As-Building Process

[redacted]

AS-BUILTING PROCESS

AS-BUILTING

Construction drawings need to be properly as-built by the constructor to reflect installed conditions In addition to the drawing as-built mark-ups, the constructor must submit a completed GT&D Construction As-Built and Pressure Report Checklist along with the additional construction documentation outlined on this form See attachment for further detail on GT&D Weld Documentation Requirements

Posting requirements regarding the as-built information and the responsibilities of the various parties involved in the as-built process is outlined in the following paragraphs The As-Builts/Job Close Process Flowchart provides additional detail on the process

DRAWING MARKUPS FROM CONSTRUCTION

- Constructor provides field markups of drawings as follows
  - Main Gas Piping & Pipelines - All modifications to piping installation Locations of key items are clearly identified This includes Changes in pipe data, corrosion protection related equipment, repair locations, tie-ins, taps, pipe fittings and other appurtenances For bill of materials, update all major material changes, update all descriptions regarding information to establish minimum operating pressure (e g ANSI class, size and wall thickness, material yield strength), and include serial numbers of valves & other major equipment
  - Elementary and Wiring Drawings - All changes
  - Other - Significant design changes only For bill of materials only show changes to main components

- Use the following colors for as-built information
  - Red - Additions
  - Green - Deletions
  - Blue/Black - Comments Only

- Complete As-Builts as soon as the work is complete (Must be received by Walnut Creek office within 30 days)

- Provide one set of color-coded mark-ups and two additional copies with as-built information color-coded, highlighted or clouded on copies

- All as-builts should be dated and initialed (LAN ID) by person who marked-up the drawing

- Include Project Drawing List with each as-built package for Major Station Facilities This form should be included with copies of drawings in construction package

POSTING OF AS-BUILTS – ALL FACILITIES

- Project Manager or their designee (Project Engineer, District or GC-Gas personnel) provides markups of Operating Diagram and Operating Map drawings to Mapping within (1) one working day of operational date Mapping updates Operating Diagram and Map Note Markups must also be provided to District or Division Operations and to GSO - Operations Planning and Control

- Project Engineer reviews entire as-built package for accuracy and completeness Main gas piping as-built mark-ups are filed in job folder along with other required construction documentation and records

- For all station work, Design Engineering/Drafting receives a copy of the as-built package and determines in conjunction with the Project Engineer if a maintained "numbered" record drawing set exists for the facility and needs to be updated Note New construction at stations with a maintained "numbered" record drawing set is sometimes accomplished utilizing sketches or "non-numbered" drawings and then later as-builting the record drawing set

- For pipeline and station facilities with maintained "numbered" record drawing sets, Design Engineering/Drafting updates drawings in accordance with drawing as-built guidelines using field markups provided by constructor Project Engineer reviews and approves updated drawings Records distribute all as-built drawing sets Drawing list for as-builts filed in job folder

- For transmission pipeline that entail changes in pipe spec or geodetic information, mapping will post the job in GIS

ADDITIONAL POSTING REQUIREMENTS FOR MAJOR STATION FACILIITES

- Project Engineer identifies changes and updates drawings for Control System Philosophy and Operation & Maintenance Instructions

ADDITIONAL POSTING REQUIREMENTS FOR PIPELINES

- Mapping updates GIS database for newly installed pipe, and also for abandoned and removed pipe, using field markups provided by constructor

- Records scans and saves electronically as-built markups for pipeline drawings Mapping links electronic as-built files to GIS database

M&C CONSTRUCTION AS-BUILT AND PRESSURE REPORT CHECKLIST

This checklist and associated as-built records shall be completed and sent to GT&D within 30 calendar days of the operational date Prepare three copies of as-built job package (red marked as-builts, pressure test reports, test charts, A-forms, face sheet, etc) and mail to Close Out Desk

Project Name	Operative Date
District/Division	Order Number

From Field Engineer _____
Today's Date _____
Mail to Close Out Desk, GT&D Gas Engineering, 375 N Wiget Lane, Walnut Creek, 94598

Task	Yes	No	N/A	Comments
Job estimate marked up to indicate work completed, start & completion dates along with foreman's signature and initials are filled in				
As-Built changes to drawings and material lists are marked in red (changes on copies are highlighted)				
Weld inspection stamp signed by qualified weld inspector or 100% x-ray				
Following items are clearly identified by distance from a known point on existing pipe or other landmark/boundary that is identifiable by mapping or by a GPS coordinate (sub-meter accurate) Changes in pipe data Rectifier, ETS, and Leak locations Repair locations (3rd party or weld repairs) M-numbers (Tie-ins) T-numbers (Taps) Changes in alignment and or elevation of the pipe due to offsets, rolling offsets, dog legs, etc) Other Appurtenances (PCFs, repair sleeves, sav-a-valves, threadolets,etc)				
Horizontal distances are listed (as well as length installed distance) for all stationing on profile drawings and detail drawings				
Sketch of tested section is attached (with angle points, footages and fittings)				
Length tested matches length installed (if not, give explanation)				
Pipe and fitting specifications on test report matches bill of materials on drawings				
Pressure report indicates test start and end time				
Pressure Report signed by Area Foreman (District Supervisor) and Test Supervisor (Field Engineer)				
Pressure report falls within pressure test limits (any changes must be first authorized by Project Manager)				
Test chart indicates correct start time and date of last calibration				
All accepted and rejected x-ray reports are attached				
Main Inspection reports (A-forms) completed for each section of pipeline exposed				

GT&D WELD DOCUMENTATION REQUIREMENTS

ALL PROJECTS -

Tie-in welds and welds requiring repair must be clearly identified by distance from a known point on existing pipe or other landmark/boundary that is identifiable by mapping or by a GPS coordinate (sub-meter accurate)

Project requires 100% non-destructive inspection (NDT) of circumferential welds*

Ensure that Attachment A of GS&S D-40 is accurately and completely filled out and included in the closed out job file Construction is responsible for this, and construction is expected to have a process in place for verifying that the NDT inspection billing is accurately charged

Project requires non-destructive inspection (NDT) of a portion (less than 100%) of the circumferential welds*

Ensure that Attachment A of GS&S D-40 is accurately and completely filled out and included in the closed out job Construction is responsible for this, and construction is expected to have a process in place for ensuring the NDT inspection meets the requirements of GS&S D-40 and for verifying that the NDT inspection billing is accurately charged relative to number of NDT inspections performed It is not required that each circumferential weld be stationed but it is recommended The stationing of the welds allows construction the opportunity to verify that they have non-destructively tested the appropriate percentage of welds per GS&S D-40 and provides documentation for ensuring a sample of each welder's work is radiographically inspected each day Stationing also allows construction an "audit path" for verifying that the NDT inspection billing is accurately charged relative to number of NDT inspections performed

The accuracy of the stationing of these welds should be relative to each segment length installed but does not need to be surveyor accuracy The stationing can also be achieved with the aid of a sub-meter accuracy GPS device and if this device is used it is not necessary to track the length of each segment of pipe

* Pipeline Engineer in conjunction with Project Manager will determine non-destructive inspection (NDT) requirements for each specific project