy of the current revision of the application software following the naming conventions described in "Software Naming Conventions" below.
2. Upon completing the revision, submit the following items to the responsible facility or pipeline engineer, as applicable, and the Station Design section of Station Engineering:
   a) A completed hard copy of the original WR, including a written description of the intent of the change and the action taken to implement the change.
   b) A hard copy of the application software program code with changes highlighted.
   c) Electronic media containing the revised application software.

Software Naming Conventions

1. The application software for each programmable logic controller (PLC), single-loop controller, or any other hardware at each facility must have a unique name associated with the hardware, the facility name, or both. The name must be as descriptive as possible within the limitations of the hardware and software used. The following are examples of the file or folder names for some of the facilities:
   - Delevan Compressor Station, Station PLC A, GE 9030 : **DELVN_A**
   - Bethany Compressor Station, K2 PLC, GE Series 90-70: **BETH_K2**
   - Hinkley Compressor Station, Station Controls, GE PCM Module: **HK_PCM**
   - Delevan Compressor Station, Station HMI, GE CIMPLICITY: **Delevan**
   - McDonald Compressor Station, K1 Unit OIT, Cutler-Hammer Panelmate: **MCSK101**
2. Before making software or program modifications, make a back-up copy of the current version of the application software. The back-up copy must have a unique name associated with the facility and the date on which the software is to be modified. The name must be as descriptive as possible within the limitations of the hardware and software used. For instance, if 'PLC A' software for Delevan Compressor Station is to be modified on June 10, 2005, the current version of the software "DELVN_A" must be copied to a file named "DA06105" before making changes. After preparing a back-up copy, make modifications to the file "DELVN_A."

3. Annotations of the changes made to the application software must be recorded within the application itself. The annotation of change must contain the following information:

   a) The name of the person making modifications.

   b) The date on which the modifications are made.

   c) A detailed description of the modifications.

   The annotations may be included either as comments embedded in the code, or as a separate file.

   For example:

   - PLC ladder logic program - record changes in the first line of annotations of the modified program.
   - Operator interface terminal (OIT) configuration - record changes on a graphic display file designed for that purpose.
   - CIMPLICITY human-machine interface (HMI) configuration - record changes in a separate text file that resides in the project directory.

   Changes to other types of application software must be recorded in a similar manner: as comments in the code itself, in an information field page for that purpose, or in a separate file.

Software Distribution

The following employees must keep a separate set of electronic media with the back-up copies of all application software for their respective facilities:

- Gas Transmission and Distribution (GT&D) district maintenance supervisor or a person designated by the supervisor.
- Station Design section of Gas Engineering (for all GT&D facilities).

Two versions of the application software must be maintained by all back-up copy holders:

- The current version (the revision presently used by the control system).
- The back-up version (the revision used by the control system before the latest modification).